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## **4. Međunarodni znanstveni simpozij GOSPODARSTVO ISTOČNE HRVATSKE - VIZIJA I RAZVOJ**

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4.

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ECONOMY OF EASTERN CROATIA – VISION AND GROWTH**

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## Predgovor

Istočna Hrvatska, koju predstavlja Slavonija, Baranja i zapadni Srijem čine značajan dio kontinentalnog prostora Republike Hrvatske.

Ovo područje prepoznatljivo je po, osim uobičajenih obilježja: plodnom tlu, hrastovim šumama, nalazištima pitke vode, bogatoj flori i fauni, etno i eko sustavu, sakralnoj i spomeničkoj baštini, raskrižjima putova cestovnih, željezničkih, riječnih i zračnih poveznica sjevera sa jugom, istoka sa zapadom; sadržajima i vrijednostima kao što su: arheološka nalazišta koja argumentiraju postojanje visokorazvijenih civilizacija i naselja nekoliko tisuće godina prije Krista, te arhitektura koja upućuje na visoko razvijenu kulturu življenja stanovnika istočne Hrvatske. Postoje muzeji, galerije i arhivska građa s dokumentima o razvoju školstva, industrije, trgovine i ugostiteljstva ne samo u gradovima već i u naseljima istočne Hrvatske.

Sa ovih prostora potekla su dva rimska cara; škole su iznjedrile poznate nobelovce, pjesnike, pisce, arheologe, arhitekta, liječnike, profesore, znanstvenike, istraživače, pokretače industrije i hotela, što sve upućuje na vrijednosti ljudskog kapitala. S obzirom na to, zajedno s bogatstvom krajobraza, istočna Hrvatska izaziva vrijedno poštovanje. Imamo potencijala u ljudima i resursima. Sada su prilike i izazovi za novi početak i uspjeh, jer tek „kada si pritisnut nevoljama možeš spoznati svoje sposobnosti“.

Ovim Simpozijem želimo potaknuti sve istraživače, praktičare i znanstvenike da se uključe svojim radovima u naznačena tematska područja kako bi ukazali na suvremeni pristup razvoja gospodarstva i mogućnosti za razvoj. Primjenom visoko razvijene tehnologije, sadržajnijim razvojem turizma povezivanjem plave i zelene linije, pokretanjem industrije, te primjenom intermodalnog prijevoza brže bi se uklopili u europska i svjetska tržišta. Samim time prekinuti će se zatišje koje trenutno vlada na ovim prostorima, te pokrenuti zapošljavanje i zaustaviti odlazak mladih ljudi s ovih prostora.

Upravo radi toga ovim Simpozijem, vizijama u bolju budućnost i gospodarski razvoj, Ekonomski Fakultet u okviru Sveučilišta J. J. Strossmayera u Osijeku pridonosi razvoju istočne Hrvatske, a samim tim i cijele Hrvatske.

Prof. dr. sc. Anka Mašek Tonković



## Foreword

Eastern Croatia, which consists of Slavonia, Baranya and Western Srijem, makes a significant part of Croatia's continental area.

Besides the usual characteristics, it is recognizable by its fertile land, oak forests, fresh water deposits, rich flora and fauna, ethno- and eco-systems, sacral and monumental heritage, crossroads of road, railroad, river and air connections between north and south, east and west, and contents and values such as: archaeological sites which provide arguments for existence of highly developed civilizations and settlements several thousand years before Christ and architecture that suggests highly developed living culture of inhabitants of eastern Croatia.

There are museums, galleries, and archival material with documents regarding the development of educational system, industry, commerce, and catering industry not only in cities but also in smaller settlements of eastern Croatia. Two Roman emperors originated from this area, schools here have brought out famous Nobel-prize winners, poets, writers, archaeologists, architects, doctors, professors, scientists, explorers, initiators of industries and hotels, all of which suggests the value of human capital. Considering this as well as the richness of its landscape, eastern Croatia is worthy of respect. We have human potential and resources, now is the chance and challenge for a new beginning and success, because "only when you are pressed by troubles, can you comprehend your abilities".

With this Symposium we wish to encourage explorers, practitioners, and scientists to include their works in designated thematic areas in order to show the modern approach to economic development and possibilities for development. With application of highly developed technologies, more meaningful development of tourism by connecting the blue and green lines, starting the industry, and application of intermodal transport we would incorporate more rapidly into European and world markets. This would stop the lull that now rules in this area. All this is to initiate employment and stop young people from leaving this area.

Exactly because of that, with this Symposium, and visions of better future and economic development, the Faculty of Economics in Osijek, within the University of J. J. Strossmayer, contributes to the development of eastern Croatia, and accordingly of whole Croatia as well.

Anka Mašek Tonković, PhD





## Tematska područja / Topics

1. Istočna Hrvatska – atraktivna regija za globalne investicije / Eastern Croatia - an attractive region for global investments
2. Ljudski kapital u funkciji razvoja regije / Human capital in a function of the development of the region
3. Novi trendovi u razvoju gospodarstva / New trends in economic development
4. Ekologija – zaštita prirode i okoliša / Ecology & Environmental protection
5. Povijesna nasljeđa, sakralni objekti i arheološka istraživanja u funkciji razvoja gospodarstva / Historical heritage, sacral buildings and archaeological research in terms of economic development
6. Financial institutions / Financijske institucije
7. Društveno odgovorno poduzetništvo / Social responsible entrepreneurship



**Istočna Hrvatska  
- atraktivna  
regija za globalne  
investicije**

**Eastern Croatia  
- an attractive  
region for global  
investments**

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## **IDENTIFICATION OF THE NECESSARY CONDITIONS FOR THE DYNAMIC DEVELOPMENT OF THE ECONOMY OF EASTERN CROATIA**

### **IDENTIFIKACIJA POTREBNIH UVJETA ZA DINAMIČAN RAZVOJ GOSPODARSTVA ISTOČNE HRVATSKE**

#### **ABSTRACT**

*Reducing the existing differences in the level of economic development of eastern Croatia compared to other regions is the goal of regional development policy and regional institutions. The aim of local (regional) self-government is sustainable development and strengthen competitiveness. In the next period the Republic of Croatia has access to significant resources from EU funds for regional development and competitiveness. The key question at this moment is how to increase the use of EU funds. Units of regional self-government and regional development agencies provide technical support to all applicants. What is crucial at this point is how to intensify activities on attracting money from EU funds.*

*The aim of this paper is to examine and determine the conditions that are necessary in order to attract considerably more investments through the EU funds.*

*Subject of research are the opinions, attitudes and experiences of employees of regional self-government and regional development agencies which have participated in the technical preparation, the creation and implementation of development policies through the EU funds. The geographical scope of of research includes five local government units: Brod - Posavina County, Požega-Slavonia, Osijek-Baranja County, Vukovar-Srijem County and Virovitica-Podravka County.*

**Key words:** *EU Funds, Eastern Croatian Economy, Regional Development, Competitiveness, Attitudes*

#### **SAŽETAK**

*Smanjivanje postojećih razlika u stupnju razvoja gospodarstva istočne Hrvatske i ostalih regija zadaća je politike regionalnog razvoja i regionalnih institucija. Održiv razvoj i jačanje konkurentnosti te odabir ciljeva i prioriteta na lokalnom nivou zadaća je jedinica područne (regionalne) samouprave. Republici Hrvatskoj idućem periodu na raspolaganju su znatna sredstva iz EU fondova za programe regionalnog razvoja i konkurentnosti. Ključno pitanje ovog trenutka jest kako što više aplicirati na programe EU fondova.*

*Jedinice regionalne samouprave i regionalne razvojne agencije pružaju tehničke informacije i potporu svim prijaviteljima projekata. Ono što je ključno u ovom trenutku jest upravo potreba da se intenziviraju aktivnosti na privlačenju sredstava iz Eu fondova, da*

*potencijalnih prijavitelja bude što više i da razvojni projekti poboljšaju konkurentnost ovih područja.*

*Cilj ovog rada jest ispitati i utvrditi koji su preduvjeti potrebni da bi u bliskoj budućnosti područje istočne Hrvatske privuklo znatno više investicija putem fondova Europske unije. Predmet istraživanja su stavovi, mišljenja i iskustva djelatnika jedinica regionalne samouprave i regionalnih razvojnih agencija koji su do sada sudjelovali u tehničkoj pripremi, kreiranju te provedbi razvojnih politika putem fondova Europske unije.*

*Geografsko područje istraživanja čini pet jedinica lokalne samouprave: Brodsko-Posavska županija, Požeško-Slavonska županija, Osječko-Baranjska županija, Vukovarsko-Srijemska županija te Virovitičko-podravnska županija.*

**Ključne riječi:** *Fondovi Europske unije, gospodarstvo istočne Hrvatske, regionalni razvoj, konkurentnost, stavovi*

## **1. Introduction**

In November 2014, Croatian Government and Croatian Parliament recognized (within the framework of the draft Law on Croatian Regional Development), that regionally balanced development is of great importance for the overall Croatian economic growth and development (Proposal of Law on Croatian Regional Development, 2014)

The funds of the European Union allocated to Croatia in the period 2014-2020 should contribute to the reduction of regional disparities.

Law on Croatian Regional Development defines the objectives and principles of regional development, and bodies under its jurisdiction that managing regional development and other important issues in the field of regional development (Law on Regional Development, Official Gazette 147/2014).

According to the Law on Regional Development (Official Gazette 147/2014) development agencies were assigned the role of coordinating and promoting regional development.

Institute of Economics in his study from 2012 estimated that all existing county development strategies are harmonized with the Strategy of Regional Development of the Republic of Croatia (The rating system of strategic planning and possibilities of financing the development of counties and the local government in the context of implementation of regional German development policy, 2012).

Strategic development planning represent a vision the desired state in which a state, region or local government wants to reach in order to managed to retain and increase social and economic well-being and thereby preserve the environment (Djokic et al, 2010, p.22).

The Republic of Croatia requires a systematic approach in the development of regional policy and mechanism to enable a proactive management of regional policy (Đulabić, 2007, p. 207).

Grows importance of of local and regional communities in creating their overall development (Puljiz, 2005, p. 9)

The level of development of local and regional governments is measured by an index of development, which is calculated as a weighted average of several socio-economic indicators to measure the degree of development of local and regional governments (The Decision of the Classification of the Local and Regional Governments According to the Stage of Development, 2010). Table 1 provides an overview of the development index of selected counties, surface area, population, towns, municipalities and settlements.

**Table 1: Counties, surface area, population, towns, municipalities and settlements, development index (territorial organization at 31 december 2013)**

County of	Surface area, km 2	Population in 2011	Population density per km 2	Towns/cities	Municipalities	Settlements	Development index * %
Požega-Slavonia	1823	78034	42,8	5	5	277	33,81 %
Slavonski Brod-Posavina	2 030	158575	78,1	2	26	185	18,43 %
Osijek-Baranja	4 155	305032	73,4	7	35	263	46,07 %
Vukovar-Sirmium	2 454	179511	73,2	5	26	85	18,73 %
Virovitica-Podravina	2 024	83836	41,9	3	13	188	5,56 %

Source: The author on the basis of data collected by the Croatian Bureau of Statistics 2014.

\*Source: The Ministry of Regional Development and EU Funds – Development index

## 2. Research methodology

The choice of regional development agencies was made according to the defined geographical area of research. The research area are regional development agencies of Brod-Posavina, Požega-Slavonia, Vukovar-Syrmia, Osijek-Baranja and Virovitica-Podravina County.

The list of regional development agencies is available on the website of Ministry of Business and Trade, which published a list of all the regional development agencies:

Regional Development Agency of Požega-Slavonia County Ltd.,  
 VIDRA – Development Agency of Virovitica-Podravina County,  
 Regional Development Agency of Slavonia and Baranja Ltd.,  
 Agency for Development of Vukovar-Sirmium County HRAST Ltd.,  
 CTR Ltd. - Development Agency of the Brod-Posavina County.

The depth semi-structured interview was chosen as a research method. The basic condition for participation in a depth semi-structured interview is a previous work experience of interviewed employees of Regional Development Agency in the framework of the regional development agencies. Number of of interviewees N=5 (one respondent to the agency).

Given the area and research topics, the following hypotheses have been defined:

H1: the regional development agencies should increase the number of human resources in order to attracted more EU funds in the next period;

H2: civil, public and private sectors do not have enough people who are trained for writing and implementing EU projects at the discretion of the regional development agencies;

H3: networking of public, private and civil sector in defining development priorities of regional policy is insufficient;

H4: cooperation between contracting entities at the national level with regional development agencies should be improved in the activities related to tenders, consultation and harmonization of the implementing rules.

### 3. Research results

Based on the depth semi-structured interviews were obtained the following results are displayed below.

Question 1:

- Do you think that the current number of available human resources in the regional agencies who are trained for writing and implementing EU projects is sufficient, so we can withdraw more funds in the coming period than before?
  - a) sufficient - 40% of respondents
  - b) insufficient - 60% of respondents

Other remarks interviewees in this part of the research:

- *problem for development agencies is to find a good project ideas - 20% of respondents*

Question 2:

- Where is the greatest lack of human resources who can perform complex tasks of application and implementation of EU funds:
  - a) in the civil sector:
    - not enough available human resources - 0% of respondents
    - enough available human resources - 0% of respondents
    - optimal available human resources - 20% of respondents
    - it is necessary to enable and train more people to apply EU funds – 80% of respondents
  - b) in the public sector:
    - not enough available human resources - 0% of respondents
    - enough available human resources - 0% of respondents
    - optimal available human resources - 0% of respondents
    - it is necessary to enable and train more people to apply EU funds – 100% of respondents
  - c) in the private sector:
    - not enough available human resources - 20% of respondents
    - enough available human resources - 0% of respondents
    - optimal available human resources - 20% of respondents
    - it is necessary to enable and train more people to apply EU funds – 60% of respondents

Other suggestions of interviewees:

- *in the civil sector there is a lack of organizations that might be carriers of certain socially relevant activities (young people, the unemployed, the disabled and others) - 20% of respondents.*

Question 3:

- a) if all three levels (civil, public, private) are sufficiently networked in identifying development priorities of regional and local areas:
  - yes - 0% of respondents
  - no - 100% of respondents
- b) if all three levels of society (civil, public, private) are proactively engaged in the development:
  - yes - 20% of respondents
  - no - 80% of respondents

Question 4:

- Whether it is necessary to improve coordination between national and regional / local level in the development and implementation of EU funds (contracting authorities and others):
  - yes - 100% of respondents
  - no - 0% of respondents

If the respondent answered the fourth question with "yes" he/she was sent to answer the fifth question.

Question 5:

- Where do you see the greatest need for improvement?

In this regard, the respondents who answered the question no. 4 with "yes" identified the following areas for needed improvement:

- tendering for EU funds - better coordination of national level with regional self-government units in the selection of development priorities, preparation of the contents and conditions of the tender - 60% of respondents;
- strengthens advisory support of contracting authorities - 80% of respondents;
- uniform implementing of rules among national authorities - 80% of respondents;

Others:

- *Troubleshooting funding applicants - 40% of respondents;*
- *lack of information and need for more exchange of information between the national level (contracting authorities) and regional development agencies (the*

- need for more frequent contact of the contracting authority with the agency and informing agencies) - 60% of respondents;*
- *problem of staff fluctuation and the overload of staff at national level - 20% of respondents;*
- *the absence of feedback to unsuccessful applicants in order to learn more for the next project cycle - 20% of respondents.*

Question 6:

- *Do you have a suggestion on how to successfully apply for EU funds in the next period?*
- *preparation of sectoral strategies at the county levels - 40% of respondents;*
- *the public sector needs to strengthen its capacity through people and through the development proposals - 20% of respondents;*
- *at the level of each fund to provide advisory service in the contracting authority which is to facilitate a consultative process and answer questions about the preparation and implementation of projects - 20% of respondents;*
- *to provide quality financial support to applicants in the process of obtaining EU funds - 20% of respondents;*
- *proactivity and timeliness of national level towards development agencies.*

In accordance with the starting hypotheses in the work and data collected and processed on semi-structured interviews by which the development agencies staff opinions and attitudes were collected, it is concluded that the hypothesis 1 confirmed that regional development agencies should strengthen the administrative capacity in the number of human resources which could result in increased attraction of EU funds. In this part of the research related to hypothesis 1, 20% of respondents stated the problem of lack of development ideas in its territory.

Based on the collected views of interviewees it is concluded that the hypothesis 2 is confirmed, and also a civilian, public and private sector do not have enough people who are trained for writing and implementing projects. Almost 100% of respondents believe that the public sector should have significantly more people trained in applying for EU funds, while 80% of respondents believe that the same should be taken with the civilian sector.

The private sector also needs to train significantly more people to apply for the EU funds. Attitude of 20% of interviewees is that it should increase the number of associations that may be carriers of certain socially relevant activities.

In the part of research related to the confirmation or refutation of hypotheses 3, the results clearly indicate that the networking of civil, public and private sector is insufficient.

This attitude has 100% of respondents who are employees of development agencies and have previous experience in the work of agencies. The study has noted that 80% of respondents believe that all three levels of society do not take up proactively for the development of the society. This confirmed the hypothesis 3.

In the research related to hypothesis 4, which is an area of cooperation of the national and regional levels, 100% of respondents believe that there should be improved coordination in the development and implementation of the program.



The results indicate the need for uniform implementing rules among national authorities, which was recognized by 80% of respondents, a stronger technical assistance of contracting authorities, which was recognized by 80% of respondents and 60% of respondents have the opinion that the part of the competition for EU funds should have better coordination between national level units with regional levels.

In this part of the research related to the question of coordination between national and regional levels, 60% of respondents indicate the lack of information and the need for more exchange of information between national and regional level, and also believe that it is necessary to solve the problem of funding applicants - 40% of respondents.

#### **4. Conclusion**

Balanced development of all Croatian regions is a common goal of regional and national governance. In this sense, it is necessary to intensify networking of all management levels in order to achieve a common effort. The aim is to identify the necessary conditions for more dynamic regional development which can be financed by EU funds in the next period.

The semi-structured in-depth interview was made in order to interview employees of the regional development agencies Brod-Posavina, Požega-Slavonia, Vukovar-Sirmium, Osijek-Baranja and Virovitica-Podravina County. The aim of semi-structured in-depth interviews was to gather views, opinions and recommendations of development agencies staff in order to identify areas for improvement in using EU funds.

Based on the obtained opinions of employees and after the results treatment, it was observed the need to increase the number of human resources in the regional development agencies in order to attract significantly more EU funds in the next period.

It should also ensure that civil, public and private sector, through the training of human resources, has access to more people who can write and implement programs of the European Union.

In the networking of public, private and civil sector in defining development priorities of regional policy, the need to intensify networking in the coming period was recognized.

The area of cooperation between contracting authorities at the national level with regional development agencies should also be intensified, and in relation to define of the contents and conditions of the tender, counseling support and the respondents attitudes that should weigh more consistent implementation rules between individual bodies.

The expressed opinions are going in the direction of need to strengthen the capacity of human resources, cooperation and mutual support in recognizing the development of priorities and building competitiveness of the Eastern Croatian economy.

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**IMPLEMENTING PRINCIPLES OF SUSTAINABLE DEVELOPMENT IN  
RURAL TOURISM IN CONTINENTAL CROATIA**

**PRIMJENA NAČELA ODRŽIVOG RAZVOJA U RURALNOM TURIZMU  
KONTINENTALNE HRVATSKE**

***ABSTRACT***

*Starting from the paradigm of sustainable development that the needs of contemporary generations for resources should be met in such a way as not to jeopardize the opportunities of meeting the needs of future generations, this paper investigates the problems and presents the principles of sustainable development of rural tourism in continental Croatia. The term and the principles of sustainable tourism are explained: the principles of ecological sustainability, socio-cultural, technological, as well as of economic sustainability. These principles are complementary in tourism, which means that it is only by means of their interactive implementation that the sustainable development of a tourist destination may be provided. The application of these principles is particularly important in rural tourism, whose development is based on cumulative attractions of natural, socio-cultural and economic resources that might ensure the sustainable development of rural areas only through interactive activities.*

*Rural tourism is the least developed kind of tourism in Croatia, although more than 90% of the area of Croatia is actually the rural area. This is the result of the past tourism policy which preferred maritime tourism, and neglected the so-called Green Croatia.*

*The accession of Croatia to the European Union creates new market and investment opportunities for the development of rural tourism through special interest tourism.*

*The goal of this paper is to investigate and explain the principles of sustainable development and to point out their possible implementation in rural tourism of continental Croatia.*

*The initial hypothesis in this paper is that for long-term sustainable development of rural tourism the implementation of interactive principles of sustainable development is necessary. This hypothesis is proven through the analysis of the results of past research by applying the desk research method, analysis method, synthesis method and comparison method.*

**Key words:** sustainable development, rural tourism, special interest tourism, Croatia

## SAŽETAK

*Polazeći od paradigme održivog razvoja da se potrebe za resursima sadašnjih generacija trebaju zadovoljiti tako da se time ne ugrozi mogućnost zadovoljavanja potreba budućih generacija, u radu se analiziraju problemi i prezentiraju načela održivog razvoja ruralnog turizma kontinentalne Hrvatske. Objasnjava se pojam i načela održivog razvoja u turizmu: načela ekološke održivosti, sociokulturne, tehnološke te načela ekonomske održivosti. Ova načela u turizmu djeluju komplementarno što znači da se jedino njihovim usklađenim djelovanjem može osigurati održivi razvoj turističke destinacije. Primjena ovih načela osobito je važna u ruralnom turizmu, koji gradi svoj razvoj na kumulativnim atrakcijama prirodnih, sociokulturnih i ekonomskih resursa koji jedino usklađenim djelovanjem mogu osigurati dugoročni održivi razvoj ruralnih područja.*

*Ruralni turizam je najslabije razvijena vrsta turizma u Hrvatskoj, iako preko 90% prostora čini ruralno područje. To je posljedica dosadašnje turističke politike koja je favorizirala primorski turizam, a zapostavljala tzv. „zelenu“ Hrvatsku.*

*Ulaskom Republike Hrvatske u Europsku uniju otvaraju se nove tržišne i investicijske mogućnosti upravo za razvoj ruralnog turizma kroz brojne specifične oblike turizma.*

*Cilj je ovog rada istražiti i objasniti načela održivog razvoja te ukazati na njihovu implementaciju u ruralnom turizmu kontinentalne Hrvatske.*

*Polazna hipoteza ovog rada je: Za dugoročni održivi razvoj ruralnog turizma nužna je implementacija usklađenih načela održivog razvoja. Ovu se hipotezu dokazuje kroz analizu dosadašnjih rezultata istraživanja pomoću metode istraživanje za stolom (desk research), metodu analize i sinteze te metodu komparacije.*

**Ključne riječi:** održivi razvoj, ruralni turizam, specifični oblici turizma, Republika Hrvatska

## 1. Introduction

The problems of growth and development are at the forefront of economic theory and practice. Growth denotes progress of a social or economic occurrence in the quantitative sense. On the other hand, development represents a new state and movement of an occurrence, new goals and prosperity we wish to achieve in the present and in the future.

The term 'sustainable development' stems from the concept of general development. Vukonić and Keča define sustainable development as changes in the structure of global production and expenditure which do not disturb the ecosystems (2001:190). This type of development is aligned with the ecosystems in which it takes place, so it should be long-term sustainable.

The problems of sustainable development manifest in all areas of human activity such as the ecological, cultural, social, economic, technological, political and similar domains. There are few human activities which do not affect sustainable development in an indirect or direct manner.

The problem of sustainability is nearly limitless, having a global significance in every domain of activity (Bartoluci, 2013.:130). For example, the production of nuclear energy is not only an issue of a certain region or country, rather it can have a world-wide significance. Another example is the impact the economic crisis in one country has on other countries thus directly or indirectly affecting the economic sustainability in all those countries.

Nonetheless, sustainable development does not have the same significance for every activity. Tourism and sustainable development are two codependent and conditioned phenomena. Tourism is in great part responsible for the acknowledgement of the need for sustainable development because it is extremely interested in the sustainability of all the resources which form the foundation of its own development and sustainability. It was the tourism experts who pointed out the problem of sustainability almost fifty years ago.

The concept of sustainable development of tourism was generated from the theory of sustainable development, which emerged as a reaction to the ever more noticeable ecological and socio-cultural problems humanity is facing, especially in urban areas. The application of the concept of sustainable development in tourism is supposed to ensure that uncontrolled development does not destroy or devastate the resources upon which tourism has begun to develop in a certain area. Such a developmental concept entails that the needs of contemporary generations are to be met in a manner that does not endanger the possibility of meeting the needs of future generations.

Therefore, the concept of sustainable development should be the developmental concept of tourism in the present and in the future permeating all levels of its development.

It is the goal of this paper to explain the problems of sustainable development in tourism and to analyze the specific features of sustainable development in Croatian rural tourism. Out of the research goal stems the basic hypothesis that the implementation of interactive principles of sustainable development is necessary for long-term sustainable development of rural tourism.

This paper is based on secondary sources of research and a case analysis in rural tourism. In this paper, general scientific methods of research were used including the desk research method, analysis, synthesis and the comparison method.

## **2. The principles of sustainable development in tourism**

Sustainable development in tourism can be explained as the relations between different activities in tourism and all the components of sustainability in the ecological, socio-cultural and economic domain. The key element of said relations is the people who have different roles and perform different activities in tourism.

Tourists are the main customers – buyers of the products and services offered by tourism, but they are not simply buyers, rather they are active participants in all the events at a specific tourist destination who then, through their behavior, directly influence sustainability.

Employees are the numerous workers in different tourist activities such as hotels, restaurants, agencies, cultural, sporting and recreational and other activities. Through their actions and behaviors they all directly or indirectly affect the sustainability of the tourist destination.

Companies and public services also have a direct or indirect impact on the sustainability in the environmental or economic domain of the destination. They realize this role through their activities and functions in the destination via common interests and activities.

The local population has a vital role in the sustainability of the destination or tourist location whether they engage in business activities in the tourist sector (for example, renting out rooms) or in some other industry. They have a particular interest being that the sustainability of the destination directly manifests in the quality of life in a certain location.

Every other person who works or visits the destination has an active role in the sustainable development of tourism.

There are four main principles of sustainability listed in literature on tourism: the principles of ecological, socio-cultural, technological and economic sustainability. (Vukonić and Keča, 2001:190).

## **2.1. Principles of ecological tourism sustainability**

Ecological sustainability entails development which is in tune with the sustainability of ecological processes, biological differences and resources. Within the framework of ecological sustainability there are different terms such as the environment, setting, ecology, environmental economics etc.

The term 'environment' refers to man's surroundings i.e. the natural geographical contents of the Earth's surface in a mixture of the lithosphere, the soil, hydrosphere, atmosphere and biosphere. The environment is all the values brought about through human labor. In this way the term of environment gains a broader spectrum of meaning entailing and defining man's place in the biosphere and his role in the transformation of space as a whole or some of its parts. (Bilen, 2011: 124).

The environment is not an entity apart from economy rather all the changes in economy have an effect on the environment and vice-a-versa. (Črnjar, 2002: 50).

There are numerous causes and conflicts in space. They are the result of 'demographic expansion, uncontrolled urbanization, the application of chemical and other means in agricultural production, the industrial production, the potent development of traffic, the devastation of war, etc. '(Bilen and Bučar, 2004: 86).

The consequences of those developments lead to the pollution of water, air, soil, flora, fauna and other natural resources which form the basis for the development of numerous industries, especially tourism.

Tourism is mostly interested in the long-term ecological sustainability because it is the environment and natural resources that are the basic conditions of its development. However, tourism is just one of the consumers of natural resources among other consumers from the same area that come from industrial, public and other domains. Therefore, the idea of protecting natural resources and the costs of sustainability should be maintained by all the participants in the environment, not just by the tourist industry.

This should be the main concern of 'environmental management' which implements different managerial know-hows, techniques and methods in managing industrial entities, keeping in mind the aim of preserving the environment, which is significant for business operations and has an essential importance for the survival of mankind. (Smolčić Jurdana, 2003: 9).

The environmental sustainability paradigm directs the contemporary generations to leave a resource basis in inheritance to the future generations which in its entirety is no smaller than the one they themselves inherited. However, the environment has many limitations in satisfying current and future needs for there are renewable (for example, water, earth, air, the Sun, etc.) and non-renewable resources (for example, oil, mines, forests, etc.).

Excessive use of renewable and non-renewable resources endangers the conditions needed for a continuous social and industrial development. It is therefore necessary to plan sustainable development in tourism in accordance with market demands while keeping in mind the ecological, socio-cultural and technological limitations of a certain tourist space.

The problem of environmental sustainability is of global importance as it is an issue for all countries world-wide, but also because of numerous negative influences and consequences which cross over the borders of a certain country. For example, a nuclear disaster is a problem for all mankind regardless of the country of origin. The disasters of Hiroshima and Chernobyl have confirmed this statement and, sadly, they are not the only ones.

Therefore, 'sustainable tourism' should be the best way of meeting the needs of tourists, while at the same time maintaining the long-term quality of the environment so that 'future generations in a certain community can develop tourism based on the fundamental characteristics and features of natural and anthropological resources'. (Bilen and Bučar, 2004: 90).

## **2.2. Principles of socio-cultural tourism sustainability**

Socio-cultural sustainability stems from the so called social functions of tourism. It is known that tourism started its development based on social values which are classified in modern tourism as social or non-economic functions of tourism. (Cicvarić, 1990:30).

The social function of tourism indicates that tourism brings people together thus affecting the decrease of social differences between certain groups, classes, nations and races of people.

The cultural function of tourism denotes 'the influence that receptive tourist countries have in the cultural domain towards foreign and domestic visitors' (Vukonić and Čavlek, 2001; 185). Both of these functions affect the socio-cultural sustainability of tourism.

So, socio-cultural sustainability is based on social and cultural relations within tourism. 'Socio-cultural sustainability guarantees the compatibility of development with the preservation of culture and the system of people's values which is affected by development, and it guarantees maintaining and emphasizing the identity of the local community.' (Smolčić Jurdana, op.cit. 69). The interaction of various cultures between the local population and tourists begets reciprocal influences that can have positive and negative connotations. Getting to know the local cultures, languages, customs and cultural heritage can represent new values for tourists. The same goes for

the communication the local population has with the tourists, which can prove to be interesting through learning languages, cultural customs and events, etc.

Socio-cultural sustainability is subject to changes in accordance with the changes happening due to the development of society. Therefore, the preservation of socio-cultural values within the tourist destination cannot be a task meant for tourism alone, but for the whole society.

### **2.3. Principles of technological tourism sustainability**

Technological sustainability demands the development and implementation of technology in the following manner:

- new technologies should provide exchangeable solutions for the usage of natural (especially non-renewable) resources;
- new technologies are implemented in the processes of waste water purification, waste disposal, recycling, etc.;
- new technologies should be oriented towards man and the prosperity of mankind.

We are witnessing an exceptional development of new technological solutions in all areas of human activity as well as in tourism. It is important for the implementation of the sustainable development concept that the new technologies are used solely for the benefit of mankind's prosperity.

### **2.4. Principles of economic tourism sustainability**

Economic sustainability is based on a sound and economically efficient development which entails an optimal management of resources in a sustainable manner, so that they could be used by future generations. Economic sustainability in tourism is compatible with the ecological, socio-cultural and technological principles of sustainability.

Economic sustainability dictates that the so called natural capital be measured for economic value by including its value into the whole economic system. In this way, all public, economic and other subjects should participate in the costs of its protection and reproduction.

Socio-cultural sustainability also has a function within economic sustainability. Sustainable tourism is an advocate of active protection and socio-cultural sustainability because it implies a more responsible relation of man towards his setting and development. 'Sustainable tourism should be realized in the future, which is possible if all the participants strive towards it on both the sides of tourist demand and tourist supply. It entails a mutual understanding, solidarity and equality among all the participants of that phenomenon.' (Vukonić, 1994: 114).

Economic sustainability should pave the way for a successful economic development, and resources use and management should make sure they are preserved for future generations.

The principles of economic tourist sustainability are compatible with the other principles; however, in practice they may become incompatible. For example, the most important function for entrepreneurs is profit maximization, which they are prepared to achieve at the expense of ecological and socio-cultural principles of sustainability. The results of such behavior are evident



in building construction (unsanctioned construction, over-development, etc.) or the excessive commercialization of cultural and historical heritage and so on. (Bartoluci, 2013; 137).

Economic sustainability, as in sustainable tourism, has to be built in long-term by all the participants in a certain area, because that is the only way to preserve the quality of life in the present and in the future. Therefore, in the sustainable development policy all principles of sustainability should be equally taken into consideration, for they are mutually dependent and have an effect on tourism sustainability based on synergy.

It is necessary to establish a National Policy and Strategy of Sustainable Development stemming from the core principles of sustainable development in tourism in the Republic of Croatia, as was done in the countries of the European Union. Such a document is of vital importance for the protection of spatial, socio-cultural and other resources needed for the future development of tourism and the whole economic and social system, especially now that Croatia has become a full member of the EU.

The implementation of the principles of sustainable development should be carried out by public administration bodies, administrative bodies of the local self-governmental and governmental units and other legal entities charged with environmental protection.

Education and science play a vital part in raising awareness and spreading knowledge about the need to preserve the natural environment and cultural heritage. Curricula on all levels of education should cover the problem of environmental protection and cultural heritage preservation. Students at lower and higher levels studying to become workers in tourism should be informed about the importance of protecting nature and cultural heritage the process of developing tourism.

Sustainable development has a special significance in protected areas which are numerous in the Republic of Croatia.

The concept of sustainable development is not an 'anti- developmental' concept, but it does point out the limitations of development which should be in accordance with the development of tourism. (Bartoluci, 2013.;142)

### **3. Sustainable development of rural tourism**

The historical development of tourism shows that throughout various time periods the countryside and rural areas were attractive sites for spending leisure-times and a comfortable life; however, during a prolonged period of major economic changes caused by industrialization, the development of the countryside was being neglected. The countryside has gone through numerous changes and is continually facing new economic and social changes.

Rural tourism, as a type of tourism, is an activity or even a movement in which the urban man is returning to nature (Ružić, 2009.: 17). Rural tourism is conceived as a clean economic activity which does no harm to the environment as opposed to production, mining, logging and intensive agricultural production which are massive polluters. Rural tourism entails numerous manifestations, as follows: village tourism (agricultural tourism), residential tourism, traditional regional tourism, sport and recreation tourism, adventure tourism, health tourism, educational

tourism, camping tourism, cultural tourism, religious tourism, hunting tourism, fishing tourism, wine tourism, gastronomic tourism, ecological tourism, etc. (Ružić, 2009.: 17).

Although all of the above mentioned forms can be considered as a special interest form of tourism, these forms can develop within a rural area which means that they are connected to rural tourism.

Rural tourism is a driving force for a number of economic and non-economic activities in a rural area, such as (Ružić, 2009:17):

- the cultivation of natural and healthy food which is continuously in high demand, especially in highly developed countries;
- it contributes to the revitalization of agricultural production on small surfaces, but on a new basis, taking into account the known market and consumers;
- it enables the tourists in rural areas to have an active relationship towards nature and agricultural production on family farms which are included into the rural forms of tourism;
- rural forms of tourism are measured against all the values provided by rural areas which offer man who is on the contemporary level of industrial and post-industrial society, a return to natural values and a relief from all the pressures and stress of the urban setting which in many ways constrict the value of man's freedom;
- the development of rural forms of tourism involves the entire rural setting with the whole ambience of countryside life: the ambience of living, architecture, vegetation and fauna, traditional culture and dress, etc.

The countryside ambience in rural tourism offers highly valuable elements for the organization of various activities needed for an active and quality vacation. Rural tourism gives value and animates the rural ambience and restores accompanying economic activities characteristic for the countryside which are in demand by the new consumer.

Being that village tourism is the most recognizable form in the rural domain, it will be briefly explained. Village tourism denotes an occasional stay in a village environment which offers to its visitors not only fresh air and a natural ambience, but also various chances to actively participate in the life and work on a village farm, various festivities and other events. (Kesar, 2011. :64). The basis for the development of rural tourism lies in the village or family agricultural farm or household that offers catering services based on its own agricultural production.

The conditions that have to be met, the variety of services it can offer, the number of customers, etc. are all regulated by law and other regulations.

It is this form of tourism that is especially developed in some countries of the EU like Austria, Italy, Slovenia, Hungary, etc. In Croatia, village tourism has been developing for the last ten years or so, and currently has 400 village households especially in certain parts of the Croatian Republic, for instance in the inland of Istra, in Medimurje, Baranja, etc.

The growth of this form of tourism is also stimulated through the measures undertaken by the tourism policy, the Ministry of Tourism, the Croatian Chamber of Economy and the Croatian Bank for Reconstruction and Development. However, there is still much room for the development of tourism, especially with the accession of the Republic of Croatia to the European Union. This is facilitated by the fact that the Republic of Croatia is predominantly a rural country

with over 90% of the continental part being rural areas, traditional villages with indigenous architecture and cultural and historical heritage. These are the basic resources needed for the development of various forms of rural tourism, especially village tourism. However, despite the dominant rural spaces in Croatia, the development of tourism in those parts is very much lagging behind the coastal part of Croatia which has been generating over 97% of the entire tourism turnover for years. (DZS, 2013). This is a result of the former tourist policy which has favored maritime tourism and neglected the so called 'Green' Croatia.

In the rural development projects, tourism and food production should be unified in order to hasten the development of rural tourism and also agriculture, which can generate additional economic effects.

The direct pressures rural tourism makes on the environment could be as follows (Črnjar, M. and Črnjar, K., 2009.;41-42):

- draining natural resources (drinkable fresh water, seafood, and so on),
- visual degradation of space,
- water pollution,
- air pollution, noise,
- inadequate communal and other waste disposal,
- damaging the natural and cultural heritage,
- endangering the local way of life and socio-cultural identity,
- uncontrolled construction of holiday homes etc.

It is therefore necessary to develop those forms of rural tourism which cause the least degradation to the environment and cultural and historical heritage, but can be sustainable in the economic sense. In continental Croatia, the same could be said for the following: village tourism, cultural, religious, sport and recreational, health tourism, etc.

*Cultural events* have a special place and significance in the development of cultural tourism. For example, Varaždin Baroque Evenings are tied with their tourist appeal to the baroque center of the city of Varaždin. In continental Croatia, there are many festivals and events (musical, theatrical, folklore, entertainment and such) which are attractive to tourists and excursionists. For example, the Renaissance Festival in Koprivnica, 'Đakovački Vezovi', the Zrinski event in Čakovac, the festival in Krapina ('Festival kajkavske popoevke') and such. The cultural events are the main motive behind the appeal to tourists to visit the so called cultural destination.

*Religious events and pilgrimages* are attracting a growing number of tourists. Religious events constitute a special form of tourism – religious tourism. They are primarily tied to religious holidays and pilgrimages, like the shrines of 'Velika Gospa' (Assumption of Mary) in Trsat, Sinj, Marija Bistrica, Ludbreg, Aljmaš, etc.

Apart from cultural and religious events, a special significance for the development of tourism is consisted in *sport events and happenings*, like the Olympic Games, 'Univerzijada', 'Mediterranske igre' or even world, European or national championships in popular sports like football, handball, basketball, athletic sports, tennis, water-polo, swimming, skiing and others. They all constitute sport tourism as a special interest form of tourism which is developed in all countries where both tourism and sport are developed, as is the case in Croatia. (Bartoluci and Čavlek, 2007).

Only some of the possibilities for developing special interest forms of tourism in sustainable development of rural tourism are mentioned here. In a primary research conducted at the beginning of January 2014, among 77 tourist experts, Bartoluci, Kesar and Hendija have established that the gastronomical, enological, village, ecological, cultural, health, sports and recreational, event, hunting and fishing tourisms are the most promising forms of tourism in rural Croatia. (Bartoluci and co., 2014.).

Rural tourism in Croatia is only at the beginning of its development. In the last ten years or so the development of rural tourism has been more forcefully enticed by the Croatian Ministry of Tourism through various forms and means of incentive. This resulted in new accommodation capacities, wine cellars and other attractive contents in Slavonija and Baranja, in the area surrounding Zagreb, in Zagorje and Međimurje, Istra and the Dubrovnik area interior. However, these are small capacities which make up less than 1% of the whole accommodation capacities of Croatian tourism. Besides, they are not connected to the market and do not compete in the European tourism market. On the other hand, the economic and wide-spread social positive effects of the development of rural tourism have been confirmed scientifically and without question through numerous researches (Bartoluci and Hendija, 2013: 199; Bartoluci, 2013:190; European Commission – EC, 1998:16; Fleisher and Pizam, 1997:368; Franić and Grgić: 2002:133; Grihault, 2003:19; Kušen, 2006:170; Petrić, 2006:140; Ružić, 2009:25; UNWTO: 1997: 62; UNWTO, 2004:14 and other authors). With the accession of the Republic of Croatia into the EU, new market and investment opportunities are opening for the development of rural tourism. The possibilities of financing projects in rural tourism from structural and other EU funds are open, and they should be used more often. In order for this to be realized, it is necessary to come up with expert investment projects that need to be managed based on the principles of sustainable development.

#### **4. Conclusion**

This paper has confirmed that rural tourism is the least developed form of tourism in Croatia, although over 90% of space is rural area. In the future development of tourism all principles of sustainable development should be implemented because Croatia has a rich natural and social basis of resources needed for the development of rural tourism over the whole expanse of Croatia. The economic sustainability of rural tourism is easier to achieve in the coastal part of continental Croatia where a larger extent of tourist demand is already present. The development of tourism in that part of continental Croatia will mostly depend on the level of development of the supply and its appeal and ability to attract the existing tourist customer base. However, in other parts of continental Croatia, there is no developed tourist demand, especially foreign, and the domestic demand is very limited. With the opening of the European market, the attraction of foreign tourist demand in the continental part of Croatia will be dependent on the appeal and competitiveness of the tourist supply in rural tourism. The basis of that development can be special interest forms of tourism which could be more comprehensively valued through rural tourism. However, to make this kind of development of rural tourism sustainable in the long-term, it is necessary to implement all principles of sustainable development: socio-cultural, ecological, technological and economic principles of sustainable development.

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**ANALYSIS AND POSSIBILITIES OF ONLINE PROMOTION OF TOURISM  
OF EASTERN CROATIA**

**ANALIZA I MOGUĆNOSTI ONLINE PROMOCIJE TURIZMA ISTOČNE  
HRVATSKE**

***ABSTRACT***

*Tourism can be viewed as an aggregator of economic activities and is thus an important factor in fostering the economy throughout the Republic of Croatia, including Eastern Croatia. The potential of Eastern Croatia as a tourist destination is noticeable in the increasing number of visitors and the range of events through which tourism businesses offer their products and services. In this way, tourism becomes the generator of product sales and exports. To increase the number of visits, this region should be more intensively promoted on the European and world markets. This is quite feasible with proper investment in high-quality marketing promotion on the Internet, which would significantly improve the position of Eastern Croatia in the online environment. Online advertising has been gaining importance because of the growing number of Internet users and constant technology improvements. The tourism sector in Eastern Croatia should strive to expand the range of tourism products, reduce seasonality, improve customer satisfaction, increase the average daily spending, raise the employment and self-employment rates, and probably most urgently, make the region an internationally recognized destination. Marketing activities are essential for accessing the domestic and international markets. By applying Web 2.0. techniques and tools, tourism businesses can pinpoint the segment they want to attract, and then use social networks, e-mail marketing and/or browser advertising to deliver the information on the destination and tourism offer. The paper will investigate to what extent business entities have recognized the importance of online promotion. The goal of the paper is to analyse the current situation regarding the presentation of Eastern Croatia on the Internet and to explore the potentials of this type of advertising. This is important, in view of increasingly active Internet users who require this kind of communication and prefer this route of obtaining information.*

**Keywords:** *tourism, Web 2.0., Internet, online promotion*

## SAŽETAK

*Turizam kao agregator djelatnosti postao je važan čimbenik poticanja gospodarskih aktivnosti u cijeloj Republici Hrvatskoj, pa tako i u istočnoj Hrvatskoj. Turistički potencijal istočne Hrvatske kao turističkog odredišta očituje se u sve većem broju dolazaka turista, kao i brojnim manifestacijama kroz koje turistički poslovni subjekti nude proizvode i usluge. Turizam time postaje generator prodaje i izvoza proizvoda. Kako bi se povećao broj dolazaka, potrebno je povećati promociju istočne Hrvatske na europskom i svjetskom tržištu. Sve to moguće je ostvariti putem ulaganja u kvalitetno razrađenu marketinšku promociju na internetu koja doprinosi boljem položaju istočne Hrvatske u online okruženju. Online oglašavanje bilježi konstantan rast zbog sve većeg broja korisnika interneta i konstantnog unaprjeđenja tehnologije. Ciljevi na kojima bi se turizam istočne Hrvatske trebao usmjeriti su svakako širenje ponude turističkih proizvoda, smanjivanje sezonalnosti, težnja ka ostvarivanju rasta zadovoljstva turista, povećanje prosječne potrošnje po danu boravka, povećanje razine zaposlenosti i samozapošljavanja, te ono možda trenutno i najvažnije, unapređivanje međunarodne prepoznatljivosti. Upravo marketinške aktivnosti omogućuju kvalitetan nastup na međunarodnom i domicilnom tržištu. Koristeći tehnike i alate Weba 2.0. turistički poslovni subjekti mogu precizno odrediti segment koji želi privući, te kroz društvene mreže, e-mail marketing i/ili oglašavanjem na tražilicama dostaviti informacije o odredištu i turističku ponudu. Odgovarajući na pitanje u kojoj mjeri su poslovni subjekti prepoznali važnosti korištenja online promocije predstavlja temeljni problem na kojemu se rad temelji. Cilj rada je analizirati trenutno stanje internetske prisutnosti turizma istočne Hrvatske, te koji su potencijali navedenog oglašavanja s obzirom na sve aktivnije korisnike koji iskazuju značajan interes za ovakav oblik komunikacije i primanja informacija.*

**Ključne riječi:** *Turizam, Web 2.0., internet, online promocija*

### 1. Introduction

As one of the fastest growing sectors at the moment, tourism is a social and economic phenomenon that combines various elements into a complex phenomenon. Tourism as an economic phenomenon does not have a long tradition; it positioned itself in the scientific research system only in the second half of the 20<sup>th</sup> century. Therefore, it is no wonder that one of the key features of tourism is its changeability. According to a definition provided by the International Association of Scientific Experts in Tourism (AIEST), tourism is defined with an emphasis through economic activity as the entirety of interrelations and phenomena which result from people travelling to, and stopping at places which are neither their main continuous domiciles nor place of work (Prijevac, Kesar, 2002, 5). This definition explains tourism as an economic activity which defines participants in tourism development – tourists, i.e. travellers. According to Ružić, tourism is not and cannot be a separate economic activity, but the needs of tourists as well as other travellers are met by aggregating several activities (Ružić, 2007, 27). Based on this definition, tourism has to be viewed as a phenomenon that is susceptible to strong oscillations and which is undergoing continuous trend changes along with technology development occurring simultaneously.

Marketing as a management process was initially developed in relation to the sale of physical products. However, one of the most pronounced trends in today's world is an extreme growth of the service sector, and tourism and catering industry are significant parts of this sector. Application of marketing in all business spheres is the key to the success of business entities – in this case of tourism activity. Marketing as a business and management function has to take into account the specific qualities of the driving force of economic activities and adapt to these specific qualities, i.e. features. Respecting specific qualities in particular activities and organisations is necessary also due to the character of services and their specific quality, distribution methods and sales channels, business strategy, elements of the pricing policy, specific qualities of the market and market

segments, the ways of using natural resources and their availability, terms of doing business, various influences of the environment, etc., which are different in different activities. Accordingly, tourism has to be observed as a dynamic phenomenon susceptible to strong oscillations, undergoing continuous trend changes along with technology development which is taking place simultaneously. Development of modern technology and application of management and marketing in tourism have resulted in the situation where, in addition to the mass tourism, also other specific forms of tourism, i.e. tourism products are created. Trends point to the increase in demand for specific forms of tourism, including rural tourism that achieves its maximum potential in the continental part of the country. Rural destinations provide opportunities for learning about the cultural and historical identity, customs, tradition and gastronomy of particular rural areas. It is marked with natural environment, clean air and water and specific and autochthonous food. Tourist offer is present throughout the year and it includes trips and stays (Pirjevec, Kesar, 2002, 15).

Stays of visitors in a particular place are based on a set of relations and phenomena related to the destination. Therefore, it is necessary to strategically determine long-term guidelines so that all participants in the tourism offer would participate in the creation of a competitive destination that would make an interesting and desirable destination for visitors. As all tourism trends do not have an unambiguous character, since they differ in structure and generation of various effects, the goal is to use online promotion to develop a frame for efficient destination management, which is the purpose of this research.

## **2. Research problem and the aim of the paper**

The research problem presented in this paper explores the effect that online promotion of Eastern Croatia may have on (under)development of the tourism in Eastern Croatia, which accounts for a small part in the total tourism revenue in Croatia and which should be developed as a separate and partial tourism product within the integrated tourism product of the Republic of Croatia. The authors assume that tourism in Eastern Croatia has a strong potential and could seek its market valorisation independently. The main goal of the paper is to analyze the current situation in the field of online promotion and show how the optimal combination of the elements of the marketing mix in online environment, marketing planning and organisation based on market research can be used to achieve significant improvements in tourism in Eastern Croatia. The authors aim to point to the importance of marketing as a process of communication with the market, where the role of promotion becomes extremely important as it directly influences the decisions of the demand creators (tourists) on the choice of a tourist destination.

## **3. Possibilities of online promotion of a tourist destination**

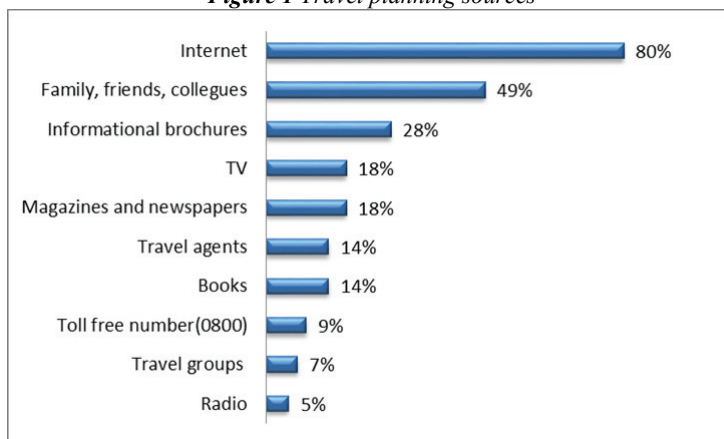
Technology development resulted in a strong technological framework for application of new technologies in the environment. Implementation of tools in the cyber space has generally modified social interaction as well as technology and ways of advertising. E-marketing can be defined as a process of creating offer, pricing, distribution and promotion with the aim of satisfying buyers' needs and wants in a profitable way by using the possibilities of digital technology and the Internet in the process. According to a group of authors, e-marketing is the use of information technology in the process of creating, communicating and delivering value to clients and in customer relationship management in the ways that provide benefits to an organisation and its interest groups. This means that information technology is applied to the traditional marketing practice (Strauss et al, 2006, 2). A general conclusion can be made that e-marketing is complemented with traditional activities and is closely related to the development of new technologies, seeking to implement traditional activities of the marketing mix via network. The development of new information distribution channels is part of the current Web 2.0 Internet technology such as e-mail, RSS, blog, forums, social networks and currently one of the fastest growing trends – use of mobile applications. Tim



O'Reilly defines the term Web 2.0 as the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform (O'Reilly, 2006). The main characteristics of Web 2.0 are openness, freedom and collective intelligence (Strauss & Frost, 2009, 13-14) that are brought together by way of user participation in the content creation. By using the above technology, users can have real-time access to information on displays of their devices (mobile phones, laptops or tablets), resulting in the possibility of creating their own content and dispersing it toward others. Being a specific combination of activities, tourism is characterised by a large amount of information that is available in the process of business decision making, including accuracy, timeliness and reliability, requiring an organized range of procedures and methods to collect, analyze and interpret data, evaluate, save and distribute information used for business decision making continuously and in a planned manner (Maručić, Prežebac, 2004, 6). Owing to rapid development of technology and distribution of content and information through e-marketing techniques and tools, all participants in tourism are able to achieve strong market penetration.

In today's world, when all economic sectors, including tourism, have been hit by the crisis, it can be assumed that information and communication technology is of key importance for overcoming difficulties that tourist destinations and tourism businesses all over the world are facing. According to forecasts, Internet, i.e. online booking is expected to grow continuously. According to research, in the year 2013, 68% of users searched information online before selecting the destination, which is a 3% growth in relation to 2012. Furthermore, 42% of tourists use a mobile phone or a tablet device to search for information on a destination while travelling, and 65% of tourists search online information on a destination and directly book accommodation capacities on the web site of a tourism business. This resulted in an 11% increase in online booking in relation to 2012, in addition to the fact that tourists avoid specialised tourism agencies that, among other things, charge commission for their services (Ipsos MediaCT/Google Travel Study, 2013). The Internet has become unavoidable in the process of obtaining information on a particular destination. As shown in Figure 1, research shows that 80% of respondents rely on the Internet when organising a trip. This is due to the fact that users obtain information on a destination before arriving at the destination itself. Today there are many applications that make it possible for users to pay a virtual visit to the destination before physically arriving there, such as Google Street View, the application showing the space from the perspective of a person walking through the streets, where the user can search institutions, locations, streets, places, neighbourhoods, and cities. By using this application, the user can see the destination he or she is planning to visit in advance.

**Figure 1** Travel planning sources



Source: 2013 traveler research studies by Google, <https://www.thinkwithgoogle.com/research-studies/2013-traveler.html> (accessed 20 april 2015)

If the user wishes to book accommodation, he or she will use information available on the platforms such as AirBnB or TripAdvisor, where he or she can book accommodation and look at the previous photographs and comments evaluated and written by users who had already visited the accommodation facility. There is a whole range of applications that make it possible to plan and organise travels, but also provide orientation after the tourist has reached the destination. Most of these applications are focused on the user location and achieve their maximum effect when used on mobile devices. To ensure that information can reach the user, it is necessary to create content that will provide information to users so that they would return to the destination and use the information in organising his/her trip as well as provide feedback information that will be useful for future travellers. As any other average Internet user, potential visitors will also initially start searching for information on some of the search engines that will naturally lead them to the web site of a hotel, a travel agency or, ultimately, of the destination itself. The key to information search today lies in specialised applications that are edited by users who previously visited the destination and supported their experience with multimedia by providing photos and video content. With such information and with comments of previous visitors of a destination, a potential tourist can create his or her own opinion and expectations from the destination. For this reason, the above described application of information technology through specialised applications offers advantages for tourist destinations or business entities in tourism providing quality content and performance on specialised applications. Information flow path is opened by raising the level of quality and by motivating users, i.e. visitors of destinations, to share information by means of specialised applications. The above information will be first visible in applications, but good content will create good indexing that will also be visible on Internet search engines. This points to a symbiotic relationship between Internet search engines and specialised applications that encourage tourism businesses to create the level of quality that will satisfy users and their expectations which will then be rewarded or criticised in the comments and by sharing the content in specialised applications. Trends are developing in the direction of networking and communication with potential tourists.

#### **4. Analysis of online promotion of tourism of Eastern Croatia**

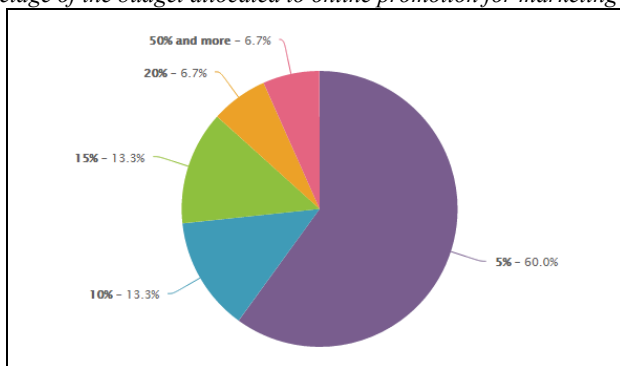
As in any other industry, investment in online marketing requires financial resources. However, it should be mentioned here that these amounts are much smaller than the amounts required for implementation of traditional marketing activities. The paper further focuses on the research and

efficiency evaluation of using the Web 2.0 tool in the system of tourist boards of the Republic of Croatia, operating also in Eastern Croatia. Accordingly, a research was carried out on the use of Web 2.0 platforms by users who are, in this case, employees of tourist board offices responsible for online promotion. The starting point in the process of segmentation of respondents was to define a segment – the intended sample. As the survey was focused on the use of tools and techniques of online marketing in the system of tourist boards, it was based on a sample of experts employed in the system of tourist boards. Tourist boards in the Republic of Croatia are legal persons whose members are legal and natural persons operating in the field of tourism activities in the area in which they have been established. The goal of a tourist board as an economic and organisational unit is to satisfy the needs of consumers (guests) through promotion of a tourism product on its area and by improving the general terms of tourist stay, particularly by raising the quality of tourism and other complementary services (Franić, 2009, 17 – 20).

Data were gathered by means of a questionnaire that was sent to official email addresses of the tourist board offices in October 2014. The questionnaire consisted of 53 questions. Research results were analyzed by means of the SurveyGizmo tool and data processing software. The survey was carried out on a sample consisting of 95 offices in the system of the Croatian National Tourist Board, depending on the structure. The paper will show separate research results for fifteen tourist boards operating in Eastern Croatia, i.e. in the counties: Bjelovar-Bilogora, Brod-Posavina, Osijek-Baranja, Požega-Slavonia, Virovitica-Podravina and Vukovar-Srijem. The aim of the questionnaire was to explore whether respondents, i.e. managers of online promotion for tourist board offices use applications offered by Web 2.0; what platforms and to what extent are used; and the attitude of respondents in terms of advantages and disadvantages of the above applications. The authors included the question about the percentage of the total budget allocated for communication with the market that is spent on online activities. Research results are shown in Figure 2. As previously stated, the aim of the tourist board is to promote tourism professionally and efficiently by using the allocated funds. According to the results, most of the tourist board offices spend 5% of the total budget on online promotion.

The advantage of online promotion is, among others, that it requires less money. Most tourist board offices allocate a maximum of 20% of their overall budget to online promotion for marketing communication. The fact that the size of the budget varies between tourist board offices must also be taken into account. According to the survey results, average advertising costs amount to HRK 29,250. Using a well-developed strategy and marketing approach, the money invested can be used to send a message to potential consumers, i.e. travellers considering a trip to a destination.

**Figure 2** Percentage of the budget allocated to online promotion for marketing communication



Source: Research by authors

Customers are now exposed to an infinite pool of information. One of the most effective methods of introducing a business, as well as products and services offered by that business, and initiating and maintaining interactions with an individual through social networks is content marketing. According to the Content Marketing Institute, content marketing is a strategic marketing approach focused on creating and distributing valuable, relevant, and consistent content to attract and retain a clearly-defined audience and, ultimately, to drive profitable customer action<sup>1</sup>. This definition can be considered from two aspects. First, users are kept at the forefront by creating quality content for them. Second, content is distributed using one of the available platforms. The user is the one who determines the platform for viewing and analyzing content; he/she can address the business directly and continue to communicate with it using the same platform. The key is to create a direct communication tool through quality content. Eastern Croatia is a region of rich natural beauty, cultural and historical heritage, which together with the hospitality of the local people are the main characteristics of tourism in the region.

All of the above represents content that can be delivered through dominant platforms in an online environment. Figure 3 shows the extent to which tourist board offices create content and how often they distribute it using the most effective online platforms. The survey results show that Facebook, as the most popular social network, is defined as the platform for the creation and distribution of content, which is expected, given that Facebook has become the number one social network in terms of the number of users. However, a trend has been observed of people turning to specialized social networking sites. Since the advent of social networking, there has been a relatively limited number of social networks on which businesses could launch their advertising campaigns and the vast majority of the content was created and put on Facebook, Twitter and LinkedIn. The results of the survey confirm that the content created by tourist board offices in Eastern Croatia is largely created on these social networks, i.e. 26.7% of the content is created two to three times a day and distributed through Facebook platform, as compared to 6.7% of the content distributed by tourist board offices through Twitter once a week. 6.7% of tourist board offices use professional social networking sites for content distribution once a week. With the emergence of new specialized social networking sites and the ability to create content on these networks, businesses now have more options to choose from to market their content. Social networks Instagram and Pinterest, which bring together those who love to browse through images, also need to be mentioned here. Their popularity lies in the viral power of an image which can be strategically positioned and delivered to users searching content about a destination.

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<sup>1</sup> Content Marketing Institute: <http://contentmarketinginstitute.com/what-is-content-marketing/> (accessed 05 april 2015)

**Figure 3** Platforms on which tourist board offices distribute content

	Two to three times a day	Once a day	Two to three times a week	Once a week	Two to three times per month	Once a month	Once a year	Wo do not use the platform
Facebook	4 26.7%	3 20.0%	4 26.7%	1 6.7%	0 0.0%	0 0.0%	0 0.0%	3 20.0%
Linkedin	0 0.0%	0 0.0%	0 0.0%	1 6.7%	0 0.0%	0 0.0%	0 0.0%	14 93.3%
Twitter	2 13.3%	2 13.3%	1 6.7%	1 6.7%	0 0.0%	0 0.0%	0 0.0%	9 60.0%
Instagram	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2 13.3%	0 0.0%	0 0.0%	13 86.7%
Pinterest	0 0.0%	0 0.0%	0 0.0%	1 6.7%	0 0.0%	2 13.3%	0 0.0%	12 80.0%
Youtube	0 0.0%	1 6.7%	1 6.7%	0 0.0%	1 6.7%	3 20.0%	2 13.3%	7 46.7%
www.croatia.hr	0 0.0%	0 0.0%	0 0.0%	0 0.0%	3 20.0%	2 13.3%	5 33.3%	5 33.3%

Source: Research by authors

The survey results show that only 13.3% of tourist board offices create content on Instagram two to three times a month. Given the natural beauty of the area and diverse events taking place there, Instagram can be used as an advertising tool whereby image content is created and offered to users who then show whether, and to which extent, they like the content by sharing it and creating similar content. In comparison, Pinterest has been used for content creation slightly more frequently, with 6.7% of tourist board offices using it once a week, and 13.7% of offices using it once a month. One of the fastest growing online marketing techniques is video content sharing. Video content is expected to comprise 55% of all Internet traffic by 2016. In order to develop an integrated communication strategy, one needs to show how a product or service works on different platforms. One of the most popular platforms for creating and searching content is YouTube, which is also the second largest search engine in the world. This suggests that YouTube is a platform for creating content that can be transferred by users to other platforms thus creating a viral marketing effect. The survey results suggest that tourist board offices have adopted YouTube as an online promotion tool, with 6.7% of them using it on a weekly basis for the creation and distribution of content. An upward trend is expected in the use of these tools as they allow one to use content to highlight specific attributes and differentiate, in this case a destination, from its competitors. As has been mentioned earlier in the text, today's tourists search for information about destinations on specialized websites, blogs, portals and social networks before taking their trip. The survey results show that in addition to Facebook and YouTube, tourist board offices distribute most of their content through the Croatian National Tourist Board website - [www.croatia.hr](http://www.croatia.hr). Although this website is not a conventional platform, it is a good basis for the distribution of content because Croatian National Tourist Board is responsible for the promotion of all tourist board offices in the Republic of Croatia. The largest proportion of content generated by tourist board offices is distributed through this website once a year; however, given that this website plans to integrate content from different platforms in the near future, the distribution of content through that website will increase.

## 5. Conclusion

Online promotion enables tourism businesses to narrow down the target audience they want to offer their products and/or services to and whose age, sex, location, as well as some less commonly sought personal data such as hobbies or activities, they want to determine. Targeted marketing produces better results because it focuses on markets that businesses are interested in, and because of more effective allocation of advertising budget. Targeted advertising is a breakthrough in advertising because it allows tourism businesses to focus on specific audiences, i.e. social network users, and offer them products that would stir their interest and induce them to visit a destination. Tourism operators can base their activities on preferences, interests, hobbies, and demographics of social network users. The analysis of online promotion practices of tourist board offices in Eastern Croatia shows that they have recognized and used content distribution platforms, mainly Facebook, YouTube and the Croatian National Tourist Board website. However, the percentages of overall budget allocated to online market communication, averaging 11%, do not represent a strategic direction for promotion. Given that modern tourists have been increasingly turning to new media that are intertwined with modern technology, it is necessary to deliver content to the users via new information distribution channels such as social networks, mobile applications, blogs, short video formats, etc. Content will initiate an interaction between tourists and destinations resulting in tourists visiting a specific destination. The authors wanted to highlight the fact that Eastern Croatia is very diverse and thus rich in content for virtually any potential tourist, regardless of the segment. It is up to tourist board office employees to ensure the distribution of this content across the Web for marketing purposes, using online marketing techniques and tools, and thus to create a competitive tourist destination.

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**COMPARISON OF ECONOMIC FACTORS FOR SUCCESS IN BUSINESS,  
FOCUS ON INFRASTRUCTURE**

**KOMPARACIJA GOSPODARSTVENIH ČINTELJA ISTOKA HRVATSKE  
KA VEĆOJ KONKURENTNOSTI**

***ABSTRACT***

*In this paper, authors analyse several factors that are affecting economic development of the Eastern Croatia: fiscal burdens, areas of special state concern, the size of the analyzed town and geographical location. In addition, authors analyse the unemployment rate in counties in which these cities are. In this paper, authors analyse five cities of Eastern Croatian: Slavonski Brod, Osijek, Vinkovci, Vukovar, Đakovo and Oraštica. Eastern Croatia lies between the river Drava in the north (border with Republic of Hungary), river Sava the south (border with Bosnia and Herzegovina (BiH)) and the river Dunav in the east (border with Republic of Serbia). The region is the main granary and agricultural most developed part of Republic of Croatia.*

*The paper shows an example of how information, communication and transport infrastructure can effects on the development of Eastern Croatia.*

*Business infrastructure leads to optimization of operations and opportunities for faster and better decision-making. However, the growing need for new types of information and communication infrastructure, which effects the conclusive increase in operating costs and an important factor in competitiveness.*

*The objective of the paper is comparison of economic factors for success in business, focus on infrastructure. Authors use a range of scientific research methods (methods of analysis, comparison, induction, deduction, description and classification, etc.) as well as individual mathematical-statistical methods used for the analysis and ranking of certain parameters.*

**Key words:** *Infrastructure, Development, Competitiveness, Eastern Croatia*

## SAŽETAK

U radu su analizirani čimbenici koji utječu na gospodarski razvoj istočne Hrvatske: fiskalna opterećenja, područja od posebne državne skrbi, veličinu odabranih gradova i geografski položaj. Osim toga analizirana je stopa nezaposlenosti u županijama u kojoj se odabrani gradovi nalaze. U ovom radu autori su analizirali pet gradova istočne Hrvatske: Slavonski Brod, Osijek, Vinkovci, Vukovar, Đakovo i Orahovica. Istočna Hrvatska nalazi se između rijeke Drave na sjeveru (granica s Republikom Mađarskom), rijeke Save sa juga (granica s Bosnom i Hercegovinom (BiH)) i rijeke Dunav na istoku (granice sa Republikom Srbijom). Regija je glavna žitnica i poljoprivredno najrazvijeniji dio Hrvatske.

Rad pokazuje primjer kako informacijska i komunikacijska te prometna infrastruktura utječe na razvoj istočne Hrvatske.

Poslovna infrastruktura dovodi do optimizacije poslovanja i mogućnosti za brže i bolje odlučivanje. Međutim, raste potreba za novim vrstama informacijske i komunikacijske infrastrukture koje utječu na povećanje obujma poslovanja i važan je faktor u ostvarenju konkurentnosti.

Cilj ovog rada je usporedba ekonomskih čimbenika za uspjeh u poslu, fokus je se na infrastrukturi. Autori koriste niz znanstvenih metoda istraživanja (metode analize, usporedbe, indukcije, dedukcije, opis i klasifikacija, i tako dalje), kao i pojedine matematičko-statističkim metode koje se koriste za analizu i rangiranja određenih parametara.

**Ključne riječi:** *Infrastruktura, Razvoj, Konkurentnost, Istočna Hrvatska*

### 1. Introduction

Economic development is defined as a long-term process of increasing production and revenue followed by the structural improvements in their creation and distribution which aims to increase the long-term ability to satisfy the general needs of the community or the state, and a steady rise in living standards, financial independence and political freedom of people. "Each generation unit needs specific infrastructure to be able to function effectively. Infrastructure signifies certain services and equipment that is available for the efficient production or services. Infrastructure does not give a direct contribution to the production process, but without her production unit would not be able to correctly perform their functions." (Barković, 2011, 57)

Further chapters are going to show eastern Croatian counties through the population and the unemployment rate in relation to the available infrastructure in major cities of counties. The assumption is that the population is in direct relation with the available infrastructure. It can also be assumed that larger cities have more favorable conditions for the opening or maintenance of existing firms which implies a predisposition to business competitiveness. The data were collected by methods of analysis from primary sources of agencies and institutes on the Croatian territory. Generalizing data and comparing the key factors of business has led to results.

### 2. Population of eastern Croatia

Table 1 indicates the counties of eastern Croatian with a population and unemployment rate.

**Table 1** *Overview of the counties of eastern Croatia by the population and employment*

County	Population	Employed	Unemployed	Unemployment
Brodsko-posavska	158.575	34.080	15.937	31,86%
Osječko-baranjska	305.032	80.570	36.632	31,26%
Požeško-slavonska	78.034	17.542	6.375	26,65%
Virovitičko-podravsko	84.836	19.010	10.216	34,96%
Vukovarsko-srijemska	179.521	38.642	20.189	34,32%
Total	805.998	189.844	89.349	32,00%



County	Population	Employed	Unemployed	Unemployment
Republic of Croatia	4.284.889	1.315.535	328.187	19,97%

Source: Bureau of Statistics, Croatian Employment Service, Croatian Pension Insurance Institute

In the area of eastern Croatia according to the census from 2011 in five counties lives about 20% of the Croatian population. Unfortunately, the unemployment rate in eastern Croatia is higher than the unemployment rate in the Republic of Croatia. The highest unemployment rates were recorded in the Vukovar-Sirmium County (34.7%), Virovitica-Podravina (34.3%), Sisak-(34.0%) and the Brod-posavina County (33.9%).

After independence, Croatia inherited unequal regional development, and the Homeland War has only increased the disproportion of certain areas. (Blagojević, 2008, 1177) Despite the significant concentration of population in urban areas, Eastern Croatia is, according to the number and proportion of the rural population, however, retained more rural characteristics in relation to Croatia in general, as well as in relation to other Croatian macro-regional areas. (Živić, 2003, 79)

Cities of counties with the census are presented in Table 2 while Figure 1 shows the geographical position. Cities taken in the analysis were selected by the size and their importance for the observed counties in the eastern region.

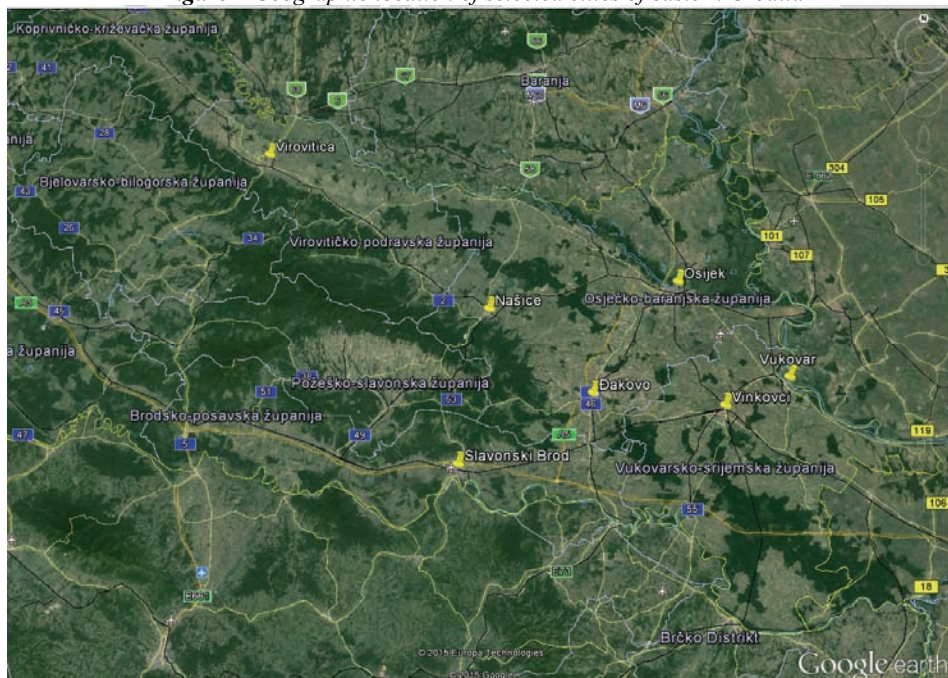
**Table 2** The cities of eastern Croatian according to geographic location and population

City	County	North latitude	Eastern longitude	Population
Đakovo	Požeško-slavonska	45.310076°	18.410464°	27.745
Našice	Osječko-baranjska	45.490724°	18.094881°	16.224
Osijek	Osječko-baranjska	45.558583°	18.675793°	108.048
Slavonski Brod	Brodsko-posavska	45.155992°	18.012967°	59.141
Vinkovci	Vukovarsko-srijemska	45.288270°	18.805557°	35.312
Virovitica	Virovitičko-podravska	45.832654°	17.383007°	21.291
Vukovar	Vukovarsko-srijemska	45.350608°	19.002856°	27.683
Total				295.444

Source: Bureau of Statistics, Google Earth

Comparing Tables 1 and 2 it can be noticed that almost 37% of the population of eastern Croatia lives in seven major cities. This indicator confirms and states that the population majority is located in urban areas of the region. Therefore in the text below are provided analysis for these cities.

**Figure 1** Geographic location of selected cities of eastern Croatia



Source: Google Earth

### 3. Analysis fiscal burdens of the business entities

According to the definition a company in the Republic of Croatia represents the name under which business operates.

This section will analyze the Taxes and additional tax in selected cities of eastern Croatia. County and municipal taxes are different according to the rates and monthly or annual amounts of tax burdens. The city taxes include additional taxes, income tax, consumption tax, houses for rent, tax on company name and tax on use of public areas.

Table 3 shows the most common tax burden on enterprises in the cities of the region. Taxpayers are legal or physical persons who are obliged to pay income tax and are registered for the activity. Tax on use of public areas is paid by legal and physical persons for the use of public land.

The public areas are considered sidewalks, streets, squares, parks, green areas and other areas.

**Table 3 Fiscal burdens of the business entities**

City	Fiscal burdens of the business entities		
	Surtax	Company tax	Use of public land tax
Đakovo	10%	Legal entities (500,00 – 1.000,00 kn) Physical persons (800,00 – 1.000,00 kn)	10% on the amount of compensation which is paid for the use of public land
Našice	8%	Physical persons (50,00 – 2.000,00 kn) Legal entities (50,00 – 2.000,00 kn)	-
Osijek	13%	Physical persons (200,00 – 500,00 kn) Legal entities (500,00 – 1.000,0 kn) Independent caterers (600,00 kn)	10% on the amount of compensation which is paid for the use of public land
Slavonski Brod	12%	Physical persons (400,00 – 1.000,00 kn) Legal entities (600,00 – 2.000,00 kn)	-
Vinkovci	13%	Physical persons (200,00 – 2.000,00 kn) Legal entities (600,00 – 2.100,00 kn)	10% on the amount of compensation which is paid for the use of public land
Virovitica	10%	Physical persons (200,00 – 400,00 kn) Legal entities (500,00 – 1.800,00 kn)	-
Vukovar	0%	Physical persons (200,00 – 2.000,00 kn) Legal entities (500,00 – 2.000,00 kn) Independent caterers (400,00 – 1.200,00 kn)	5% of the amount of rent

Source: Ministry of Finance, <http://www.porezna-uprava.hr/> (25.03.2015.)

Developed areas of the region as well as those with more inhabitants have a higher tax burden in relation to the smaller cities. Amounts of surtax rates are ranked from 8% to 13%, and the exception is the city of Vukovar with 0% surtax.

The amount of tax on the company name in every city is different for physical and legal persons and the smallest in Našice (for physical and legal persons).

Tax on the use of public land is mostly equally in all cities, except in Vukovar, where the rate of this tax is lower compared to other cities in the region, while Virovitica, Slavonski Brod, and Našice does not have this kind tax.

#### 4. Analysis of transport infrastructure

The transport system is one of the most important economic systems of each area. Economic and social activities cannot be developed without organized transport infrastructure. Development of transport infrastructure depends on the degree of development of technique, technology, economic and social factors. This paper analyzes the types currently available transport infrastructure for selected cities.

Table 4 shows the four types of infrastructure which implies connection with the highway, rail, river and air. All of the mentioned towns are additionally connected with state roads.

**Table 4 Traffic connections of cities**

City	Exit on the highway	Railway station	The river port	Airport
Đakovo	Yes	Yes	No	No
Našice	No	Yes	No	No
Osijek	Yes	Yes	Yes	Yes
Slavonski Brod	Yes	Yes	Yes	Yes
Vinkovci	No	Yes	No	No
Virovitica	No	Yes	No	No
Vukovar	No	Yes	Yes	No

Source: Authors

Table 4 shows that all cities are connected by rail and have the transfer station. Only the largest cities (Osijek and Slavonski Brod) have all other types of infrastructure.

## 5. Information and communication infrastructure

Systems supported by information and communication technologies are extremely important for a successful business companies. Today it is almost inconceivable to operate without the use of computers. The demand for high speed data transmission has become more evident in today's business, and in the communication market.

In order companies today to achieve competitiveness in the market and set aside from the rest of the competition it is necessary to invest in ICT infrastructure.

Table 5 presents the information and communication infrastructure for selected cities. tablici 5 prikazana je informacijsko komunikacijska infrastruktura za odabrane gradove.

**Table 5** Information and communication infrastructure for selected cities

City	Fixed broadband Internet			Number of operators of wireless communication with its own infrastructure	
	Percentage of users	Maximum speed	Number of operators with its own infrastructure	Speed up to 30 mbs	Speed greater than 30 mbs
Dakovo	42,97%	to 20 mbs	1	more than	partly 1
Našice	37,90%	to 20 mbs	1	more than	1
Osijek	70,34%	more than 100 mbs	more than 1	more than	partly
Slavonski Brod	41,12%	more than 100 mbs	1	more than	partly
Vinkovci	46,24%	more than 100 mbs	1	more than	partly 1
Virovitica	41,14%	to 20 mbs	1	more than	partly 1
Vukovar	38,87%	to 20 mbs	1	more than	1

Source: Croatian Regulatory Authority for Network Industries

In Table 5 can be noticed that all of the cities are covered with the information and communications infrastructure, but only the largest cities have available speed wired communications over 100 mbs or wireless over 30 mbs.

The table shows that the provision of infrastructure use in most cases gives only one operator. Therefore it can be concluded that there are not enough healthy competition that would improved type and type of service or allow lower prices.

It is necessary to state that the number of operators are related to the possible number of users, so for example in the city of Zagreb information and communication infrastructure offers directly and indirectly more than 200 operators.

Given the extensiveness of business, the need for constant connection of all company locations and stable and fast access to the Internet and the market demands in the area of the Croatian complete ICT solutions are offered.

So for all sizes of companies Voice Over Internet Protocol services are provided including devices, Web hosting with 500 MB of space, the possibilities of receive e-mail and symmetrical Internet speeds depending on the size of the company.

Also, an increasing solutions in the form of reallocation of their own infrastructure, ie rental of complete services in the form of cloud computing.

For that it is necessary to ensure a stable and fast connection to the Internet, and about the same price offered to the city of Zagreb.

## 6. Comparative analysis of fiscal burdens and available infrastructure

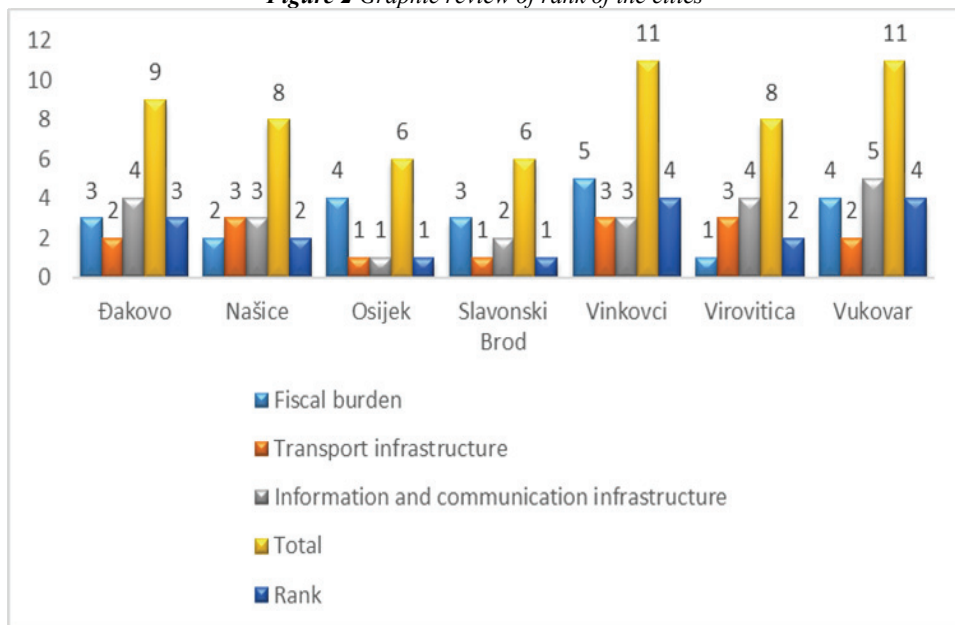
Based on the previous analysis Table 6 indicates the ranking of cities in relation to fiscal burdens and available infrastructure. A special rank for fiscal burdens; available transport and information and communication infrastructure is assigned to each city. Also, the overall ranking is given in the last column.

**Table 6** Rank of the cities

City	Fiscal burden	Transport infrastructure	Information and communication infrastructure	Total	Rank
Đakovo	3	2	4	9	3
Našice	2	3	3	8	2
Osijek	4	1	1	6	1
Slavonski Brod	3	1	2	6	1
Vinkovci	5	3	3	11	4
Virovitica	1	3	4	8	2
Vukovar	4	2	5	11	4

Source: Authors

**Figure 2** Graphic review of rank of the cities



Source: Authors

Table 6 and Figure 2 shows, according to finally obtained rank, that the most favorable conditions according to currently available infrastructure and fiscal burdens are in the largest cities (Osijek and Slavonski Brod) while other cities are in less favorable position despite the efforts of local government and self-government through reducing fiscal levies. Reducing disparities and increasing the competitiveness of small communities is trying to resolve by the legal regulations in defining that every citizen has the right to high-speed, broad band internet.

## 7. Conclusion

This paper presents a comparison of economic and infrastructural factors. It is evident that the largest cities have the most developed infrastructure. Also, the assumption is proven, according to Table 5 (rank 1) that the larger cities have more favorable conditions for the opening the companies or maintaining the existing ones. Despite the reduced fiscal levies, smaller cities are not competitive with the larger cities. Information and communication operators rely on existing infrastructure and only on the basis of the larger number of applications provide additional capacities. Absence of healthy competition leaves no room for choice of favorable operator. Economists do not have a choice and thus ensure the rationalization of costs. The solution can be in the selection of operators of mobile technology, where most of the cities are represented with several operators. Mobile telephony is unfortunately not the solution also for larger economic entities that require higher available speed.

In order to increase the competitiveness of small communities, and the entire eastern Croatia, it is necessary to enable higher speeds of mobile operators as well as increase the number of fixed operators with its own infrastructure. Since the operators decide themselves for a particular location according to the cost-effectiveness of investments, additional ways of financing have to be found.

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## **NAUTICAL TOURISM - RIVER CRUISE ONE OF THE FACTORS OF GROWTH AND DEVELOPMENT OF EASTERN CROATIA**

### **NAUTIČKI TURIZAM – RIJEČNA KRSTARENJA JEDAN OD ČIMBENIKA RASTA I RAZVOJA ISTOČNE HRVATSKE**

#### **ABSTRACT**

*Tourism is the most complex and the most dynamic socio-economic phenomenon.*

*The basic hypothesis of this paper is that tourism in Croatia is one of the key sectors of the economy, however, it is questionable whether the river tourism as a form of tourism is sustainable in the future.*

*The demand for international cruises along European rivers has recorded an increase over the last few years. The total number of cruises in 2012 amounted to 90.000, which is almost 12% more cruises than compared to 2011.*

*Increased demand in the number of international cruises on European rivers affected the growth of capacity in the number of ships, and activities in the market of new shipping companies specializing for cruises on the European rivers.*

*There were 235 ships docking in passenger ports of cities Vukovar and Ilok located on the Danube as part of international cruises during 2012.*

*Year after year, Vukovar, Ilok and Osijek marked an increase in the number of tourist cruise ships docking on the Danube River. According to the Vukovar Port Authority visits to Vukovar from the international cruises started in 2002, while the visits to Ilok started in 2007.*

*The reason for this is certainly in the construction of the required infrastructure for the docking of the ships (Aljmaš and Batina). The increase in the number of cruises on the Danube is certainly a key factor in the development of continental tourism, especially in Eastern Croatia, which is still feeling the effects of the war of aggression and the world economic crisis.*

*The aim of this paper is to highlight and analyze the existing resources in the river tourism in Eastern Croatia, detect main reasons: (in) visibility dock in Vukovar and Ilok, (un)attractive tourist facilities and offer a solution for increasing the use of tourism services on land and increasing the total number of arrivals of the same.*

**Key words:** river tourism, Danube, Drava, Eastern Croatia, growth and development

## SAŽETAK

*Turizam je najkompleksnija i najdinamičnija društveno - ekonomska pojava.*

*Temeljna je hipoteza ovog rada da je turizam u Republici Hrvatskoj jedna od ključnih gospodarskih grana, no upitno je li riječni turizam kao jedan od oblika turizma održiv u budućnosti.*

*Posljednjih nekoliko godina potražnja za međunarodnim krstarenjima na europskim rijekama bilježi stalni porast. Ukupan broj krstarenja u 2012. godini iznosio je gotovo 90 tisuća, što je u odnosu na 2011. godinu 12% više.*

*Povećana potražnja za brojem međunarodnih krstarenja na europskim rijekama utjecala je i na rast kapaciteta u broju brodova, te djelovanja na tržištu novih brodarskih kompanija specijaliziranih za krstarenja europskim rijekama. U putničkim pristaništima u Vukovaru i Iloku tijekom 2012. Godine evidentirano je 235 pristajanja brodova na međunarodnom krstarenju Dunavom.*

*Iz godine u godinu Grad Ilok, Grad Vukovar i Grad Osijek bilježe porast broja turista pristajanjem brodova na krstarenjima Dunavom. Prema podacima Lučke uprave Vukovar, od 2002. godine brodovi na međunarodnim krstarenjima Dunavom posjećuju Vukovar, dok od 2007. godine posjećuju Ilok. Razlog tome zasigurno možemo pronaći u izgradnji potrebne infrastrukture za pristanak brodova (Aljmaš i Batina). Porast broja krstarenja Dunavom zasigurno je ključan čimbenik u razvoju kontinentalnog turizma, posebno Istočne Hrvatske koja i danas osjeća posljedice ratne agresije i svjetske gospodarske krize.*

*Cilj ovog rada je istaknuti i analizirati postojeće resurse u riječnom turizmu na području Istočne Hrvatske, detektirati glavne razloge: (ne)prepoznatljivosti pristaništa u Vukovaru i Iloku, (ne)atraktivne ponude turističkih sadržaja, te ponuditi rješenje za povećanje korištenja turističkih usluga na kopnu i povećanja ukupnog broja dolazaka istih.*

**Ključne riječi:** riječni turizam, Dunav, Drava, Istočna Hrvatska, rast i razvoj

### 1. Introductory remarks

Before proceeding to the study of river tourism it is necessary to define the following terms: tourists, visitors, tourism and forms of tourism.

Tourists are temporary visitors who remain in the country for at least 24 hours, regardless of whether they come on holiday or business.

Hikers are temporary visitors who remain in the country less than 24 hours, and they also come for a vacation or business (Koncul, 2009, 12).

Tourism is the most complex and the most dynamic socio-economic phenomenon. The social components of tourism include: health, cultural, social, political and entertaining function, while the economic components include: multiplicative, occupational, conversion function, absorption, acceleration, inductive, integrative function, the function of promoting international exchange of goods, the function of balancing the balance of payments and function of the development of underdeveloped areas (Bartoluci, 2013, 37).

According to the UN WTO there are three basic forms of tourism: domestic tourism, inbound tourism and outbound tourism. (<https://s3-eu-west-1.amazonaws.com/staticunwto/Statistics/Glossary+of+terms.pdf>).

Within the strategy of tourism in 2020 - operational strategy - the strategy of market segments, river tourism is focused on the so-called golden age. The members of the golden age are active retirees without health problems who usually travel during the spring and fall (<http://www.mint.hr/UserDocsImages/Strategija-turizam-2020-editfinal.pdf>).



The demand for river cruises on European rivers grows from year to year, therefore, it is not surprising that due to this development the demand for ship capacity grows as well.

Ports in cities Vukovar and Ilok recognized this demand and at this time represent the most attractive passenger ports on river cruises in Eastern Croatia. These ports record increasing numbers of stopovers on cruises along the Danube River, while the port in Osijek recorded the highest number of dockings on the Drava River.

The recent openings of the new passenger ports in Aljmaš and Batina, continuous investment in infrastructure, further expansion of tourist and cultural offerings certainly indicate a great potential for further development of this type of tourism on the rivers Danube and Drava in Eastern Croatia.

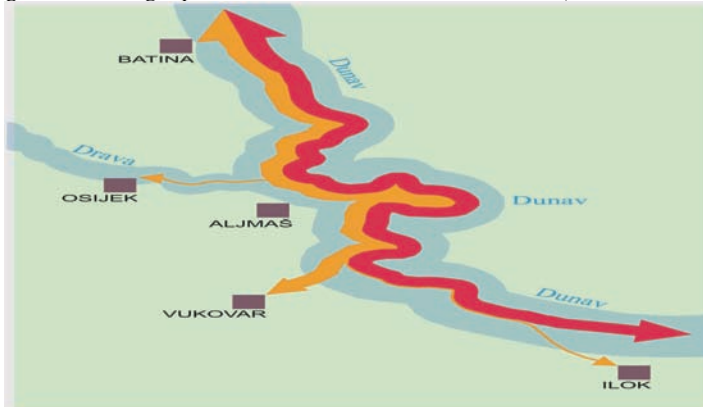
## 2. Analysis of nautical tourism river cruises in Eastern Croatia

The term nautical tourism - river cruises, includes a variety of activities that take place on rivers such as: multiple-day cruises, yachting, one-day cruises (excursions).

This paper will place special emphasis on multiple-day river cruises.

Danube River with its passenger ports Aljmaš, Batina, Ilok and Vukovar and Drava River with its passenger port Galija (Osijek), play a crucial role in river cruises in Eastern Croatia.

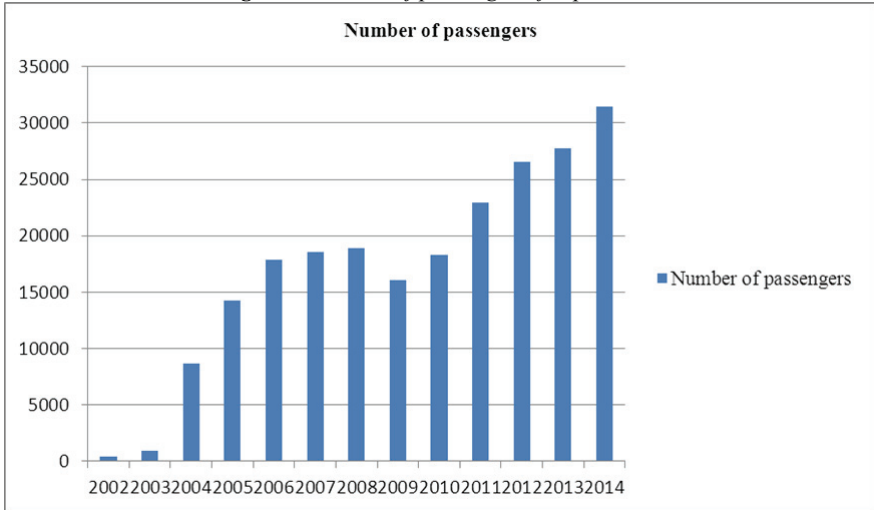
**Figure 1** Passenger ports on the rivers Danube and Drava (Eastern Croatia)



Source: the author analyzed and adjusted data available at: <http://www.mint.hr/UserDocsImages/1412-AP%20naut-rijecni-kruz.pdf> (04.19.2015.)

According to figure 1. Passenger ports on the rivers Danube and Drava (Eastern Croatia), it is evident that the rivers Danube and Drava have five passenger ports: Ilok, Vukovar, Aljmaš, Galija (Osijek) and Batina.

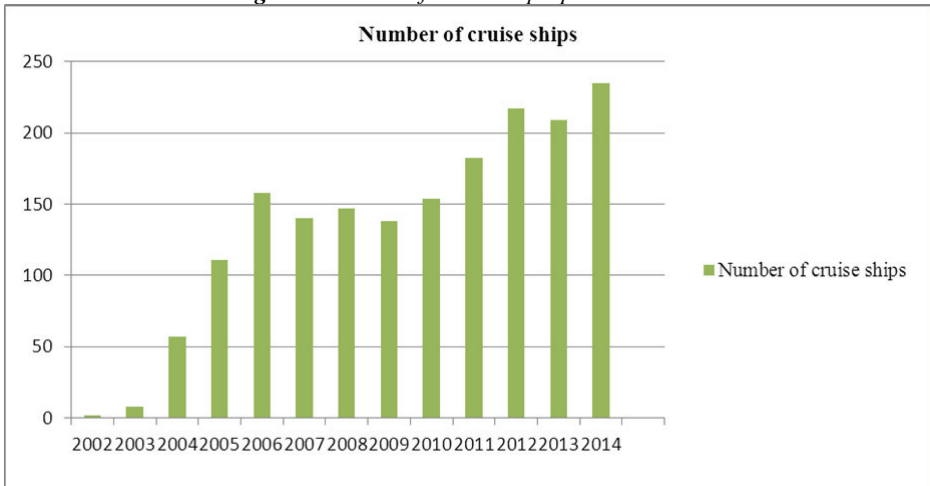
**Figure 2** Number of passengers for port Vukovar



Source: Port Authority Vukovar (04.21.2015.)

According to data from the figure 1. Number of passengers for port Vukovar, it is evident that since 2002., from the first docking into the passengers port Vukovar, the number of passengers every year grows, respectively. A considerable decline in the number of passengers dockings in port Vukovar experienced in 2009., when the number of passengers was at the level of 16.054 as opposed to 2008., when the number of passengers was 18.918.

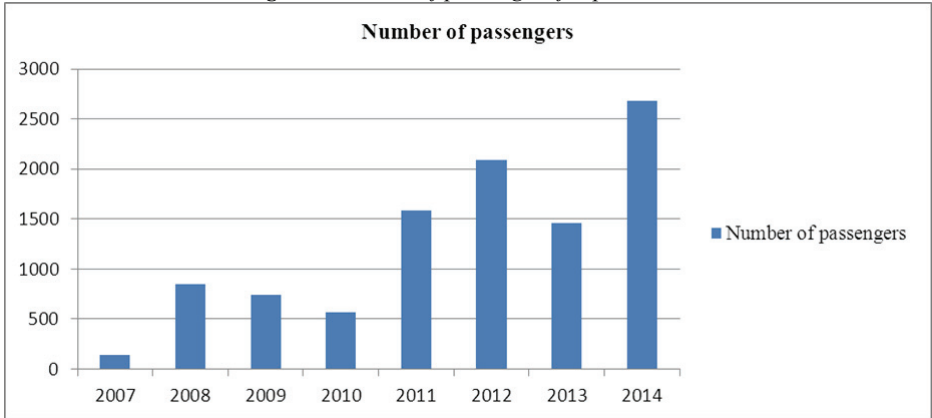
**Figure 3** Number of cruise ships port Vukovar



Source: Port Authority Vukovar (04.21.2015.)

According to data from the figure 2. Number of cruise ships port Vukovar, it is evident that the number of cruise ships fluctuates from year to year, but this decline is not visible in the total number of passengers.

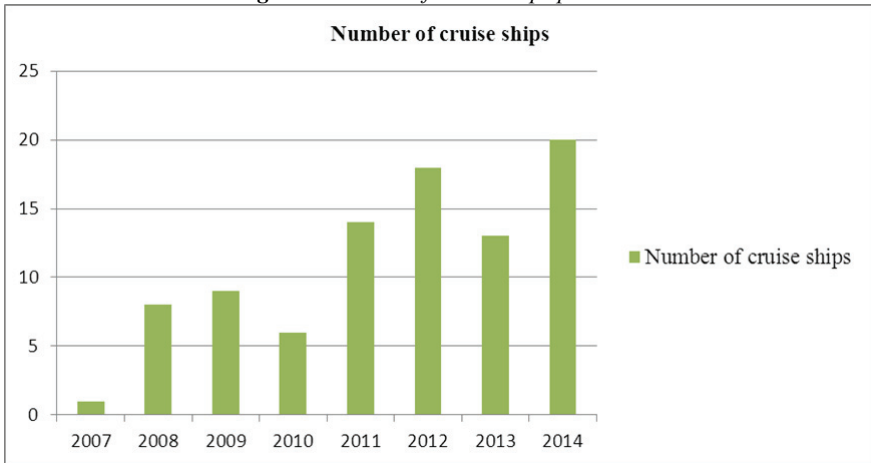
**Figure 4** Number of passengers for port Ilok



Source: Port Authority Vukovar (04.21.2015.)

According to data from the figure 3. Number of passengers for port Ilok, it is evident that the number of passengers fluctuates from year to year. The decline in the number of passengers was recorded in 2009, 2010 and 2013.

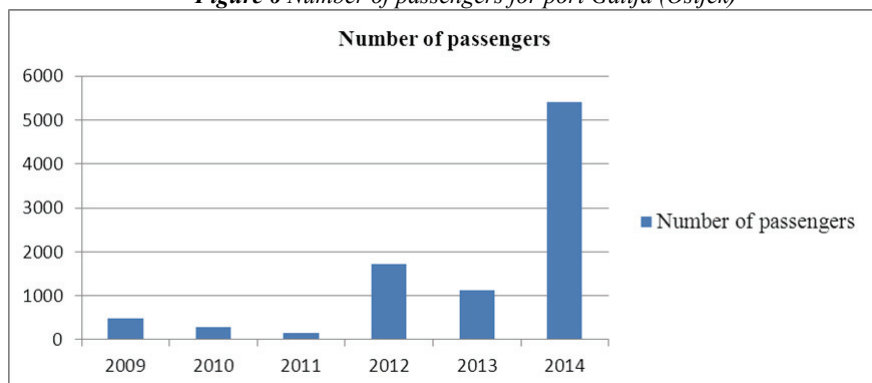
**Figure 5** Number of cruise ships port Vukovar



Source: Port Authority Vukovar (04.21.2015.)

According to data from the figure 4. Number of cruise ships port Ilok, it is evident that the number of cruise ships fluctuates from year to year. The decline in the number of cruise ships was recorded in 2010 and 2013.

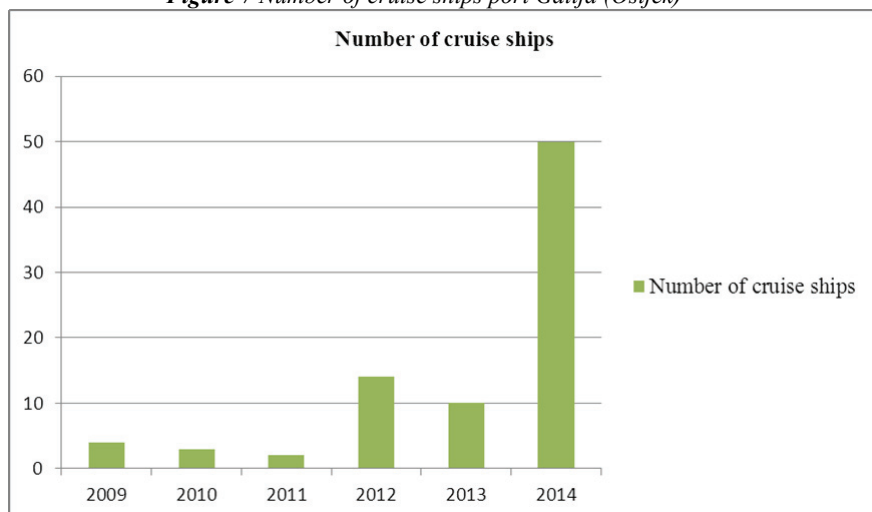
**Figure 6** Number of passengers for port Galija (Osijek)



Source: Port Authority Osijek (04.13.2015.)

According to the data from the figure 5. Number of passengers for port Galija (Osijek), it is evident that the number of passengers fluctuates from year to year. The decline in the number of passengers was recorded in 2011 and 2013.

**Figure 7** Number of cruise ships port Galija (Osijek)



Source: Port Authority Osijek (04.13.2015.)

According to data from the figure 6. Number of cruise ships port Galija (Osijek), it is evident that the number of cruise ships fluctuates from year to year. The decline in the number of cruise ships was recorded in 2010, 2011 and 2013.

Passenger port Aljmaš records no cruise ship dockings, while the passengers port Batina records 5 cruise ships with 622 passengers in the first quarter of 2015. 45 cruise ships have been announced for the passenger port Batina for 2015.

**Table 1** SWOT analysis of river cruises on the Danube and Drava (Eastern Croatia)

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
Danube, Drava Rich cultural and historical heritage Nature resource and preserved environment Excellent gastronomic offer Stable security environment Croatia is a member of the European Union	Unused potentials Insufficiently valued tourist cultural and historical heritage Insufficient sanitary units Insufficient promotion Insufficient networking of stakeholders Insufficient specialized human resources Insufficient infrastructure for yachting Undeveloped one day cruises (excursions) Untapped possibilities of EU funds Not enough space to maneuver on the river Drava
<b>OPPORTUNITIES</b>	<b>THREATS</b>
Growing demand in Europe Differentiation among ship owners New market niches in demand Demand for authenticity destination	Possible stagnation of the market Increase in costs of cruiser services Increase/decrease of river water levels / climate change Ecological disaster / oil spills

Source: the author analyzed and adjusted data available at: <http://www.mint.hr/UserDocsImages/1412-AP%20naut-rijecni-kruz.pdf>

According to the data of Table 1. SWOT analysis of river cruises on the Danube and Drava (Eastern Croatia), it is evident that the river cruises are influenced by many factors, both internal and external.

### 3. Closing remarks and recommendations

Continental tourism in Eastern Croatia has recorded a steady increase in the number of visitors and the number of nights year after year.

With continuous investments in human resources and infrastructure, continental tourism in Eastern Slavonia can experience a high level of recognition on the Croatian tourist map. The rich natural, cultural and historical heritage and excellent gastronomic offer are some of the factors that attract tourist arrivals to the area.

The importance of contributing to the development of continental tourism in Eastern Slavonia is provided the arrivals of international cruise on the Danube and Drava rivers. According to the data of Vukovar Port Authority, 1758 cruisers with 222.665 passengers visited Vukovar from 2002 until 2014, while 89 cruisers with 10.120 passengers visited Ilok from 2007 until 2014. Passenger port Batina registered 5 cruise ships with 622 passengers in 2015, with additional 45 ships announced until the end of the year.

Passengers port Aljmaš has not made any one achieved cruise ships, which calls into question its sustainability in the future.

According to the data of Osijek Port Authority, passenger port Galija (Osijek) docked 83 cruisers with 9.148 passengers from 2009 until 2014. The total number of announced ships for port Galija (Osijek) is 60 in 2015.

The author's recommendations for further development of river tourism on the Danube and Drava (Eastern Croatia) are focused on: further development of infrastructure (modernization of port docks, signaling and technical equipment), improving of the quality of tourist services

(gift shops, restaurants, exchange offices and availability of supply of local food), but also significant networking of all stakeholders.

River tourism is certainly one of the key factors of growth and development of continental tourism in Eastern Croatia, whose potentials are not sufficiently exploited and its sustainability is not questioned.

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## **ECONOMIC CHARACTERISTICS AND DEVELOPMENTAL PROSPECTS OF EAST CROATIA<sup>1</sup>**

### **GOSPODARSKA OBILJEŽJA I RAZVOJNE PERSPEKTIVE ISTOČNE HRVATSKE**

#### **ABSTRACT**

*According to the current territorial constitution, East Croatia occupies approximately 22% of the national territory, and approximately 19% of the Croatian population lives in its five counties. Although it used to be an important economic region, it is presently burdened with numerous social and economic problems. Previous studies of regional disparities indicate a long-term lag of East Croatia as a specific economic, cultural, and social region. Therefore, the objective of this study is to examine key economic characteristics of the region, as well as the possible causes of economic trends. Macroeconomic and structural characteristics of the economy were analysed on the basis of the selected development indicators. Results of the analysis indicate continuous deterioration of economic conditions in all the respective counties after 2008, as well as the increase in regional disparities in this area compared to the Republic of Croatia. The authors identified extremely negative demographic trends as one of the key factors of negative economic trends and increase in development divergence. In this sense, creation of a successful model of national regional policy is a precondition for efficient use of all development resources, and encouraging investments in comparative primary activities is an important factor in the revitalisation of East Croatia.*

**Keywords:** East Croatia, economy, regional disparities, demographic trends

#### **SAŽETAK**

*Prema aktualnom teritorijalnom ustroju Istočna Hrvatska zauzima cca 22% ukupnog nacionalnog teritorija, a u njenih pet županija živi blizu 19% stanovništva Hrvatske. Iako nekada važna gospodarska regija, danas je opterećena brojnim društvenim i ekonomskim problemima. Dosadašnja istraživanja regionalnih nejednakosti upućuju na dugoročno zaostajanje Istočne Hrvatske kao specifične ekonomske, kulturne i društvene regije. Cilj rada bio je istražiti ključna gospodarska obilježja ove regije, kao i moguće uzroke gospodarskih kretanja. Temeljem odabranih razvojnih pokazatelja analizirana su makroekonomska i strukturna obilježja gospodarstva. Rezultati analize ukazuju na kontinuirano pogoršanje ekonomskog stanja u svim pripadajućim županijama nakon 2008. godine, kao i na povećanje regionalnih nejednakosti ovog*

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*područja u odnosu na Republiku Hrvatsku. Izrazito negativne demografske tendencije autori prepoznaju kao jedan od ključnih činitelja i negativnih gospodarskih kretanja i povećanja razvojne divergencije. Kreiranje uspješnog modela nacionalne regionalne politike pretpostavka je efikasnog korištenja svih razvojnih resursa, a poticanje ulaganja u komparativne primarne djelatnosti važan je činitelj revitalizacije Istočne Hrvatske.*

**Key words:** *Istočna Hrvatska, gospodarstvo, regionalne nejednakosti, demografska kretanja*

## 1. Introduction

Problems of regional development and regional disparities have been for a long time the focus of research carried out by economists, sociologists, geographers, and scientists from other fields of scientific research. How do the regions grow, why some grow faster than others, why there are regional disparities in the social and economic sphere; these are some of the central issues of regional development theories and regional policies. Literature provides many answers and reflections on key issues and factors of regional development (Dawkins, 2003). For example, in the framework of the classical theory of economic development, regional growth and increase in regional disparities are explained by the growth poles i.e. location centres which attract investments and labour force from other areas due to their comparative and competitive advantages (Boudeville, 1966). In the neoliberal economic theory and the theory of convergence, location is not a significant factor for regional growth and regional disparities, since, according to their interpretation, there will be balanced development of the regions in the long run due to the effects of the market.<sup>2</sup> Given the real constraints of the market as a regulatory mechanism, there are many cases of the opposite kind recorded in practice, i.e. rise of divergence despite overall economic growth. Many theoretical and empirical research that followed failed to offer an effective model of regional policy, which would ensure a long-lasting and continuous development of depressed or underdeveloped areas and reduce their development disparities.<sup>3</sup> Although, for example, some studies referring to the entire European Union prove the presence of conditioned regional convergence, studies of regional differences in the new EU Member States indicate a significant increase in disparities (Poland, Hungary, Estonia). These results confirm that the process of EU accession and catching up with developed Member States is closely linked with increasing regional differences. Therefore, the process of convergence at the level of countries is followed by the process of divergence within the countries (Puljiz, 2011). These findings may be of great importance for Croatia as the last accessed EU Member State, regarding the existing problems of significant regional disparities, and with respect to an adequate regional policy.

The area of Central Europe has a long tradition of regionalism, as well as Croatia, where there have always been significant cultural and economic centres, among which is also the area of East Croatia with its particularities (Blagojević, 2008). Unfortunately, Croatia has been facing high levels of regional disparities for a long time, and certain aspects of regional imbalance<sup>4</sup> have been going on for about 50 years (Karaman Aksentijević & Denona Bogović, 2001). In the period of the Croatian War of Independence (1990-1995), additional difficulties were created resulting from the destruction of certain areas, forced displacement and resettlement of the population, and lack of resources for material reconstruction of the territories devastated by the war. In the second half

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<sup>2</sup> Solow, R. M. (1956) and Swan, T. M., (1956) are considered authors of the theory; Solow-Swan growth model is well-known.

<sup>3</sup> After the theories of convergence, other theories of regional development and regional disparities followed; from the theory of endogenous growth, Romer (1986, 1990), Lukas (1998) and many others; new economic geographies, Krugman (1998), Fujita and Mori (2005); to the concept of spatial innovation system, Cherhire and Malecki (2005).

<sup>4</sup> The most significant consequences of the unbalanced regional development are reflected in rapid reduction and depopulation of underdeveloped areas, with concurrent migrations and pressures on large urban centres, as well as reduction of agricultural land and decomposition of family farms, devitalisation and further lagging behind certain regions.



of the 20<sup>th</sup> century, the poles theory was applied in Croatia with the objective of polycentric development based on industrialisation, which resulted in the regional economic structure dependent on industrial capacities as development drivers. In regions where such a structure was more pronounced, due to its inelasticity to transition processes and the war, the 1990s saw a dramatic decline in production, employment, and income (Čavrak, 2002).

Regional problems have been present in Croatia for a long time. Theoretically, a regional problem exists if a region deviates from the national average: low level and slow pace of GDP growth, high and continuous unemployment, a high degree of dependence on the narrow industrial base, a sharp decline in production, insufficient infrastructure, high level of migrations out of the region etc. (Griffiths & Wall, 2004). Previous studies of regional disparities in the Republic of Croatia (RC)<sup>5</sup> indicate that East Croatia is constantly below the national average according to most indicators of measurement, and some of its counties have been for a long time in the last place of development ladders (Singer et al., 2014). At the same time, the underdevelopment gap increases at the expense of most East Croatian counties (Ministry of Regional Development and EU Funds, 2013).

## 2. Macroeconomic and Structural Characteristics of East Croatian Economy

For the assessment of the economic situation of a national economy, region, or lower administrative levels, the usual starting point is the realised value of gross domestic product (GDP) and gross domestic product per capita (GDP/PC). Both indicators are an important indicator of economic strength of the locality and living standard of the population, and they are thus suitable comparative instruments of economic performance and economic policy in different regions. Moreover, they are used as a criterion for the allocation of financial grants<sup>6</sup> in the framework of regional policies.

East Croatia consists of five counties: County of Osijek-Baranja, County of Vukovar-Srijem, County of Brod-Posavina, County of Požega-Slavonia, and County of Virovitica-Podravina. The indicators of GDP trends from 2008-2012 (cf. Table 1) reveal several negative trends: a significant reduction in the value of produced goods and services by as much as 12,5%, decrease in purchasing power of the population at an average annual rate of 1,1%, and increase in regional disparities in relation to Croatia of 4 percentage points. The increase in regional disparities in the period under analysis, measured in purchasing power of the population, is present in all five counties. The greatest lag is evident in the County of Brod-Posavina, and the least in the County of Osijek – Baranja.

**Table 1** GDP and GDP/PC Trends 2008-2012

Counties	GDP in mil. HRK		Change in GDP 2012/2008 (%)	GDP/PC in HRK		Change in GDP/PC 2012/2008 (%)	Deviation Index GDP/PC RC = 100	
	2008	2012		2008	2012		2008	2012
Osijek-Baranja	20.545	18.429	-10,3	64.079	60.835	-5,1	83,0	78,6
Vukovar-Srijem	9.520	8.006	-15,9	48.010	45.077	-6,1	62,2	58,2
Brod-Posavina	7.754	6.919	-10,8	44.661	43.999	-1,5	57,9	56,8
Požega-Slavonia	4.025	3.518	-12,6	48.754	45.866	-5,9	63,2	59,2
Virovitica-Podravina	4.774	3.908	-18,1	54.064	46.599	-13,8	70,1	60,2
<b>East Croatia</b>	<b>46.618</b>	<b>40.780</b>	<b>-12,5</b>	<b>53.995</b>	<b>51.110</b>	<b>-5,3</b>	<b>70,0</b>	<b>66,0</b>
<b>Republic of Croatia</b>	<b>342.159</b>	<b>330.456</b>	<b>-3,4</b>	<b>77.158</b>	<b>77.407</b>	<b>0,3</b>	<b>-</b>	<b>-</b>

Source: Authors' calculation based on statistical reports Pr. 12.1.6. and Pr. 12.1.2. published at the website of the CBS (Central Bureau of Statistics)

<sup>5</sup>Numerous Croatian economists (Bogunović, Borozan, Cini, Čavrak, Denona Bogović, Filipić, Frohlich, Grčić, Jurlina-Alibegović, Karaman Aksentijević, Maleković, Puljiz, Starc, Šimunović, Turčić, etc.) contributed to research in the field of regional development and policy as well as specific problems of regional disparities.

<sup>6</sup> For example, in the framework of the EU's Regional Policy, funds from the Cohesion Fund are allocated according to the criterion of regional development; thus, "less developed regions" imply those whose GDP per capita is lower than 75% of the EU average.

Unemployment is a burning issue of the Croatian economy and cause of a number of other recession trends, as well as a factor of the current economic imbalance. High level of unemployment indicates inefficient use of labour as a production factor, and increase in the gap between the realised and potential production value. Long-term high unemployment leads to a reduction of production capacity of the economy and reduction in demand for products. The area of East Croatia is particularly „marked“ by high, above-average level of unemployment (cf. Table 2). In the period between 2008 and 2013, the unemployment rate increased from the high 22,4% to as much as 32,3%.

**Table 2** *Employment and Unemployment Rates in 2008 and 2013*

Counties	Employment rate (%)	Employment rate (%)	Unemployment rate (%)	Unemployment rate (%)
	2008	2013	2008	2013
Osijek-Baranja	45,3	41,4	20,7	30,2
Vukovar-Srijem	35,5	34,5	26	34,7
Brod-Posavina	37,2	33,9	23,2	33,9
Požega-Slavonia	38,9	35,4	18,2	28,2
Virovitica-Podravina	41,7	35,7	24,1	34,3
<b>East Croatia</b>	40,5	37,3	22,4	32,3
<b>Republic of Croatia</b>	52,3	47,9	13,2	20,2
<b>Deviation Index (RC=100)</b>	77,4	77,9	169,7	159,9

*Source: Authors' calculation based on the Yearbook of the Croatian Unemployment Service in 2008 and 2013.*

With the increase in the unemployment rate and total unemployment (about 40%) in all counties, a decrease in the employment rate and employment was recorded simultaneously. Given that demographic trends indicate a decrease in working population, but at a slower pace than reduction of total employment (E), it is to assume that in East Croatia there is a rapid reduction of human resources as a development factor, which certainly contributes to the rise of regional divergence. The unemployment rate was in 2008 almost 70% above the national average. Although figures for 2013 indicate reduction of the gap, the cause is primarily rapid emigration of the population, which is confirmed by the results of the analysis presented below. Namely, East Croatia has approximately 30% higher migration balance rate than the Croatian average (cf. Table 8).

Labour productivity is one of the key indicators of macroeconomic efficiency of human capital. On this basis, it is possible to establish growing economic lag of East Croatia compared to the national average (cf. Table 3). In 2008, deviation in relation to the Croatian average amounted 8,8%, and in 2012, it increased to 15,4%. Although rates of change in GDP and employment<sup>7</sup> in the period under analysis indicate greater elasticity of employment at the national level in relation to the Eastern region, more rapid pace of GDP reduction in relation to the decrease in employment in East Croatia resulted in a decline in labour productivity by 0,2%, while at the national level, due to the present reverse trend, there was an increase in labour productivity by 7,6%.

With all the above-mentioned negative trends, rapid decline in investments is a special reason for concern, because they are a key driver of the upward economic cycle. In the five-year period of analysis, the value of realised investments in fixed assets in East Croatia decreased by approximately 44%, while the investment rate fell from 17% to 11% (cf Table 4). Unfortunately, a negative trend in investment activity is the characteristic of the entire Croatian economy, and the absence of investments in underdeveloped regions such as East Croatia further deepens their developmental lag.

In the economic structure of East Croatia, analysed on the basis of realised gross value added (GVA) of specific activity or groups of activities, there is a dominant share of the processing

<sup>7</sup> The number of employees in East Croatia decreased by 12,3%, while the decrease in Croatia was 10,3%.

sector (B, C, D, E), and within it of the manufacturing industry (C), approximately 80% in 2012<sup>8</sup>. The most significant capacities of the manufacturing industry relate to the production of food and beverages, wood and textile products, paper and paper-based products, and chemicals. It is a production structure based on comparative advantages of this area.

**Table 3 Labour Productivity in 2008 and 2012**

Counties	Labour productivity in HRK (GDP/E)		Change rate 2012/2008 (%)	Deviation index RC=100	
	2008	2012		2008	2012
Osijek-Baranja	209.758	210.179	0,2	95,3	88,7
Vukovar -Srijem	204.349	190.587	-6,7	92,9	80,5
Brod-Posavina	183.059	194.602	6,3	83,2	82,2
Požega-Slavonia	192.777	195.090	1,2	87,6	82,4
Virovitica-Podravina	195.985	192.521	-1,8	89,1	81,3
<b>East Croatia</b>	<b>200.828</b>	<b>200.318</b>	<b>-0,2</b>	<b>91,2</b>	<b>84,6</b>
<b>Republic of Croatia</b>	<b>220.066</b>	<b>236.866</b>	<b>7,6</b>	-	-

Source: Authors' calculation based on statistical reports Pr. 12.1.6. and Pr. 12.1.2 published on the website of the CBS and Yearbook of the Croatian Employment Service for 2012

**Table 4 Investment Activity, Realised Investments in New Fixed Assets**

Counties	Investment rate Investments/GDP (%)		Value of investments mil. HRK		Change in 2012/2008 (%)
	2008	2012	2008	2012	
Osijek-Baranja	20,9	11,3	4.293	2.091	-51,3
Vukovar - Srijem	14,8	11,1	1.412	888	-37,1
Brod-Posavina	13,9	12,2	1.075	840	-21,9
Požega-Slavonia	15,5	7,6	625	269	-57,0
Virovitica-Podravina	11,7	9,9	560	386	-31,1
<b>East Croatia</b>	<b>17,1</b>	<b>11,0</b>	<b>7.965</b>	<b>4.474</b>	<b>-43,8</b>
<b>Republic of Croatia</b>	<b>21,3</b>	<b>11,9</b>	<b>73.056</b>	<b>39.374</b>	<b>-46,1</b>

Source: Authors' calculation based on statistical reports SI 1424 and SI 1531 published on the CBS's website

Given the comparative advantages of East Croatia, its economic structure is characterised by a very high share of agricultural activities in the total realised GVA, as much as 9,8 percentage points more than in Croatia in 2012. Group of activities consisting of public administration, education, and health care (O, P, Q) also has a high share in the structure of the economy. Other significant activities are trade, transport, and tourism and hospitality services (G, H, I). All other activities only contribute one third to the realised GVA (31,2% in 2012), and their share did not change significantly in the period under analysis. These activities are also dominant in the economic structure of all East Croatian counties individually.

### 3. The Assessment of Regional Development

Based on the conducted analysis, the conclusion is derived that East Croatia tends to further increase in regional disparities. Although, in statistical terms, indicators of employment and unemployment tend towards reduction of regional disparities in relation to the Croatian average, they are, as will be presented below, primarily the result of above-average negative demographic trends in this area, and therefore cannot be interpreted as a positive trend.

Based on the selected indicators, within the region of East Croatia in the period under analysis the best results were recorded in the County of Osijek-Baranja, while the County of Vukovar-Srijem and Brod-Posavina were on the last place according to total ranking (cf. Table 6).

<sup>8</sup> Authors' calculation based on the statistical report Pr. 12.1.6 published on CBS's website

**Table 5** Trend of Regional Disparities in East Croatia in Relation to the Republic of Croatia

Selected indicators	Value at the beginning of the period*	Value at the end of the period*	Change
GDP/PC (index, RC=100)	70	66	Increase ↗
Employment rate (index, RC=100)	77,4	77,9	Decrease ↘
Unemployment rate (index, RC=100)	169,7	159,9	Decrease ↘
Labour productivity (index, RC=100)	91,2	84,6	Increase ↗
Investment activity** (index, RC=100)	73,1	77,9	Decrease ↘
Total income per employee*** (index, RC=100)	73,5	77,0	Decrease ↘
Share in total employment in Croatian entrepreneurship (%) ***	11,2	10,1	Increase ↗

Source: Authors' calculation and processing based on tables 1-4 and FINA's data; Note: \* refers to the initial and final year of analysis; \*\* investments per employee, \*\*\* data relating to business results of entrepreneurs in 2008 and 2013

**Table 6** Development Rank of East Croatian Counties according to the Criterion of Developmental Disparity

Indicators	Counties	Osijek-Baranja	Vukovar-Srijem	Brod-Posavina	Požega-Slavonia	Virovitica-Podravina
GDP/PC		1-1	4-4	5-5	3-3	2-2
Employment rate		1-1	5-4	4-5	3-3	2-2
Unemployment rate		2-2	5-5	3-3	1-1	4-4
Labour productivity		1-1	2-5	5-3	4-2	3-4
Investment activity		1-2	3-3	4-1	2-5	5-4
Total income per employee		1-1	2-2	4-4	5-5	3-3
Share in employment in entrepreneurship		1-1	2-2	3-3	5-4	4-5
Total ranking within East Croatia		1-1	4-5	5-3/4	2/3-2	2/3-3/4

Source: Authors' calculation and processing based on tables 1-4 and FINA's data; Note: The first value refers to the ranking of individual counties at the beginning of the period under analysis, and the other to its ranking at the end of the period. The lowest ranking indicates the least negative deviation of individual indicators from the Croatian average and is in the context of this paper the indicator of the best development result in East Croatia.

Although the counties' position within the region can also be analysed by other indicators, the analysis pointed to two important facts: East Croatia is one of the underdeveloped regions, and has experienced growing regional divergence since 2008. These findings are also verified by other recent studies of regional development in Croatia. For example, according to the regional competitiveness index (Singer et al., 2014), all five East Croatian counties are in the lower half, from 11<sup>th</sup> place onwards, where the County of Osijek-Baranja achieved an increase in competitiveness and moved up three places (from the 14<sup>th</sup> to 11<sup>th</sup>) in the period from 2007 to 2013. According to this study, counties of Vukovar-Srijem and Požega Slavonia were in the last two places (20<sup>th</sup> and 21<sup>st</sup>), Baranja-Posavina was in the 16<sup>th</sup> place, and Virovitica-Podravina in the 18<sup>th</sup> place in 2013. Research conducted by the Institute of Public Finance (Bajo et al., 2014), in which all Croatian counties were ranked on the basis of the set of 12 demographic and economic indicators, also proves below-average development of East Croatia. According to this analysis, only the County of Osijek-Baranja is in the upper half, in the 9<sup>th</sup> place, and all others are among the last six counties. Ranking and assessment of the counties for 2013 by the Ministry of Regional Development and EU Funds also confirm the findings of this study regarding the increase in developmental lag of East Croatia compared to the Croatian average. Namely, according to the indicators used by the Ministry, the level of development of all East Croatian counties decreased in comparison with the previous reporting period (MRDEUF, 2010 & 2013).

#### 4. Demographic Trends – A Possible Cause of Development Problems of East Croatia?

There are many reasons for development problems and lagging behind of some regions, and some of the most important ones are certainly depopulation processes that, among other things, may have an extremely negative impact on the ability of economic revitalisation, revival of

entrepreneurship, and hence the attraction of investments to a particular area. Without going into other causes and effects of depopulation, the authors believe that it is, on the one hand, a result of insufficient economic development, but in the long run, it also becomes a key limiting factor for development, i.e. cause of further stagnation or lag of a certain locality or region. This is also the reason why demographic trends are separately analysed below as a significant cause of the economic situation in East Croatia.

Although negative demographic trends are present in the entire Croatia, deviations in its eastern part are much higher than the national average. Between 2001 and 2011, the population of the Republic of Croatia decreased by 3,4%, and in East Croatia by as much as 9,6%, i.e. 6,2 percentage points over the national average. Above-average population decline occurred in all the counties: in the County of Vukovar-Srijem the most (12,3%), and in Osijek-Baranja the least (7,7%). This also resulted in an increase in negative difference compared to the average population density: in 2001, population density in East Croatia was 71,4 inhabitant per km<sup>2</sup>, i.e. 8,9% less than RC, and in 2011, 64,5 inhabitants per km<sup>2</sup> or 14,7% less than Croatian average.<sup>9</sup> In the same decade, there was also a decrease in the share of the population in this area in the total Croatian population, from 20,1% to 18,8%. Although indicators of population ageing (cf. Table 7) are somewhat more favourable than the Croatian average, they are far above the limit values and deteriorate faster than the Croatian average, which additionally indicates extremely negative demographic trends in East Croatia. In the last Census period, the average age limit in this area increased by 6,8% (RC by 6,1%), the ageing index by 33,5% (RC by 26,8%), and age coefficient by 9% (RC by 11,6%). Thus, two of three indicators of population ageing grow at a faster pace than the national average. Recognising the importance of human resources in economic development, it can be concluded that these tendencies represent a real threat and limitation to future economic development of East Croatia.

**Table 7 Population and Ageing Indicators in 2011 and 2011**

Counties	Population		Ageing indicators of the population in 2001			Ageing indicators of the population in 2011		
	2001	2011	Average age	Ageing Index	Age coefficient	Average age	Ageing Index	Age coefficient
Osijek-Baranja	330.506	305.032	38,7	84,1	20,8	41,2	106,3	22,8
Vukovar-Srijem	204.768	179.521	37,8	76,5	20,3	40,6	98,3	23
Brod-Posavina	176.765	158.575	37,8	77,5	21	40,6	96,5	23,1
Požega-Slavonia	85.831	78.034	38,2	81	21,8	40,9	99,2	23,6
Virovitica-Podravina	93.389	84.836	38,9	87	22,1	41,2	103,3	23,1
<b>East Croatia</b>	<b>891.259</b>	<b>805.998</b>	<b>38,3*</b>	<b>81,2*</b>	<b>21,2*</b>	<b>40,9*</b>	<b>100,7*</b>	<b>23,1*</b>
<b>Republic of Croatia</b>	<b>4.437.460</b>	<b>4.284.889</b>	<b>39,3</b>	<b>90,7</b>	<b>21,6</b>	<b>41,7</b>	<b>115</b>	<b>24,1</b>

Source: Authors' calculation based on the Census 2001 and 2011 published on CBS's website; Note: \* average values by counties; **The ageing index** is a percentage calculated as the ratio of the number of persons aged 60+, and the number of persons aged 0-19 years. The index greater than 40% indicates that the population of the area is in the process of demographic ageing. **Age coefficient** shows the proportion of persons over 60 years of age in the total population. It is an indicator of the level of ageing, and after reaching the value of 12%, it is considered that the population in the analysed area is in the process of demographic ageing.

Indicators of natural and mechanical population movement indicate worrying demographic trends (cf. Table 8).

<sup>9</sup> Authors' calculation based on data on the counties' surface taken from the Statistical Yearbook of the Republic of Croatia 2014 and the Census 2001 and 2011 published at the CBS's website.

**Table 8 Indicators of Natural and Mechanical Movements of the Population 2001-2013**

Counties	Vital coefficient*			Migration balance rate**		
	2001	2011	2013	2001	2011	2013
Osijek-Baranja	83,7	72,4	72,8	1,85	-0,69	-1,95
Vukovar - Srijem	97,6	74,8	70,5	2,02	-2,57	-3,94
Brod-Posavina	94,2	82,5	78,9	5,07	-0,49	-3,07
Požega-Slavonia	85,8	66,1	69,7	3,69	-4,57	-2,10
Virovitica-Podravina	70,8	65,5	67,4	1,00	-1,91	-2,04
<b>East Croatia</b>	<b>86,4</b>	<b>72,26</b>	<b>71,9</b>	<b>2,62</b>	<b>-1,57</b>	<b>-2,64</b>
<b>Republic of Croatia</b>	<b>82,7</b>	<b>80,7</b>	<b>79,3</b>	<b>3,81</b>	<b>-0,97</b>	<b>-1,15</b>
<b>Deviation from RC (%)</b>	<b>4,5</b>	<b>-10,5</b>	<b>-9,3</b>	<b>-31,2</b>	<b>-61,90</b>	<b>-129,60</b>

Source: Authors' calculation based on statistical reports Pr. 7.1.1. 2002 and 2014, Pr. 7.1.2. 2003, 2012 and 2014, and Pr. 7.1.4. 2014 and the Census 2001 and 2011 published on CBS's website; Note: \*Vital coefficient shows the number of births to 100 deaths; \*\*Migration balance rate is the **general net migration rate**, and it is calculated as the ratio of migration balance and mid-year population, expressed in per thousands.

Although national natural increase is negative in the entire analysed period, the decrease pace is considerably faster in East Croatia compared to the Republic of Croatia: the natural increase declined at an annual rate of 1,4%, while the average annual decline rate at the national level amounted 0,34%. Additional reason for concern and indisputable indicator of the increase in regional disparities is the fact that in 2001, in East Croatia and all its counties (except in Virovitica-Podravina), the vital coefficient was more favourable in comparison with RC (positive deviation amounted to 4,5%), and in 2011 and 2013, the deviation turned negative. Thus, in 2011, the vital coefficient of all the East Croatian counties was below the national average, and in terms of the entire region, the value of the vital coefficient in East Croatia in the same year was as much as 10,5% lower.

Since 2009, the migration balance has been negative, and deviation in comparison with Croatia increased by over four times! The general net migration rate in 2013 amounted to -2,6 per thousand, which is 129,6% more than the national average, and is a relevant indicator of regional inferiority. As a result of extreme dynamics of negative population trends, from 2001 to 2013, there were over 99 000 „lost“ inhabitants, which represents 54,8% of the total decrease in the Croatian population in the same period! The average annual rate of population decline in this period was -0,9%, i.e. 2,7 times more than the Croatian average! As a result of the long-term economic crisis, devitalisation of the population of East Croatia after 2009 has been even more rapid: the average annual rate of change for the period 2009-2013 is -1,96%.

Considering that population, in terms of availability of human resources, is a precondition and the key factor of overall development of a country, it turns out that demographic trends in East Croatia are one of the key factors of current development trends and regional disparities, but also a serious developmental constraint and threat to future aspects of development. Continuation of the present demographic trends may in the future further increase the existing regional lag and developmental divergence of this part of Croatia in relation to national socio-economic trends.

## 5. Instead of Conclusion – What Is the Perspective of East Croatia?

The conducted analysis on the example of East Croatia confirmed that regional disparities that have been long present in Croatia do not reduce, but rather increase. It is established in this paper that in the period after 2008, economic strength and purchasing power of the population have been continuously decreasing, at a faster pace than the national average, and unfavourable economic situation and developmental lag of East Croatia are substantiated by the relatively high rate and dynamics of unemployment growth, indicators of low level of efficiency of human capital, and „halved“ investments. In addition, negative demographic processes, especially migration trends, have reached the critical stage, with a tendency to become a key factor in the „poverty cycle“, so

they represent a serious threat and limitation to development opportunities and „upward perspective“ of this Croatian region.

At this level of research, it is difficult to propose concrete measures and activities, as well as their potential agents, in view of changing the current negative trends. For the authors, this will certainly be a challenge to continue the research, especially in order to analyse other causes of increase in developmental divergence. However, at the end of this paper, it is important to point out that the area of East Croatia represents an invaluable potential for development, for the entire Republic of Croatia as well as its local and regional population. In this regard, the creation of a successful model of horizontal regional policy of the Republic of Croatia which will allow optimal use of all East Croatian development factors, especially human and natural resources, but also the existing production capacities, is imposed as the key „pillar“ of future development of this region. Since primary activities constitute a significant part in the economic structure of this region, promoting investments in primary sector activities, whose resources are undoubtedly the key comparative advantage of East Croatia, is one of the priority activities for its revitalisation. Development of the primary sector will initiate multiplicative macroeconomic effects on other economic activities, especially those whose raw material base is based on primary sector products. This primarily applies to specific manufacturing activities, and a part of the tertiary sector, such as tourism.

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## **STRATEGIC OPPORTUNITIES FOR DEVELOPMENT OF MANUFACTURING INDUSTRY IN BRODSKO POSAVSKA COUNTY**

### **STRATEŠKE PRILIKE ZA RAZVOJ PRERAĐIVAČKE INDUSTRIJE U BRODSKO POSAVSKOJ ŽUPANIJI**

#### **ABSTRACT**

*Global economic crisis affects the Croatian economy systematically since 2008. This is mostly reflected in the least developed regions in the Republic of Croatia, and one of them is Brodsko Posavska County (BPC), which has much worse indicators in relation to the national level. In 2013, the share that contributing BPC in relation to the overall level of the Republic of Croatia for the following indicators are: the number of enterprises 1.52%, the share in total employment is 1.8%, the share of total assets is 0.8%, the share of income makes 1.18%, net profit 0.96% etc.*

*Strategy presents a series of competitive moves and business approaches that company uses to increase the level of business, ensure the desired market position, attract customers, compete successfully, and accomplished the desired objectives. Strategy of each company, same as the economy is the key to development and success. All weak indicators can be explained by poor and almost non-existent strategy for the development of county economy and stimulate entrepreneurial activity. Manufacturing industry historically has great significance for the BPC and has been a holder of the economy. However, badly managed privatization is almost destroyed many sectors. Because of this, it should develop a strategy to enable to existing enterprises enviable business results.*

*The aim of this paper is to show status and basic financial indicators for the sectors which comprise more than 15 companies in the manufacturing in BPC, which are according to the CNAE 2007 (CNAE-National Classification of Economic Activities) Sector: C10 Manufacture of food products, C16- Manufacture of wood and of products of wood and cork, except furniture, C22- Manufacture of rubber and plastic, C25-production of fabricated metal products, except machinery and equipment. This paper will use the methods of analysis, induction, deduction, synthesis and comparison. As a result, based on research, it wants to find strategic opportunities that could improve the economy in BPC.*

**Keywords:** *Strategy, Development, Competitiveness, Industry, Company*

#### **SAŽETAK**

*Velika gospodarska kriza pogađa hrvatsko gospodarstvo sustavno od 2008. godine. To se najviše odražava na najslabije razvijene regije u Republici Hrvatskoj, a jedna od njih je i Brodsko posavska županija (BPŽ), koja ima puno lošije pokazatelje u odnosu na nacionalnu razinu. U 2013. udio koji pridonosi BPŽ u odnosu na cjelokupnu razinu RH za sljedeće*



*pokazatelje iznosi: broj poduzeća 1,52%, udio u ukupnoj zaposlenosti 1,8%, udio ukupne imovine 0.8%, udio prihoda čini 1,18 %, dobit nakon oporezivanja 0,96% itd.*

*Strategiju predstavlja niz konkurentskih poteza i poslovnih pristupa koje poduzeće koristi kako bi povećalo razinu poslovanja, osiguralo željenu tržišnu poziciju, privuklo kupce, uspješno konkuriralo, te ostvarivalo željene ciljeve. Strategija kako pojedinačnih poduzeća, tako i gospodarstva je ključ za razvoj i uspjeh. Svi loši pokazatelji se mogu objasniti lošom i gotovo nepostojećom strategijom županije za razvoj gospodarstva i poticanje poduzetničke aktivnosti. Prerađivačka industrija i povijesno ima veliki značaj za BPŽ i oduvijek je bila nositelj gospodarstva. No, loša privatizacija je mnoge sektore gotovo uništila. Upravo zbog toga, treba razvijati strategiju kako bi se postojećim poduzećima omogućili zavidniji poslovni rezultati.*

*Cilj ovog rada je dati prikaz stanja i temeljnih financijskih pokazatelja za sektore koji broje više od 15 poduzeća u prerađivačkoj u BPŽ, a to su prema NKD 2007 (NKD - Nacionalna klasifikacija djelatnosti) sektor: C10- Proizvodnja prehrambenih proizvoda, C16- Prerada drva i proizvoda od drva i pluta, osim namještaja, C22- Proizvodnja proizvoda od gume i plastike, C25-proizvodnja gotovih metalnih proizvoda, osim strojeva i opreme. U radu će se koristiti metode analize, indukcije, dedukcije, sinteze i komparacije. Kao rezultat, na osnovi istraživanja, žele se promaći strateške prilike koje bi mogle unaprijediti gospodarstvo BPŽ.*

**Ključne riječi:** *Strategija, Razvoj, Konkurentnost, Industrija, Poduzeće*

## **1. Introduction**

Strategy can be defined as a series of competitive moves and business approaches that are used to increase the level of business, ensure the desired market position, attract customers, compete successfully, and accomplished the desired objectives. Brodsko Posavska County is one of less competitive and developed regions in Republic of Croatia, but manufacturing industry is leading industry and core business of the County. For determination of strategic opportunities it is important to present the most important indicators that can show a possible pathway for development.

## **2. Strategy implementation**

Characteristics of a good strategy implementation involve the creation of strong links between company strategy and on the other hand, organizational skills, awards, internal operating system and working environment within the company. What is the connection between those elements is greater, it is better to implement a strategy, and thus increases the probability to achieve the desired objectives of the company. Implementation of the strategy involves daily decisions about resource allocation. Implementation of the strategy is a process that can be implemented throughout the entire company, but most often carried out within the middle and lower management levels. Application and development of strategies are not one-time because of customer needs and competitive market conditions are constantly changing. It is important constantly to evolve new opportunities, and new threats. "Some aspects of the strategy may be unacceptable in view of the new situation caused by changes in the market or changes within the company. For example, new managers may have different ideas and visions of the development of enterprises. All these changes create the need for control, adjustments and corrections of strategy. Control, correction and evaluation are counted as the final stage of the development strategy, but they are determined and weaknesses of the previous stage, and enable their removal in the new cycle of creation "(Zeckhauser, I.R., 1991., p. 1). This fact is important for research because if previous level of development and

its weaknesses, new strategy implementation should open new opportunities for development of manufacturing industry.

### 3. Economy of Brodsko Posavska County

That the competitiveness of the Croatian economy as a whole is largely dependent on the strength of and competitiveness of the Croatian manufacturing industry shown by the fact that more than 90% of exports is made by that industry. Croatian should make effort to make strategic changes in the structural characteristics of the manufacturing industry. "In Brodsko Posavska County in 2013 there were active 1,352 enterprises with 13,254 employees. 868 companies achieved a profit after tax of 234 mil. kn, while 467 enterprises in the Brodsko Posavska County in 2013 operated with loss." (www.hgk.hr )

The structure of the economy of Brodsko Posavska County is measured by the share in total revenue and profit after tax is shown in table 1.

*Table 1 Structure of economy in Brodsko Posavska County*

Share in total revenue		Profit after tax	
Manufacturing	48,55%	Manufacturing	60,53%
Trade	15,09%	Trade	10,01%
Construction	9,64%	Construction	8,00%
Agriculture, forestry and fisheries	9,03%	Agriculture, forestry and fisheries	5,45%
Professional, scientific and technical activities	6,56%	Professional scientific and technical activities	3,73%
Electricity, steam and air conditioning	3,08%	Water supply and sewerage	3,13%
Transport and storage	1,43%	Mining and quarrying	2,32%
Other activities	6,62%	Transport and storage	1,59%
		Other activities	5,24%

*Source: made by author according (www.hgk.hr)*

#### 3.1. Historical development of manufacturing industry

How powerful some industry is depends on its quality. The quality of the industry is determined by the branch structure, technological and capital development, competitiveness of products, age and gender structure, qualification of workforce etc. From different types of industry depends on the creation of industrial and economic region. "Manufacturing industry in Croatia increase in potential in period from 1945 to 1990. for almost four and a half times the amount of gross domestic product, per capita for 3.8 times. Average annual growth rates from 1956 to 1989 amounted to gross domestic product for 4.6% and 4.2% per capita." (Statistički godišnjak Jugoslavije, 1990., p.406)

This development and growth is the result of development policy with the basic aim was industrialization. Were found in a very high growth rates of industrial production, and the industry soon became the dominant industry in the total production. In the period 1954th-1989th the rate of growth in the industry was 6.2% per year, which is in the period meant an increase of 7.8 times. Average Yugoslavia was even greater: 7.1% amounted to annual growth rate, and the increase was 10 times higher. Employment has risen considerably slower than the domestic product except for the period after 1979. Structure of development of manufacturing industry is shown in table 2, also as its comparison with other developed countries and regions.

**Table 2** Structure of GDP (in %) and structure in employment (in %) in the manufacturing industry

	GDP(%)			Employment (%)		
	1960	1981	1987	1960	1981	1987
Hrvatska	-	27.9	32.1	-	25.0	28.6
Jugoslavija	-	29.9	35.5	-	23.3	27.8
EEC	32.5	25.4	25.0	28.9	26.6	23.6
OECD	29.4	23.8	21.3	26.0	23.8	23.2
Japan	34.6	29.0	29.0	21.3	24.8	24.1

*Source: Made by author according Sirotković, J., 1996., p. 17*

The main feature of industrial development is the technological sophistication of production. "The cause of the success and competitiveness of Japanese industrial products is more in constant technological development, but in the big scientific discoveries. Industry, which is technologically not improved doomed to failure. Technology to improve the production requires significant resources and special professional qualifications of the workforce." (Sayer, A., 1989., p. 666-695)

"As everywhere in the world, just at different times, so it was in Brodsko Posavska County (part of Slavonia): the growing industry driven by the current outlook and the case it is cited in a roundabout and right path. So industry in Slavonia carries the same feature, creating a rash. No one has studied the Slavonia as a whole: its soil, water, climate, energy, all forms of life, neither the people, that arises from a thought about the activities nor business dealings that would satisfy domestic needs and serve as a substitute for others what others have offered. What types of economic activities, as a way of earning and what products to choose from, so that it may go well over the long run. Population of Slavonia has a special, highly expressed in industrialization. People from Slavonia did not initiate the industry, what it represents; they were the drivers of those industries that they needed and, strangely enough, it just is today the largest." (Zbornik radova prvog Znanstvenog sabora Slavonije i Baranje, 1970.)

#### 4. Research

As it is presented manufacturing industry is historically most important for economic development in Brodsko Posavska County. Since early 1990es, with beginning of Civil War and transition system which results with bad managed privatization are destroyed industry in County. This research presents basic financial indicators for the sectors which comprise more than 15 companies in the manufacturing in BPC. According to the CNAE 2007 sectors are: C10 Manufacture of food products, C16- Manufacture of wood and of products of wood and cork, except furniture, C22- Manufacture of rubber and plastic, C25-production of fabricated metal products, except machinery and equipment. Through analysis of given data it is important to predict strategic opportunities that could improve manufacturing industry in Brodsko Posavska County. Research is based on data for period from 2008. to 2012. year.

##### 4.1. Analysis of financial indicators

For recognizing of strategic opportunities, firstly it is important to present current condition, and then give possible directions how to develop it. First indicators are number of enterprises and number of employees and are shown in table 3. in text below.

**Table 3** Number of enterprises and employees in BPC in period 2008-2012

	Number of enterprises					Number of employees				
	2008.	2009.	2010.	2011.	2012.	2008.	2009.	2010.	2011.	2012.
C10	33	28	32	32	25	394	296	339	349	296
C16	16	20	20	19	22	657	591	629	721	699
C22	18	14	13	15	14	143	109	109	139	107
C25	55	63	72	67	62	3.138	2.861	3184	3126	3293

Source: made by author according data form HGK

Table 3. shows that global economic crisis affected very badly on sectors C 10 and C22, because they have decrease of enterprises and number of employees. Sector C25 is strongest and counts majority of enterprises in manufacturing industry except C 25 and records constant increment of enterprises, but have stagnation of growth of number of employees. Net wages for each sector are shown in table 4.

**Table 4** Net wages in BPC in period 2008-2012

	2008.	2009.	2010.	2011.	2012.
C10	11.733.991	9.517.251	11.291.334	11.050.694	10.076.177
C16	22.329.819	19.987.008	19.957.484	25.141.404	24.775.718
C22	5.134.535	4.238.737	4.080.780	5.272.505	3.853.702
C25	131.066.314	227.514.361	258.406.560	228.759.631	255.107.941

Source: made by author according data form HGK

From table 4. It is obvious that sector C 25 have highest amount of wagger, just because they have the most employees, but the sector doesn't have growing rate of employees, but have growing rate of wages, that is result of better and higher standards. Strategic opportunity is to modernize existing capacities and to employ new workers. Next indicators are financial indicators that will present total profit and loss of given sectors, amount of export and import. First and most important indicator is shown in table 5.

**Table 5** Total profit in BPC in period 2008-2012

	2008.	2009.	2010.	2011.	2012.
C10	1.366.810	3.480.346	4.671.565	4.276.506	3.670.519
C16	5.086.910	6.307.953	7.462.604	9.411.845	8.353.004
C22	3.073.752	951.776	1.693.155	3.133.866	3.247.463
C25	69.841.677	96.029.256	47.716.581	25.998.006	69.335.085

Source: made by author according data form HGK

Profit is one of most important indicators that present level of financial development. Profits are not so high in comparison with revenues of each sector. The main problem of not so high revenues, and high losses (shown in table 6.) are high cost. One of main problem is inefficiency of manufacturing. Industry can reach high revenues but isn't able to manage high cost of production. Strategic opportunity for development is cutting of costs. Development is possible, but each enterprise should have better control of costs. Other problem is impossibility to find business partners.

Historically Croatian business partners were socialist countries. But after process of transition many business partners are lost, because of opened market. Also, it is important to support development of new small private enterprises which would develop manufacturing industry and employee new people- which is one of the greatest problems in BPC. In table 6. it is

clearly visible that losses are very high especially in C 10, and are incomparable with revenues. Sector C 25 has constant and exponential growth of losses.

**Table 6 Total loss in BPC in period 2008-2012**

	2008.	2009.	2010.	2011.	2012.
C10	30.980.164	28.877.689	130.487.545	6.648.799	6.527.584
C16	1.112.273	11.610.495	894.945	75.975	6.154.004
C22	1.081.197	1.990.509	1.709.527	1.867.834	456.573
C25	12.977.919	7.077.691	11.903.722	62.421.386	90.857.680

*Source: made by author according data form HGK*

Table 7 and 8 Presents rate of export and import made in manufacturing industry in given period. Export and import are not in positive correlations, which is not good situation for economy development in Brodsko Posavska County. Manufacturing industry should produce competitive products and should export the majority of its products.

**Table 7 Export in BPC in period 2008.-2012.**

	2008.	2009.	2010.	2011.	2012.
C10	112.419	306.043	21.270.622	16.015.585	12.303.668
C16	148.878.502	125.695.842	138.005.712	146.512.805	140.987.345
C22	1.905.962	1.751.046	2.437.153	5.521.472	11.211.791
C25	543.472.535	840.955.134	792.177.857	616.486.040	813.446.087

*Source: made by author according data form HGK*

General conclusion is that rate of export is too low, and rate of import too high. Completely unfavorable situation for economy development. Rate of export for sector C 28 becoming higher by time, and rate of import have significant decline. One of reasons for such import is no existing of market for inputs in Republic of Croatia, and enterprises are forced to import-especially in metal production industry. This situation impairs the development of the whole economy in Brodsko Posavska County.

**Table 8 Import in BPC in period 2008 -2012**

	2008.	2009.	2010.	2011.	2012.
C10	310.309	353.716	9.791.001	14.362.568	3.766.542
C16	33.538.056	19.325.348	20.986.402	24.474.045	26.215.319
C22	8.209.892	10.050.036	11.404.797	21.962.774	22.948.422
C25	283.782.125	308.941.483	235.302.878	189.601.476	237.429.932

*Source: made by author according data form HGK*

The last indicator and one of most important is shown in table 9 and presents amount of investments in each sector in Brodsko Posavska County.

**Table 9 Investments in BPC in period 2008.-2012.**

	2008.	2009.	2010.	2011.	2012.
C10	2.676.267	3.736.910	14.904.360	18.364.710	4.457.247
C16	9.156.998	2.079.768	6.582.930	2.598.019	1.517.626
C22	2.651.004	851.348	1.432.026	1.689.583	1.090.988
C25	67.511.799	76.527.305	31.702.728	20.490.679	30.679.509

*Source: made by author according data form HGK*

It is significant that rate of investments is very low. It is important to change that negative practice. Investments are most important for manufacturing, because it is important to follow development if companies want to be competitive on market. Majority of enterprises in Brodsko Posavska uses old and uncompetitive technology and production processes. To be competitive on global market it should have competitive product. The product can be competitive only if it is produced with new technology, in modern and superior production process, with low cost and implementation of knowledge.

## 5. Conclusion

The fact is that the observed sectors in BPC are not competitive and that currently do not have great strategic opportunities for growth and survival in the market. Possible solutions are implementation of strategies that will lead to big changes. The first strategy is to introduce radical changes in existing systems operations and better management of resources and the other option is to change the structure of the companies in the BPC, and to implement organizational redirection of existing companies that positively cannot operate. It is important to act fast and to support fallen industry.

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**THE MODEL OF EASTERN CROATIA RURAL TOURISM  
DEVELOPMENT BASED ON THE EXAMPLE OF AUSTRIA**

**MODEL RAZVOJA RURALNOG TURIZMA ISTOČNE HRVATSKE PO  
UZORU NA AUSTRIJSKI MODEL**

**ABSTRACT**

*There are major differences in the development of the certain regions in Republic of Croatia. These regions that are located on the Adriatic coast are considered more developed in contrast to the regions of eastern Croatia. Maritime tourism has a significant influence on previously stated given that in professional and scientific literature it is presented that tourism of certain regions significantly affects their development. Therefore, in eastern Croatia it is necessary to evolve rural tourism to a more important level considering the current situation. The key spatial unit in tourism is region – in this case the eastern Croatia that should be managed by the kind of Destination Management Company, which would be responsible for the implementation of organizational, marketing and other strategic and operational tasks at the regional level. This article presents the Austrian model of rural tourism development and by its exemplar authors have presented their vision of the future model of rural tourism development in eastern Croatia, with the purpose of combating the problem of touristic regional disparities and achieving numerous other benefits referred to in the text.*

**Key words:** rural tourism, touristic region, branding, Holidays on the Farm, eastern Croatia

**SAŽETAK**

*Postoje velike razlike u razvijenosti pojedinih regija u Republici Hrvatskoj. One regije koje se nalaze na obali Jadranskog mora spadaju u razvijenije za razliku od regija Istočne Hrvatske. Maritimni turizam ima iekako utjecaja na navedeno s obzirom da se u stručnoj i znanstvenoj literaturi navodi kako turizam pojedinih regija utječe na njihovu razvijenost u značajnoj mjeri. Stoga, potrebno je u Istočnoj Hrvatskoj ruralni turizam dovesti do jednog većeg stupnja s obzirom na sadašnju situaciju. Cilj rada je oformiti model razvoja ruralnog turizma na razini regije Istočne Hrvatske. Ključna prostorna jedinica u turizmu jest regija – u ovom slučaju Istočna Hrvatska koja bi trebala biti upravljana od strane svojevrsnog Destination Management Company-a koji bi bio*

*zadužen za provedbu organizacijskih, marketinških i ostalih strateških i operativnih zadataka na razini regije.*

*U radu se navodi Austrijski model razvoja ruralnog turizma te su po uzoru na njega autori iznijeli svoje viđenje budućeg modela razvoja ruralnog turizma Istočne Hrvatske a sve sa svrhom suzbijanja problema regionalne turističke nejednakosti te ostvarivanja ostalih mnogobrojnih koristi koje se navode u tekstu.*

**Ključne riječi:** *ruralni turizam, turistička regija, brendiranje, Holidays on the Farm, Istočna Hrvatska.*

## **1. Introduction**

Tourism is one of the fastest growing and most dynamically developing sectors of economic activity which can be identified as a potential economic development tool. It can increase the net benefits to rural people, but also increase their participation in managing the tourism product which on long term leads to sustainable development of the rural areas, especially of the ones which face serious economic difficulties (Cvetanovska – Gugoska et al., 2013, 10).

Authors present their development of rural tourism model of Eastern Croatia which is based on example of Austria as the most successful pattern of rural tourism according to the professional and scientific literature. Austria has achieved this by systematic management of their touristic regions through umbrella of the regional brand. As the sun and the sea are basic appealing factors for tourists coming to the shore, so are rural economies with their natural beauty and traditional way of life basic appealing factors for tourists coming to the rural areas.

Rural economies in Europe and world cannot cover basic expenses by their own food production which necessarily leads to decrease in life standard and depopulation of villages. Just because their production is insufficient for survival, a large number of rural economies is starting with agrotourism as additional source of income. Di Domenico and Miller (2012) in their paper claim that farmers achieve significant results in the form of increased revenues by expanding their business on rural tourism.

Rural tourism has increasing share in global touristic “industry”, especially in Europe where it exists for more than 100 years. A number of tourists who are coming to the rural areas is significantly increasing each year and today, according to estimates, it participates with about 10 to 20 % in total touristic activities in Europe. According to the share of households that are engaged in rural tourism in total number of households that are engaged in agriculture leads Austria with even 8%, than France with 6%, Ireland and Germany with 3%, while in Italy it is only 0,3%. For comparison, in Croatia just 0,1% of agriculture households is engaged with rural tourism.

Currently every family farm in eastern Croatia promotes itself marketing independently which results in a lack of marketing efficiency of entire region. The authors of the paper discuss also Croatian example of branding of rural tourism in the region of Istria, through umbrella brand Ruralis. The aim is to establish a model of rural tourism development at the regional level of eastern Croatia.

The hypothesis of this paper is: eastern Croatia as the region, if it is to become competitive, must systematically manage the development of rural tourism by models of successful regions.

## **2. The importance of rural tourism development**

Although the definition of rural tourism is a subject of many debates in the literature, a strong consensus has not been reached yet. In countries with developed tourism in rural areas there are certain accepted specifics that define the concept of rural tourism as an example:



- in Finland it means tender/rent of small rural cottages to tourists,
- in Hungary means the offer of services and activities offered to tourists in the country setting (an affordable/cheap accommodation, participation in agriculture work etc.),
- in Slovenia the most important form of rural tourism is tourism on family farms (the emphasis is on gastronomy and visiting the farm)
- in Netherland prevails primarily camping in family economies with an emphasis on additional activities such as biking, hiking, horseback riding etc.
- in Greece the main product of rural tourism is “bed and breakfast” with accommodation in traditional furnished rooms, with a traditional, breakfast often made of local products (Grgić et al., 2011, 46).

Rural tourism offers potential as an economic instrument. It is a growing sector of the world's fastest growing industry - tourism. The benefits of well-implemented and coordinated activities cause the increased competitiveness of the region itself.

Rural tourism is seen as potential source of social, economic, cultural and environmental benefits for rural areas. The tourism activity can create growth potentials for rural areas; it can provide income for local businesses, help to protect the traditional values and the community assets and help to sustain local services.

Cvetanovska-Gugoska et al. (2013, 13) state that three main reasons why it is important to develop tourism in the rural areas of the regions are:

- **Bring economic benefits the rural areas:** economic growth, economic diversification and stabilization, employment creation, reduced outmigration and even re-population, improvement of public services, infrastructural improvement, revitalizing crafts, customs and cultural identities, increasing opportunities for social contact and exchange, protection and improvement of both natural and built environment, increasing recognition of rural priorities and potential by policy-makers and economy planners.
- **Increase participation of the people in the development of tourism:** the tourism activities require to be organized by the involvement of many people, so one key opportunity is to develop tourism enterprises where they live. Rural people can become managers of the process of rural tourism and this way they will be directly involved into the development process of their community;
- **Lack of other viable alternatives:** having in mind that rural areas have little economic possibilities, rural tourism is one of the few sectors that can be suitable for them. The daily activities on the farm, the existing structures-houses, etc. can be used to attract tourists and assure additional incomes.

The development of rural tourism offers potential solution of many of the problems that rural areas face. Therefore the support for creating the appropriate conditions for the development of rural tourism is needed. It should be kept in mind that the quality is the main point for the continuity of tourism. As a result, trained and knowledgeable labor would definitely make a great contribution to regional development, especially in the tourism business relying on service (Andac, 2009, 11). Specific forms of rural tourism which combine marketing tools for products originating in these territories like geographical indications, in this perspective, represent a suitable approach to generate a regional added value with positive benefits for the whole community and enhance local development (FAO, 2009).

Rural communities can especially benefit from cooperative branding. A common challenge for tourism development in a single rural community is its limited drawing power. Coupled with the absence of a distinctive image, individual rural destinations are often too small to form a critical mass required of a primary destination. In order to make the most of rural tourism resources, communities must approach their marketing activities from a cooperative perspective. Rural tourism marketing through cooperative branding, helps individual rural communities increase efficiency in the use of tourism resources and synergizing drawing power of their attractions (Cay, 2002, 738). Rural tourism is one of the instruments for suppression of regional disparities within countries (Afrodita, 2012).

### **3. Branding the region as key spatial units in tourism**

Tourism soon became a global phenomenon and tourism regionalisation was a response to global processes. The tourism regionalisation is aimed to "create optimum tourism market services responding to modern tourist preferences". Hence tourism regions are formed as a response but also as a necessary supplement to standardisation trends that the globalisation requires in all fields. As the tourism regionalisation insists on specific features, the process is most often related to notions of decentralisation, diversification, regional specialisation of the product, and fostering and re-creating of regional identities (Blažević and Peršić 2009, 53 stated in Krajnović et al., 2013).

Research findings show that, during their sojourn, visitors remain within a range of approximately 50 km from their temporary residence (the accommodation facility in the "mother" tourist destination), whereas their interest in trips remains, on average, within a range of about 100 km from the temporary residence. This means that such a space range corresponds to the perception of the destination as an area that a potential tourist chooses as his/her tourist travel. This also implies that such a space range corresponds most closely to a region and it is exactly the regional tourist services that correspond to a visitor's expectations with regard to the quality of experience and services featuring diversified and complementary elements (Luft 2000, 212-218). Tourist region represents a key functional and geographical entity which requires branding and development of marketing activities (Petroman et al., 2013, Murphy et al., 2007)

In the regional branding process, cooperation and networks are very important. Successful results can only be obtained through cooperation among the different actors (entrepreneurs, government, associations and so on). Coordination over all these actors is necessary, however this coordination should not be too bureaucratic. It is also very important to take into account the desires and ideas of residents and local organizations. There's little chance of success if they are not convinced of the benefits of the project or if they don't feel involved (Messely et al., 2009, 10).

Region represents a key functional and geographical entity which requires branding and development of marketing activities (Krajnović et al., 2013). Regional branding stimulates the regional economy, creates added value for the regional products and services (Hegger, 2007). Orth (2011) states that the strength of touristic regional brand affects the demand of regional products.

A region with an effective brand emphasizes elements such as: nature, landscapes, good weather, relaxing ambiance, accessibility, infrastructure (all form the artistic image), and also historical traces, art monuments, regional culture (customs and traditions, spectacles and events), tourism reception facilities (hotels, motels, restaurants, bars, etc.), regional gastronomy (all form the psychological image), stimulates the regional economy (through own products and services that are offered and consumed) and may contribute to the sustainable development of the whole region (Stancioiu et al., 2011, 142).

#### 4. Austrian model of rural tourism

In the manual on rural tourism Baćac (2011) states that during start of any business including rural tourism, it is wisely to examine and explore the existing experience of others, especially those who are in actual business, in this case, rural tourism, and who started much earlier and already have come to remarkable level of development of touristic products and services in rural areas. Therefore, the authors disclose the successful Austrian model of rural tourism development.

Tourism and the leisure industry are vitally important to the Austrian economy and play a key role in economic growth, employment and the balance of goods and services.

From the total Austrian tourist supply, some 15.500 farmers offer 170.000 tourist beds (in bedrooms or in apartments), this means that app. 8 % of all Austrian farmers offer tourist accommodation. They represent 1/5 of all tourist enterprises and 1/7 of the total Austrian supply of tourist beds. Therefore farm holidays are an important economic segment in agriculture and tourism and predominantly in the economy of rural regions stated Hans Embacher – managing director of the Austrian Farm Holiday Association.

The marketing of the 3.400 member farms is based on five key strategies:

- Branding (logotype “Holidays on the Farm”).
- Quality categorization.
- Differentiation and specialization through special offers for target groups.
- Cooperation to reduce the weaknesses of the small scale enterprises on the market.
- Internet / New media.

To make the actual quality of Farm Holidays more transparent, a nationwide categorization system was introduced in Austria in 1993. Apart from the evaluation of facility features, the system centred on assessing the quality of the holiday experience and the authentic farm character. The farms are surveyed by a commission (advisors, members of the Austrian Farm Holiday Association) at least every four years (new edition of the respective provincial catalogue). The farms are awarded 2, 3 or 4 flowers according to their rating. The provider may then use the awarded flowers and the Farm Holiday logo in all farm’s advertising media.

Sign of marking the farms is daisies flower (Marguerite) (2, 3 or 4 flower) according to the quality of accommodation (Figure 1).

**Figure 1** Daisies flower as a sign of quality of accommodation in Austria



Source: Manual for rural tourism, 2011.

The most important organization for rural tourism in Austria is „Urlaub am Bauernhof“ as the national organisation responsible for the promotion, quality policy, product differentiation and education. This organization works marketing activities based on branding, quality categorization and cooperation with the use of the Internet and other modern technologies. Organization logo Urlaub am Bauernhof shown in Figure no. 2

*Figure 2 Logo of the professional association of Austrian rural tourism*



*Source: Forbord et al., 2012*

Forbord et al. (2012, 899) state that the main objective of the association “Urlaub am Bauernhof” is to create a high quality and professional tourist offer for and with the member farm enterprises. Specific goals include the following topics:

- The professional marketing of member farms via the Internet, direct marketing, media contacts, fairs, and catalogues;
- The quality management and assurance via standardized quality categorization (including regular controls), specialization (into different special offers) and brand management;
- A price policy to fix minimum prices in order to prevent dumping prices.

Some major effects in the past 10 years were:

- Considerable improvement of the product-quality: every year on average some 50-60% of all member farms have invested in their farm holidays-offer. Thus this field is a very dynamic section of the agricultural industry in Austria.
- Quality orientation amongst the landlords has increased.
- Clear, coherent strategy and strict criteria help to position the farm-holidays-product in the agricultural as well as the tourist industry.
- The image of the farm-holidays-product in the market (amongst the – actual and potential – customers) has improved.
- The very diverse holiday offer on the farms becomes more accessible. The quality and theming system facilitates decision making for the customers.
- Grading and theming both support the search for the individually ideal holiday farm on the internet.
- Ministries and other public bodies have a tool to assess quality when deciding on investments and their effects resp. when granting subsidies or when lining out strategies for subsidies.
- Overall the income from farm holidays has increased, nicht zuletzt through the system of minimum prices for each quality level.

On average the members of the farm holidays-organisation reach a load factor of 106 days (on bed-basis) per year, thereof 60 days in summer, 46 days in the winter season. The average price is about € 32,- per person/night bed & breakfast (summer 12), and about € 75,50 for a self-catering

apartment for 4 persons/night. The member farms achieve about 50 % of their annual bed nights with repeat business (and earn on average app. 1/3 of their family income via farm holidays). This is an important basis as these guests are in general more loyal in times of fluctuating demand e.g. due to economic problems in the regions where the visitors come from (Embacher, 2005).

## **5. Review of the state of rural tourism – example of eastern Croatia and Istra**

Tourism is an important economic sector and driver of economy development of Republic of Croatia. During the touristic season in Republic of Croatia a relatively large number of tourists are coming every year in greater numbers to the Adriatic coast. Besides the dominant form of maritime tourism Republic of Croatia should focus its efforts on the development of tourism in continental eastern Croatia, which is ideal for rural tourism development considering its considerable natural and cultural conditions.

One of the few studies that has been conducted in Croatia on rural/agri tourism reveals some interesting information regarding the characteristics of rural communities and the expectations of rural entrepreneurs involved in tourism. Among other things, entrepreneurs/owners of rural farms that participated in the study, stressed the need for:

- more favorable credit lines (91,11% of the respondents);
- greater assistance from the local government, tourism boards and scientific and educational institutions in the field of education, promotion and enrichment of offers (80% of respondents);
- higher state subsidies, especially for farmers who are engaged in the production of ecologically clean and healthy food (33,33% respondents);
- greater involvement of local travel agencies in promoting this type of tourism (13,33%) (Križman – Pavlović, 2001).

Rural tourism, as an important element of sustainable touristic, economic and social development of rural areas encounters with greater development, marketing, managerial and economic difficulties in their development while on the same time touristic demand presents more significant interest in this form of tourism. Development solutions should be sought in the implementation of an adequate model of managing this very sensitive area of social and economic development and operationalization of quality at all levels (Krajnović et al, 2011).

Eastern Croatia comprises a total of 6 counties including: Osječko-baranjska, Požeško-slavonska, Bjelovarsko-bilogorska, Brodsko-posavska, Virovitičko-podravaska and Vukovarsko-srijemska county. It is devastating fact that all of the 6 counties of eastern Croatia belong to underdeveloped counties what implies the fact that the region of eastern Croatia is also globally underdeveloped (DZS, 2013). In paper, Curić et al. (2012) argue that tourism in eastern Croatia is underdeveloped and that on this point should take adequate measures to combat underdevelopment. It is exactly the rural tourism one of the ways by which regions can develop (Memis et al., 2007).

The most important form of agritourism in Croatia is exactly tourism on family farm economies, and it is largely developed in Istria (Klarić, 2012). So far only in area of Istria progress has been done by disburdening coastal touristic destinations, thanks to the touristic development of the hinterland and connecting coastal destination with those in the hinterland (Curić et al, 2012, 39).

County of Istria and the Istrian Tourist Board in 1996 have already made the strategic decisions which caused direct stimulus to the development of tourism in rural households in the interior of Istria. Istria is the strongest touristic region that has developed coastal tourism and a strong rural bid. The “green Istria” rural tourism in 2008 counted as many as 64 households with 1,430 beds of different categories and namely of actual agritourism. There you can taste traditional specialities

made by the original, domestic recipe with products from their own production and rest in rural houses, rural family hotels, rooms and apartments in rural households (Klarić, 2012, 49).

Also, in 2006, the consortium „Ruralis“ was established which aims to promote and articulate rural tourism of Istria as year-round stationary destination.

## 6. Proposal model of rural tourism development in eastern Croatia

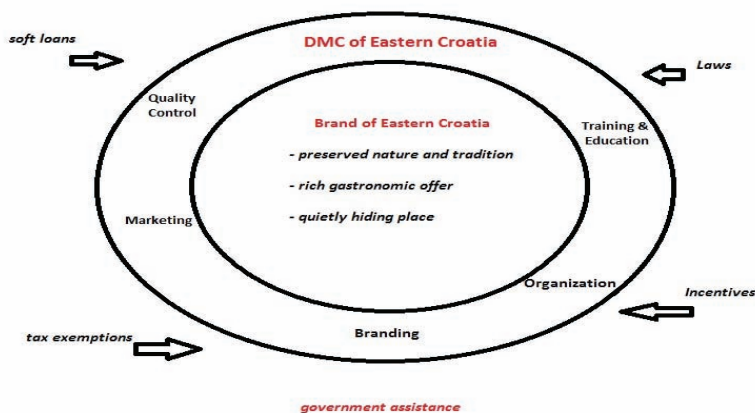
Region of eastern Croatia has recognizable elements on which should be based production of distinctive visual identity. Bolfek et al. (2014) state that in the market, according to conducted research, eastern Croatia should position itself as a destination of preserved nature, tradition, rich and recognizable gastro offer, which includes producers of premium wines, and as destination in which stay is pleasant and safe. Guests who visit eastern Croatia experience calm, quiet, hideout home, which respects traditional values with pride and emphasizes tradition. It is recognizable by the hospitality of the locals and the rich gastronomic offer.

In accordance with the above characteristics of eastern Croatia, it would be recommendable to create its visual identity.

By following the example of Austrian model it should be recommendable to unite the individual marketing efforts of eastern Croatia rural economies. From the aspect of regional development and the importance of regional branding it is necessary to create a real and recognizable brand of Eastern Croatian region.

Therefore, for eastern Croatia it is necessary to form a professional association of rural households, a kind of Destination Management Company which will be responsible for the development of eastern Croatia rural tourism (Figure 3).

*Figure 3 The model of rural tourism development in eastern Croatia*



*Source: Authors' original model*

A kind of DMC should be in charge of managing regional brand, checking the quality of rural economies, provide marketing and advisory assistance, training of staff, and other strategic activities.

Brand of eastern Croatia should be based on preserved nature, return to the traditional way of life, rich gastronomic offer so that guests could perceive the region as calm, quiet, hideout home.

Since the eastern Croatia is recognizable for its fields of wheat and it is called Croatian granary, the authors suggest that the label of quality for rural economies of eastern Croatia should be ear of corn.

**Figure 4** Ear of corn – Proposal for label of quality for rural households in the region of eastern Croatia



*Source: Authors' proposal*

The country should support this model by its laws, financial support and other activities.

## 7. Conclusion

There is an option to offer a product as eastern Croatia and its rural tourism to tourists who come to Republic of Croatia during the tourist season. Therefore, synergistic effect could be achieved in order to tourist who visit the Croatian coast also visit the eastern region.

By combining marketing efforts, through a sort of Destination Management Company which could manage touristic activities in the region and the umbrella brand of eastern Croatia, it would lead to higher attendance of eastern Croatia touristic region. Finally, this would result in higher income from tourism.

The result of management and branding of eastern Croatia region ultimately will result in following:

- Maintenance and strengthening of agricultural production on family farms (if products marked by brand of eastern Croatia become available on the market to the guests who have visited the rural economies of eastern Croatia, it is assumable that they will become loyal customers of these products, especially if they like eastern Croatia region)
- provide higher income to rural economies and the entire area of eastern Croatia as well as to Republic of Croatia
- reducing depopulation of eastern Croatia
- villages renovation
- development of new touristic attractions of eastern Croatia which will serve as a means of enriching the touristic offer
- the inclusion of hotels and restaurants in the overall concept that will offer local specialities of the area
- providing incentives to entrepreneurs for better utilization of existing natural and cultural resources (as hunting and fishing)
- rural economies as starting point for developing other forms of rural tourism
- reducing the gap in development the coastal tourism and rural tourism

This will result in improved regional competitiveness of eastern Croatia.

Since the company Ruralis, which is responsible for the promotion of rural tourism in Istria, does not have its own website and there is no information on the Internet on its activities, the authors conclude that it is hardly to speak about the branding of Istrian rural tourism.

However, by following the example of other countries in Europe, Istria is the first region which has recognized the importance of joint association of rural economies but its improvement did not last for long. The authors believe that the brand of Istrian rural tourism "Ruralis" does not promote sufficiently and that there is a need to examine efficiency of Company Rualis in future research. The authors have opinion that the Croatian National Tourist Board does not perform enough because they do not use by benchmarking the successful model of rural tourism development in the European Union. The presented model is subject to change and it could be used as a starting point in rural tourism development of eastern Croatia.

Given all the above, the hypothesis of this study: "eastern Croatia as a region, if it is to become competitive, must systematically manage the development of rural tourism by models of successful regions", confirms.

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**THE IMPACT OF DEMOGRAPHIC PROCESSES IN THE  
TRANSFORMATION OF EASTERN CROATIA**

**UTJECAJ DEMOGRAFSKIH PROCESA NA TRANSFORMACIJU  
ISTOČNE HRVATSKE**

**ABSTRACT**

*Position of Eastern Croatia is determined by influences of various economic, political, ethnic and religious factors that occurred throughout the history. Spatial-functional seeing area of Eastern Croatia is located in the major European and regional traffic routes, and in addition in Eastern Croatia there are numerous natural resources. Precisely these listed factors - location convenience of space and abundance of many natural resources, the area of the Eastern Croatia provide a number of preconditions for many economic activities. An important role in the economic development of the Eastern Croatian future lies in exploiting its transportation position. However, despite all the positive predispositions area of Eastern Croatia because of the consequences of the war and war events are still lagging behind in development. In addition to political events, there are also other factors that have led to the present situation the Eastern Croatia. The impact of demographic processes refers to natural movement and migration, density and distribution of the population and to all changes made in the structural characteristics of the population. One of the negative characteristics of this area is depopulation.*

*The subject of this paper is to show how the demographic processes influenced in the Eastern Croatia and which their features are. The aim of paper is based on processing and scientific analysis of the collected statistical data from the census and other publications to show the ethnic and religious structure of the population of counties and of the entire Eastern Croatian and migration condition.*

**Keywords:** *Demographic process, ethnic structure, Eastern Croatia*

**SAŽETAK**

*Položaj istočne Hrvatske određen je utjecajima različitih gospodarskih, političkih, etničkih i vjerskih čimbenika koje su se zbivale kroz povijest. Prostorno-funkcionalno gledajući područje istočne Hrvatske nalazi se na području velikih europskih i regionalnih prometnih*

*pravaca, a osim toga na području istočne Hrvatske nalaze se brojni prirodni resursi. Upravo ovi navedeni čimbenici - lokacijska pogodnost prostora i bogatstvo brojnih prirodnih resursa, području istočne Hrvatske daju niz preduvjeta za brojne gospodarske aktivnosti. Važnu ulogu u gospodarskom razvoju istočne Hrvatske u budućnosti leži upravo u iskorištavanju njegovog prometnog položaja. Međutim, unatoč svim pozitivnim predispozicijama područje istočne Hrvatske zbog posljedica Domovinskog rata i ratnih zbivanja još uvijek zaostaje u razvoju. Osim političkih zbivanja, niz je drugih čimbenika koji su doveli do današnjeg stanja istočne Hrvatske. Utjecaj demogeografskih procesa odnosi se na prirodno kretanje i migracije, gustoću i razmještaj stanovništva te na sve promjene nastale u strukturnim obilježjima stanovništva. Jedna od negativnih karakteristika ovog područja jest depopulacija. Predmet ovog rada je prikazati na koji način su demografski procesi utjecali na prostor istočne Hrvatske i koje su njihove značajke. Cilj rada je na temelju obrade i znanstvene analize prikupljenih statističkih podataka iz popisa stanovništva i drugih publikacija prikazati etničku i vjersku strukturu stanovništva pojedine županije te ukupno cijele istočne Hrvatske i njeno migracijsko stanje.*

**Ključne riječi:** *demogeografski proces, etnička struktura, istočna Hrvatska*

## **1. Introduction**

Eastern Croatia is one of the worst affected Croatian regions by the economic crisis. War except that resulted in considerable demographic changes led to the economic and technological backwardness of Eastern Croatian, closures, as neighbors and distances themselves from the main European economic and transport corridors. Ranked by competitiveness and development report from 2013 all five counties of Eastern Croatia are located at the back of the least competitive counties in Croatia. The current state recorded in the counties of eastern Croatian, shows and warns that they are at high risk of lagging further behind. One way to improve this status is demographic indicators. The area of Eastern Croatia is the Croatian region with a distinct multi-ethnic structure of the population that has been shaped by historical processes and settlement. The structure of the population resulting from natural change, migration, social division of labor, economic development, national, religious and other factors. All these factors need to be taken into account if it is wanted to improve current status. With respect to this paper will show the ethnic and religious structure of the population of counties and of the entire Eastern Croatian and migration condition.

## **2. Eastern Croatian County area and population**

In this area there are five Counties: Požega-Slavonia County, Brod-Posavina County, Osijek-Baranja County, Vukovar-Syrmia County and Virovitica-Podravina County. This area, with the rivers Sava, Drava and Danube has always been used, due to a strong type of lowland landscapes, primarily for agricultural purposes, but also for a number of other economic activities thanks represented natural resources. For that reason the potential for the development of the eastern Croatian are forests, land and water. With below average development compared to the rest of Croatian, region East Croatia is predominantly agricultural and processing oriented. However, there is increasing its tourism and traffic significance. Eastern Croatia is one of the worst Croatian regions affected by the economic crisis. Eastern Croatia to the gross domestic product per capita lags behind the national average - The Brod-Posavina and Vukovar-Syrmia County had the lowest value of GDP per capita among all Croatian counties. "Osijek-Baranja County situated in the north-eastern Croatian, covers an area of 4,155 km<sup>2</sup>, and is the fourth largest county in the Republic of

Croatia.” ([http://www.tourist-croatia.com/ru\\_zup/istocna.php](http://www.tourist-croatia.com/ru_zup/istocna.php)) The most important road communications passing through this region. " Exceptionally favorable geographic position on the River Drava and alongside Danube, which is one of the most important European waterways, then natural resources based upon the structure of soil and the climate suitable for agricultural production, thermal waters, preserved environment and the unique Kopacki Rit area are just a part of favorable conditions offered by the Osijek-Baranja County.” (<http://www.tzosbarzup.hr/en/about-the-county/geographic-position/>) Požega-Slavonia County is one of the smaller Counties in Croatia. “Its position detaches it from main roads of Posavina and Podravina. This alone gives the County a certain appeal.“ (<http://www.tzps.hr/en/county>) Brod-Posavina County located in the southern part of Pannonian Plain is one of the narrowest and longest counties. “Water, forests and fertile soil, navigable rivers and European road corridors are natural conditions that allow development of economy, transport, trade and culture.“ ([http://www.bpz.hr/opci\\_podaci/polozej/default.aspx#.VLOltct0zs0](http://www.bpz.hr/opci_podaci/polozej/default.aspx#.VLOltct0zs0)) The County of Virovitica and Podravina is situated in north-western part of Slavonia, south of Drava River with capital in Virovitica. “There are very important traffic corridors- in general - primary – contact Dunav area with middle Adriatic area, secondary - Drava river flow connecting Croatia with its neighbors-to the west and east parts of EU.“ ([http://www.slatina.hr/wp-content/uploads/2013/04/vt\\_county\\_slatina\\_croatia.pdf](http://www.slatina.hr/wp-content/uploads/2013/04/vt_county_slatina_croatia.pdf)) Vukovar-Syrmia County is easternmost Croatian county “occupies an area of 2454 km<sup>2</sup>, of which 150 000 ha are most fertile Croatian arable land and 70 ha of forest.” [http://www.tourist-croatia.com/ru\\_zup/istocna.php](http://www.tourist-croatia.com/ru_zup/istocna.php)) Population all five Counties are shown in Table 1.

**Table 1** The area of Eastern Croatian County area and population

County	Area km <sup>2</sup>	1991		2001		2011	
		Population	km <sup>2</sup>	Population	km <sup>2</sup>	Population	km <sup>2</sup>
Požega-Slavonia	1823	99334	54,49	85831	47,1	78 031	42,81
Brod-Posavina	2 030	174998	86,20	176765	87,1	158.575	78,12
Osijek-Baranja	4 155	367193	88,37	330506	79,5	305.032	73,41
Vukovar-Syrmia	2 454	231241	94,23	204768	83,4	179.521	73,15
Virovitica-Podravina	2 024	104625	51,7	93389	46,1	84.836	41,92

Source: authors using [www.dzs.hr](http://www.dzs.hr)

The population of Eastern Croatian during the war had very high direct and migration war losses. It's one of the reasons unfavorable images of eastern Croatian and significant changes in ethno-demographic figure settlement.

### 3. Ethnic population structure of the eastern Croatian counties

According to the 2011 Census, in the national structure of the Republic of Croatia there are 90.42 % of Croats, and 4.36 % of Serbs. Besides Serbs, no national minority does not exceed one percent of the population. With regard to above, this work will observe the relation between Croats and Serbs - the largest national minority in Croatia.

This area of Eastern Croatia although before the war inhabited predominantly Croatian population experienced additional Croat ethnic homogenization as shown in the following table.

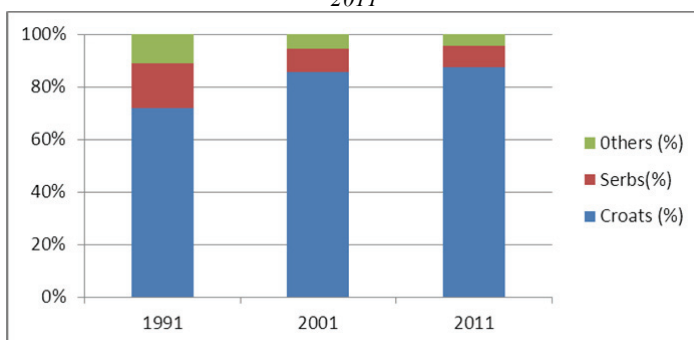
**Table 2** Ethnic population structure of the eastern Croatian counties by 1991, 2001, 2011

County	1991		2001		2011	
	Croats	Serbs	Croats	Serbs	Croats	Serbs
Požega-Slavonia	67173	22572	76118	5616	70 529	4 680
Brod-Posavina	141071	19957	166129	5347	150 632	4 124
Osijek-Baranja	262176	56836	277245	28866	262 004	23 657
Vukovar-Syrmia	158128	45491	160277	31644	142 135	27 824
Virovitica-Podravina	75356	21905	83554	6612	77 897	5 144

Source: authors using [www.dzs.hr](http://www.dzs.hr)

According to the table 2, in the national structure of the Croatian counties most homogeneous ethnic structure of the population has Brod-Posavina County in all three observed periods. In 1991 there was 80.6 Croats, and Serbs only 3 %, in 2001 there was 94 % Croats, and Serbs again only 3 %, and in 2011 there was 95% Croats, and Serbs only 2.60 %. The most heterogeneous ethnic structure of the population has the Vukovar-Syrmia County. In 1991 there was 68.4 % Croats, and Serbs 19.7%, in 2001 there was 78.3 % Croats, and 15.5 % Serbs, and in 2011 there was 79.17 % Croats and 15.5 % Serbs.

**Graph 1** Ethnic population structure of the eastern Croatia (five counties) by 1991, 2001, 2011



Source: authors using [www.dzs.hr](http://www.dzs.hr)

According to the graph 1, in the national structure of the Croatian counties in 2011 there are 87.25 % of Croats, and 8.11 % of Serbs. In 2001 there are 85.6 % of Croats and 8.8 % of Serbs and in 1991 there are 72 % of Croats and 17.1 % of Serbs. It is noticeable an decrease of the Serbs after the war.

#### 4. Population structure of the eastern Croatia by religion

Religion is an important, culturally and traditionally characteristic which is other than nationality determined by man's belonging to a community. For the Republic of Croatia can be said that is traditional (Roman) Catholic country. Immediately after the Catholics was Orthodox. According to the 2011 Census, in the national structure of the Republic of Croatia there are 86.28 % of Catholics, and 4.44 % of Orthodox. Besides Catholics and Orthodox Catholic Church, there are 1.47 % Muslims, non-believers and atheists 3.81 %, and those who do not identify themselves 2.17 %. 'In the census of 1991, Catholics made up 76.6% and 11.1% Orthodox believers in Croatia.' ([www.dzs.hr](http://www.dzs.hr)) In 1991 it is introduced the section religion in the census, but by settlements of the then municipality. Today's Counties were

founded in 1992 year. With regard to above, this work will observe the relation between Catholics and Orthodox - the largest religion in Croatia that is shown in the following table in 2001 and 2011.

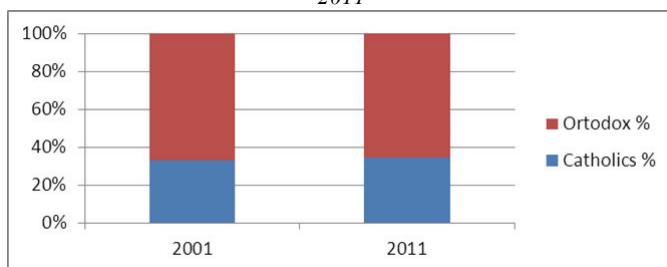
**Table 3** Population structure of the eastern Croatia by religion, by counties in 2001 and 2011

County	2001		2011	
	Catholics	Orthodox	Catholics	Orthodox
Požega-Slavonia	76.625	5.564	70.064	4.852
Brod-Posavina	162.452	6.089	146.093	5.673
Osijek-Baranja	280.037	29.028	258.956	24.974
Vukovar-Syrmia	160.095	31.564	142.066	27.870
Virovitica-Podravina	82.121	6.590	75.548	5.167

Source: authors using [www.dzs.hr](http://www.dzs.hr)

According to the table 3, in the national structure of the Croatian counties most homogeneous ethnic structure of the population by religion has Brod-Posavina County in observed period. In 2001 there was 91.90 % of Catholics and 3.44 % Orthodox, and in 2011 there was 92.13 % of Catholics and 3.58 % of Orthodox. The most heterogeneous ethnic structure of the population by religion has the Vukovar-Syrmia County. In 2001 there was 78.18 % of Catholics and 15.41 % Orthodox, and in 2011 there was 79.14% of Catholics and 15.52 % of Orthodox.

**Graph 2** Population structures by religion of the eastern Croatia (five counties) by 2001 and 2011



Source: authors using [www.dzs.hr](http://www.dzs.hr)

According to the graph 2, in the population structure by religion of the Eastern Croatia in 2011 there are 18.74 % of Catholics and 36.04 % Orthodox. In 2001 there are 19.53 % of Catholics and 40.23 % Orthodox. It is possible to notice a decrease in both, Catholics and Orthodox.

## 5. Migration of population of the eastern Croatia

Migration is one of the elements of the demographic dimension of globalization. “Migration represents the movement of people from one place in the world to another.” (Knežević, S. at al. (2014), p. 1) „Immigrated or emigrated population is the population who changed their permanent residence on the territory of the Republic of Croatia (internal migration) or who changed their country of usual residence for a period that is, or is expected to be, of at least one year (international migration).“ (Croatian Bureau of Statistics, Statistical Yearbook 2014)

Next tables and graphs show the migration of population by area of immigration and emigration in five observed counties in 2009, 2011 and 2013.

Table 4 shows immigration of population Croatia and five observed counties.

**Table 4** Immigration of population of the Croatia and Eastern Croatia in 2009, 2011 and 2013

County	2009		2011		2013	
	From another county	From abroad	From another county	From abroad	From another county	From abroad
Republic of Croatia	27798	8468	28514	8534	29959	10378
Požega-Slavonia	314	61	356	57	381	80
Brod-Posavina	721	336	628	248	603	216
Osijek-Baranja	1199	441	1193	401	1152	395
Vukovar-Syrmia	845	429	726	311	751	325
Virovitica-Podravina	382	135	401	66	391	67

Source: Made by Authors according to Statistical Yearbooks

In Croatia in 2009 immigrated 36.266 people (from another county 27.798 and 8.468 person from abroad) while in five observed counties immigrated 4.863 people (from another county 3.461 and 1.402 person from abroad). Accordingly, in this five counties immigrated 13.41 % of total immigrant population in Croatia (12.45 % from another county and 16.57 % from abroad).

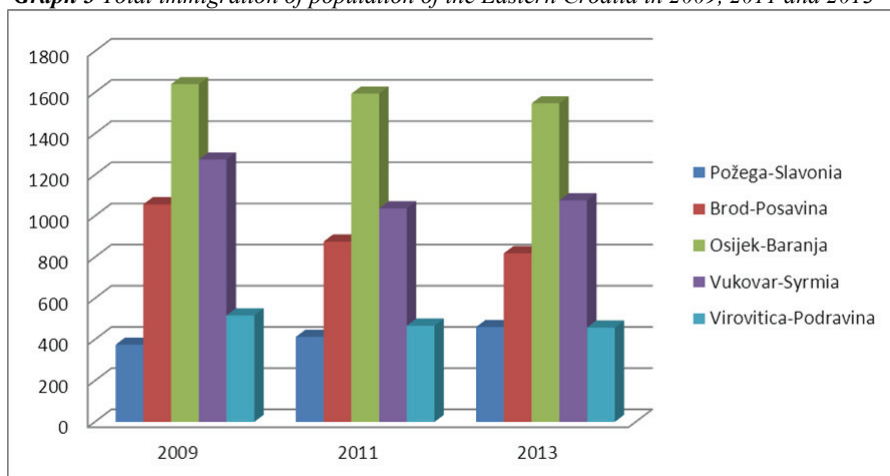
In Croatia in 2011 immigrated 37.048 people (from another county 28.514 and 8.534 person from abroad) while in five observed counties immigrated 4.387 people (from another county 3.304 and 1.083 person from abroad). Accordingly, in this five counties immigrated 11.84 % of total immigrant population in Croatia (11.59 % from another county and 12.69 % from abroad).

In Croatia in 2013 immigrated 40.337 people (from another county 29.959 and 10.378 person from abroad) while in five observed counties immigrated 4.361 people (from another county 3.278 and 1.083 person from abroad). Accordingly, in this five counties immigrated 10.81 % of total immigrant population in Croatia (10.94 % from another county and 10.44 % from abroad).

Data from Table 4 shows that more people immigrate from some counties than from abroad.

Graph 3 shows that most people settled in the Osijek-Baranja County and the least in Požega-Slavonia and Virovitica-Podravina County.

**Graph 3** Total immigration of population of the Eastern Croatia in 2009, 2011 and 2013



Source: Made by Authors according to Statistical Yearbooks

Next table and graph show emigration of population of Croatia and Eastern Croatia.

**Table 5** Emigration of population of Croatia and Eastern Croatia in 2009, 2011 and 2013

County	2009		2011		2013	
	Into another county	Into abroad	Into another county	Into abroad	Into another county	Into abroad
Republic of Croatia	27798	9940	28514	12699	29959	15262
Požega-Slavonia	693	303	684	414	639	239
Brod-Posavina	1218	827	1240	325	1413	695
Osijek-Baranja	1587	618	1537	611	1771	983
Vukovar-Syrmia	1480	804	1504	772	1681	1019
Virovitica-Podravina	574	673	565	228	665	236

Source: Made by Authors according to Statistical Yearbooks

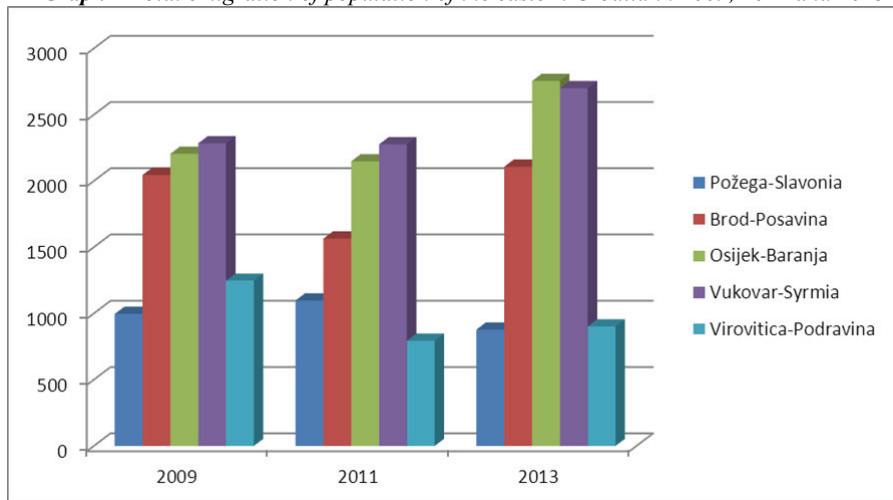
In Croatia in 2009 emigrated 37.738 people (into another county 27.798 and abroad 9.940 person) while in five observed counties emigrated 8.777 people (into another county 5.552 and abroad 3.225 person). Accordingly, in this five counties emigrated 23.26 % of total emigrant population in Croatia (19.97 % into another county and 32.44 % into abroad).

In Croatia in 2011 emigrated 41.213 people (into another county 28.514 and abroad 12.699 person) while in five observed counties emigrated 7.880 people (into another county 5.530 and abroad 2.350 person). Accordingly, in this five counties emigrated 19.12 % of total emigrant population in Croatia (19.39 % into another county and 18.51 % into abroad).



In Croatia in 2013 emigrated 44.857 people (into another county 29.959 and abroad 15.262 person) while in five observed counties emigrated 9.341 people (into another county 6.169 and abroad 3.172 person). Accordingly, in this five counties emigrated 20.66 % of total emigrant population in Croatia (20.59 % into another county and 20.78 % into abroad).

**Graph 4** Total emigration of population of the eastern Croatia in 2009, 2011 and 2013



Source: Made by Authors according to Statistical Yearbooks

Graph 4 shows that most people emigrate from Brod-Posavina, Osijek-Baranja and Vukovar-Syrmia County.

## 6. Conclusion

Today's national and religious structure of Eastern Croatia is the consequence of war events. The most homogeneous ethnic structure of the population and structure of the population by religion have Brod-Posavina County and the most heterogeneous is the Vukovar-Syrmia County. Analysis of population migration in the observed years, more precisely 2009, 2011 and 2013, showed a decline of immigrants and increase of emigrants in Brod-Posavina County, Osijek-Baranja County and Vukovar-Syrmia County.

Accordingly, the Counties of Eastern Croatia should become more attractive in order to keep their population. It is not easy because they were significantly affected by the War, but also a major economic crisis in the world.

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**CLUSTER "SLAVONIAN BASKET" AS THE BACKBONE OF  
TOURISM DEVELOPMENT IN THE REGION OF SLAVONIA**

**TURISTIČKI KLASTER „SLAVONSKA KOŠARICA“ KAO OKOSNICA  
TURISTIČKOG RAZVOJA REGIJE SLAVONIJE**

**ABSTRACT**

*Today clustering can be defined as connection established between business entities to achieve common goals, including networking on geographical, horizontal as well as vertical level. Looking at the world level, organizational networking is becoming the dominant organizational form of the 21<sup>st</sup> century. In doing so, and in order to get substantial support from the state and public sector, besides economic subjects, various institutions such as government organizations, universities, etc., join clusters, thereby, along with the economic, dimension, the social dimension of it gets promoted. In the tourism sector, the term "networking" usually refers to the cooperation between economic subjects with each other, but with the state or the public sector, too, which is, among other things, determined by demand uncertainty, supply instability, a compelling need for rationalization of costs, better use of human resources, greater efficiency of marketing activities and other. When it comes to the region of Slavonia as a tourist destination, as an example of good practice can be pinpointed the Tourism Cluster "Slavonska košarica", which was founded in 2011 as a part of the activities envisaged by the Master plan for Tourism Development of the City of Slavonski Brod, created by the Zagreb Institute of Tourism. In 2012 it became the regional cluster and it networks today more than a hundred producers of food, beverages and handicrafts; tourism service providers, as well as public institutions from five Slavonian counties. The objective of this paper will be, to determine through the primary research, conducted among the members of the cluster, if membership in the cluster, for which paying of the annual membership fee by each member is condition, justifies expectations of the networked subjects, and in which segment, when it comes to joint marketing activities, members expect increased efficiency.*

**Keywords:** clusters, tourism, regionalization, networking, marketing

## SAŽETAK

*Pod klasterizacijom danas podrazumijevamo interesno povezivanje gospodarskih subjekata radi ostvarivanja zajedničkih ciljeva, uključujući umrežavanja na geografskoj, horizontalnoj i vertikalnoj razini. Gledajući u svjetskim okvirima, organizacijsko umrežavanje postaje dominantnim organizacijskim oblikom 21. stoljeća. Pri tome, a radi dobivanja većih potpora od strane državnog i javnog sektora, u klustere se često, uz gospodarske subjekte, umrežavaju i različite institucije poput vladinih organizacija, sveučilišta i dr., čime, uz ekonomsku, na značaju dobiva i njihova društvena dimenzija. U turističkom sektoru, pojam „umrežavanja“ najčešće se odnosi na suradnju između gospodarskih subjekata međusobno, ali i sa državnim, odnosno javnim sektorom, što je, između ostalog, uvjetovano, nesigurnošću potražnje, nestabilnošću ponude, potebom za racionalizacijom troškova, boljim iskorištavanjem ljudskih potencijala, većom efikasnošću marketinških aktivnosti i dr. Kad je riječ o regiji Slavonija kao turističkom odredištu, kao primjer dobre prakse može se izdvojiti turistički klaster „Slavonska košarica“ koji je u sklopu aktivnosti predviđenih master planom turističkog razvoja, izrađenog od strane zagrebačkog Instituta za turizam, osnovao 2011. grad Slavonski Brod. Već 2012. klaster je postao regionalnim te danas umrežava više od stotinu proizvođača hrane, pića i rukotvorina; pružatelja turističkih usluga, kao i javnih institucija s područja svih pet slavonskih županija. Cilj rada bit će kroz primarno istraživanje koje će se provesti među članovima klastera ustvrditi je li članstvo u klasteru, za što je uvjet plaćanje godišnje članarine svakog člana ponaosob, opravdalo očekivanja umreženih subjekata i u kojem se segmentu, kad je riječ o zajedničkim marketinškim aktivnostima, očekuje povećanje efikasnosti.*

**Ključne riječi:** klasteri, turizam, regionalizacija, umrežavanje, marketing

### 1. Introduction

Today is a widespread opinion that the cluster connection is the basis for ensuring success of certain areas in a global economy. Therefore, those who are responsible for creating the conditions to enable the development of the local economy often conduct a policy of clusters\* stimulating that is in the public perceived as preferred. Therefore, the number of small and medium business entities joined in clusters has been growing.

In the modern economy entrepreneurs are becoming increasingly aware that the possibility of their global competition depends on the degree of their relationship to other entities who work in the local community, in the sense that better connection means at the same time ability to achieve greater efficiency, reduce costs, and recruit the best human resources. At the same time, interdependence becomes the key to success, while modern clusters are managed as a system of interdependent stakeholders.

MacGregor and Hodgkinson, with an illustration in Table 1, indicate that the hard networks relations have been based on cooperation, and the loose networks on collegiality, while the basis of cluster relations has been competition and cooperation. The very specificity of cluster reflects in fact that the foundation of the cluster decision making consists out of basic social norms, and it is the foundation for the occurrence of outward proximity (MacGregor, RC, Hodgkinson, A., 2007, 230).

**Table 1** Different types of network

Type	Hard network	Loose network	Cluster
Relation	Cooperation.	Collegiality.	Competition and cooperation.
Membership	Closed.	Open.	None.
The basis of decision-making	Clusters.	Majority.	Social norms.
The basis for the outside appearance	Shared functions.	Membership.	Vicinity.

Source: McGregor, RC, Hodgkinson, A: *Small Business Clustering Technologies: Applications in Marketing, Management, IT and Economics*, Idea Group Publishing, London, 2007, 230

Economic operators are becoming increasingly aware that the possibility of their global competition depends on the degree of their relationship to other entities who work in the local community, in the sense that better connection at the same time means the ability to achieve greater efficiency, reduce costs, recruit the best human resources. Interdependence becomes the key to success, time of old-fashioned notions of hierarchy in which one member manages the activities of other, has expired, and the modern clusters are managed as a system of interdependent stakeholders.

The management of clusters can be implemented in various ways, most often in one of the following forms:

- private management, where representatives of the private sector manage the resource base and conduct coordination,
- collective-private management, where a key role in the management has been given to a formal institution that brings together the private sector and strategic coordination, such as the chamber of commerce, a professional association, etc.,
- governance, when resources are managed by public institutions (state or local authorities, research centers, etc.),
- combined control which is a combination of the above mentioned ways of management, with one dominant entity (Pitelis, C., Sudgen, R., Wilson, JR, 2006, 163).

The theory of networking in the tourism sector dates back ten years ago, when it was recognized that the relationship between economic operators has a stimulating effect on the exchange of knowledge between different subjects, which results in qualitative and quantitative benefits to a trader community and destination (Morrison, AM et al., 2004, 198).

At the same time, in the tourism sector networked small and medium-sized economic operators, so-called SMEs, can compete globally, cooperating locally, with obvious benefits to business in terms of increased flexibility, better marketing information, innovation, better opportunity to enter into other networks or clusters at the national level and through it, the development of resources and the transfer of knowledge between stakeholders (Novelli et al., 2006, 1143).

According to the Lisbon Strategy, the European regional policy is designed in such a way that the specific activities and the promotion of economic and social cohesion reduce the gap between the levels of development of different regions. This policy helps to finance concrete projects for regions, towns and their inhabitants. The idea is to create potential so that the region could fully contribute to achieve greater growth and competitiveness and, at the same

time, the exchange of ideas and best practices (Guide for information about the European Union, <http://www.entereurope.hr>, 2011).

## **2. Clusters in Croatia**

When it comes to the current national policy that regulates and promotes the development of small and medium enterprises in Croatia, it should be noted that the same has been based on the provisions of the Strategy of development of entrepreneurship in Croatia 2013-2020 developed by the Ministry of Entrepreneurship and Crafts, with the main aim of increasing the competitiveness of small businesses in Croatia.

According to data from the Ministry of Entrepreneurship and Crafts, 2013 is the year of the first positive developments as a result of better and simpler entrepreneurial environment and facilitated operations in crafts pursuant to the provisions of the new Law on Crafts (Narodne novine 143/2013). According to data from the annual financial statements, in this year the micro, small and medium-sized enterprises achieved positive financial results and operated with a net profit (Ministry of Entrepreneurship and Crafts, 2015, 5).

As networking, integrating SMEs into clusters, is activity that it is in function of increasing the competitiveness of the sector, and rationalizing the cost of networked business operators, primarily through the unification of certain business functions, in 2011, Croatian Parliament adopted the Strategy for Cluster Development in the Republic of Croatia, although in that time called Ministry of Economy, Labour and Entrepreneurship, already from 2005, through the project "Clusters-joint product", have been encouraging clustering in the following industries: wood processing; leather and footwear industry; printing; construction, ICT; tourism and hospitality; shipbuilding; production of medical equipment; production of municipal equipment; food industry; metallurgical industry.

Clustering has also been encouraged by the Croatian Chamber of Economy in which operates Clusters\* Community established in 2007. Today, it networks sixty members and is a part of a global network of TCI as a world-leading, non-profit governmental organization which brings together all the actors who work in encouraging and promoting clusters competitiveness, as well as the European Cluster Alliance, platform established to maintain a constant dialogue with national and regional public authorities responsible for the development of cluster policies in their own countries and/or regions.

Basic activities of the Clusters\* Community were defined by the Work Program, and can be summarized as: representing the interests and providing technical assistance to cluster members; raising funds in the framework of government programs to encourage clustering, carried out by the relevant ministries and other institutions; introducing members with the activities undertaken in order to stimulate and strengthen clusters and creating the economic environment of sustainable development and encouraging members to, through professional associations, intensify their efforts and participate in creating strategies and implementing specific measures aimed at integration of the global market (Croatian Chamber of Economy, 2015, 1).

Ministry of Entrepreneurship and Crafts, through annual programs for the promotion of business and crafts, promotes and cofinances cluster activities. In 2014, through the measure A3: Entrepreneurship of clusters, activities of seven Croatian clusters were approved with a total of 3,570,052.03 HRK, where the average of aid granted, was 510,007 HRK and a share

of aid granted in the total number of entries 36.84%. The Program for the promotion of business and crafts "Business impulse 2015", under the Operational Program "Competitiveness and cohesion 2014 to 2020", also provides support for cluster activities through the program "Networking entrepreneurs", with a total planned funds available in the amount of 304,000,000.00 HRK, earmarked for supporting innovation clusters and other clusters and cooperatives in their initial investment, training and advisory services that are directly related to investments (Ministry of Entrepreneurship and Crafts, 2015, 15, 75).

As previously noted, networking and clustering are recommended in the tourist industry, and for the following reasons:

- heterogeneity of different activities related to accommodation, catering, transport, industry of external institutions etc. contributes to building quality structures destinations in the function of tourism development, because each subject has access to information, enabling better operational practices and joint problem solving,
- networking leads to transfer of knowledge and structural unification in the function of tourism development,
- as individual subjects bring in the new organization their skills, systems "best practices" are beginning to surface at the network or cluster level, increasing, through the ability, strategic competitiveness of destinations (Scott, N., Baggio, R., Cooper, C., 2008, 90-95).

Clustering of the tourism sector in Croatia is still in its infancy and has not reached a satisfactory level. It is particularly evident when talking about linking of tourism entities at the level of tourist destinations, as well. Although the Ministry of Entrepreneurship and Crafts, through its grant award programs, encourages networking, these measures so far have not produced significant results, and so far allocated funds were not generous. The solution is looming in educational programs that the ministry since recently has been organizing in individual regional areas, during which participants of business workshops learn about comparative advantages of clustering, as well as financial incentives that clusters can use.

Speaking of networking at the level of Croatian tourist destinations, as an inevitable positive example can be mentioned the example of clustering performed in Istria where, according to the Tourism Master Plan of Istria for the period 2004 - 2012, have been defined seven clusters: Umag-Novigrad; Poreč; Vrsar-Funtana; Rovinj; Labin-Rabac; Inland Istria and Pula-Medulin. This master plan defines a cluster as „a dynamic concentration and combination of tourist attractions, infrastructure, equipment, services, activities, people, etc., in closed geographical areas in which it is developing specific tourist experience" (Istrian Tourist Board, 2002, 7).

It should be noted that in Istria within the clustering project, the accent is given on the need for cooperation between the private and public sector in order to achieve consensus on the key issues of the functioning of destinations, both in terms of development directions, and in terms of the quality of the tourism offer.

The first example of tourist clustering implemented in the continental part of Croatia was establishment of the Croatian Tourism Cluster "Lonjsko polje", registered as an association in 2009. In association are networked 44 members and providers of catering services, travel agencies, producers of wine, cheese, eco-products and souvenirs areas of the Sisak – Moslavina County, as well as the Sisak – Moslavina Tourist Board, the Chamber of

Commerce, the public institution "Lonjsko polje", as well as the Sisak – Moslavina county ([www.tk-lonjsko-polje.hr](http://www.tk-lonjsko-polje.hr)).

### 3. Networking in Slavonia

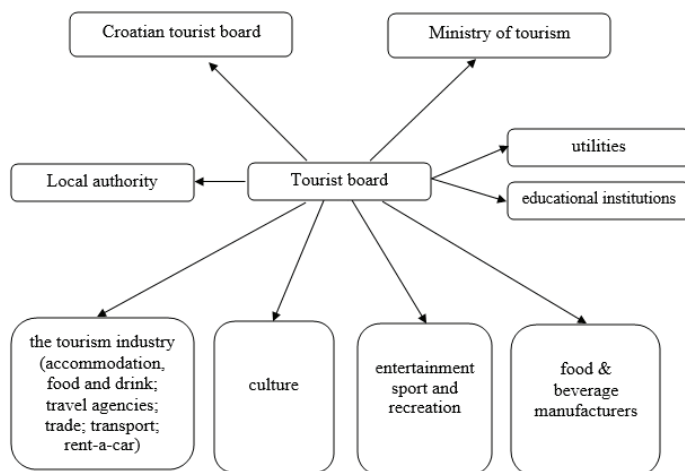
Regional clusters can be characterized as a production network strongly interrelated economic entities (including specialized suppliers), agencies that "produce" knowledge (universities, research institutes, institutions for technical support), institutions which "connect" (brokers, consultants) and customers, interconnected in the value added chain of production (Asheim, B., Isaksen, A., 2001).

When it comes to the region of Slavonia, the notion of developing tourism cluster should include the implementation of the regional network in regional development. In doing so, the regional development policy should aim at achieving a balanced development of all parts of the tourist region of Slavonia, and a way to get through networking favorable conditions for the transfer of knowledge, technology, entrepreneurship, financial resources and thus achieve economic or tourist prosperity of the whole area (Loncaric, 2012, 46, 47).

The most common initiators collaborating stakeholders in tourism at the level of tourist destinations in Slavonia are tourist boards. Their links with institutions and tourist operators who participate in the creation of the tourism product can be stronger or looser, which varies from case to case and depends on many factors, and is clearly illustrated in Figure 1.

As Figure 1 shows, tourist boards that operate at the local level cooperate with the institutions "from the top" which supervise (and co-finance) their activities (the Croatian National Tourist Board and the Ministry of Tourism), and with other institutions at local level, whether with local executive authorities, companies dealing with communal activities and educational institutions, whether with entities that directly participate in the creation of tourism products (service providers in the tourism and cultural sector; holders of entertainment, sports and recreational activities; manufacturers of food and souvenirs).

**Figure 1** Tourist boards and other entities that create or affect the creation of tourism product at the level of tourist destinations



Source: Modified according to Scott, N., Baggio, R., Cooper, C. (2008): *Network Analysis and Tourism*, Channel View Publications, Clevedon

As, in the conditions of globalization and increasing competition, cooperation and networking in tourism sector of tourist underdeveloped areas is a necessity for the survival on the tourism market, in the specific case of the tourist region of Slavonia, it was considered necessary to create the preconditions for the implementation of fast and efficient clustering at regional level, and to start from the following principles:

- build relationships of trust among all tourism entities which participate in the creation of the tourism product at the regional level,
- start with areas of common interest of all stakeholders such as unified marketing activities to promote the tourist region Slavonia and "sold" it as a whole,
- create and use a common database in terms of their analysis and implementation at the regional level,
- establish tourism leaders by individual tourism products at the regional level to cooperate with, and all other subjects in order to achieve common and mutual interests,
- focus on those areas in terms of tourism products, and in terms of market segments in which Slavonia region in terms of tourism has a comparative advantage,
- implement management of the region as a tourist destination gradually, initially focusing on simple tasks with which are easier to manage,
- implement continuous education about the benefits of tourism entity clustering and clustering initiators "provide" by in-depth knowledge about the benefits of association,
- use outsourcing as an opportunity, in the sense that tourism professionals execute strategic selection of core activities, i.e. those in which they achieve the best results in comparison to the competition and focus their resources to them, and all other activities entrust to those who carry them out better and cheaper,
- create partnerships at the regional level in various forms and between different entities, which guarantees high performance,
- operate efficiently, in the sense that it must be insisted on the view that any product or service offered on the tourist market has its value (modified according to Christensen, P., McIntyre, N., Pikhholz, H., 2002, 19 -21).

In the tourism industry, especially when it comes to the regional level, public-private partnerships is becoming the preferred method of support and managing the development of local tourism activities and solving problems faced by small and new operators in markets with strong competition. In this sense, the clusters can be increasingly treated as forms to improve regional competitiveness and positive economic trends, especially for tourist activities in rural areas.

At the same time, throughout the country, not only in the region of Slavonia, brake for intensive clustering lies in the fact that the funds for the activities of clusters coming from government sources in most cases are the only source of financing members interconnection. The possible financing of the majority of cluster activities from membership fees and donations will depend primarily on the extent to which and in what time cluster members will become aware of the benefits that networking brings to them, and, as it can be assumed, this would be only at the moment of the time of onset of economic performances.

Results of so far conducted researches showed that, for the tourism sector in the region of Slavonia, the most acceptable form of networking entities that create tourism products, is to join contractual vertical marketing systems. According to Kotler (Kotler, 1998, 472), it is a system that consists of tourism professionals who are legally speaking, autonomous and independent, but through certain contractual arrangements are connected, in order to be more effective in the tourism market.



#### 4. Cluster "Slavonska košarica"

An example of good practice in the area of networking is for sure the tourist cluster "Slavonska košarica", organized as an association that was created through regionalization of the cluster "Slavonski Brod" established by the city of Slavonski Brod, the Tourist Board of Slavonski Brod and the Development Agency of Slavonski Brod, in the framework of project tasks established by the Master plan for tourism development of the town from 2010 to 2020. Today this cluster networks 117 members, manufacturers of food, beverages and handicrafts; representatives of the accommodation and catering sector; owners of travel agencies and tourist economies; representatives of local governments; tourist boards and other public and educational institutions from all over the region. It should be noted that the cluster has signed a strategic partnership with the Faculty of Economics in Osijek, as well as Slavonski Brod and Požega Polytechnics.

The principal activities of the cluster are determined by annual work programs adopted by the Assembly consisting of representatives of all 117 members, with maintenance of educational workshops for members; development of interactive web portals; participating in fairs and organizing special presentations on certain tourist markets and benchmarking trips, as the most significant.

*Table 2 Income of the cluster "Slavonska košarica" in 2014.*

O.n	Income sources	Plan 2014.	Execution 1.1.-31. 12..2014.	Execution n/Plan	Structure in %
1.	<b>Membership fees</b>	20.000,00	10.640,00	53	10,30
2.	<b>Founders grants</b>	10.000,00	15.800,00	158	15,28
3.	<b>The Brod-posavina county grants</b>	10.000,00	10.000,00	100	9,67
4.	<b>Government institutions grants</b>	200.000,00	63.451,67	18	61,36
4.1.	<i>Croatian Tourist Board</i>	-	39.316,57	-	-
4.2.	<i>Ministry of Agriculture</i>	-	24.135,10	-	-
5.	<b>Other incomes</b>	4.000,00	3.502,81	88	3,39
5.1.	<i>Public sector income grants</i>	2.000,00	-	-	-
5.2.	<i>Private sector income grants</i>	4.000,00	-	-	-
5.3.	<i>Interest income</i>	-	16,81	-	-
5.4.	<i>Revenue from the provision of economic activity</i>	-	3.486,00	-	-
6.	<b>Total revenue</b>	<b>244.000,00</b>	<b>103.394,48</b>	<b>42</b>	<b>100</b>

Source: Cluster "Slavonska košarica" (2015): Report on tourist cluster "Slavonska košarica" in 2014, 8

In 2014 cluster's "Slavonska košarica" revenue was 103,394,48 HRK. In its structure is evident largest share of grants from the state level, and that of the Ministry of Agriculture and the Croatian Tourist Board. Revenue from membership fees amounting to 200.00 HRK per year per member, with the possibility of installment payments in quarterly periods, achieved 10,640.00,00 HRK, with a share in the structure of 10.3% and the index of achievements of 53 (Cluster "Slavonska košarica, 2015, 8).

## 5. The results of primary research

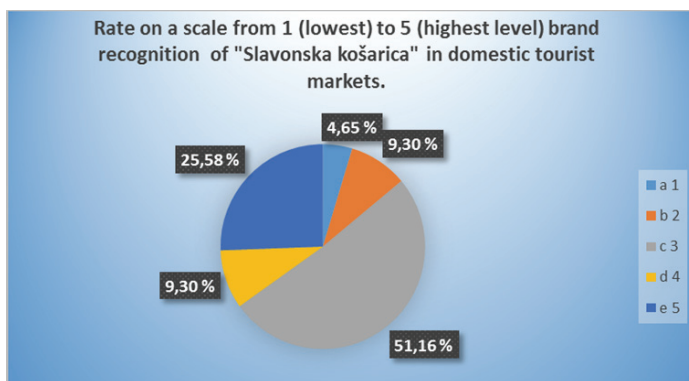
To determine the satisfaction of cluster members with membership in the cluster and realize their attitude on the activities to which should be given emphasis, in February 2015 was conducted primary research, which involved 85 members of the cluster, which makes 71.4% of the total membership. The research results are given below:

**Figure 2** *Networking in tourism sector, questions and answers of the respondents*



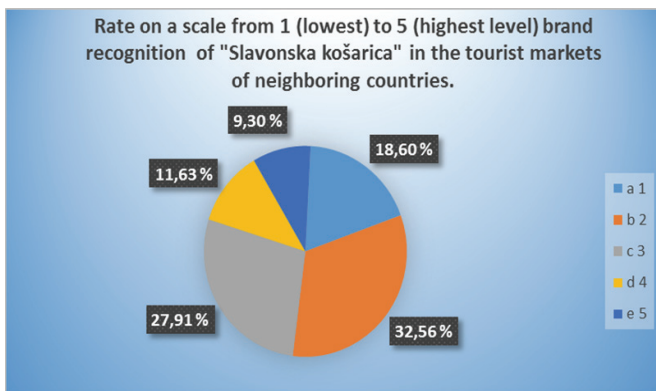
Source: Independently conducted research, February 2015

**Figure 3** *Brand recognition in domestic tourist markets, questions and answers of the respondents*



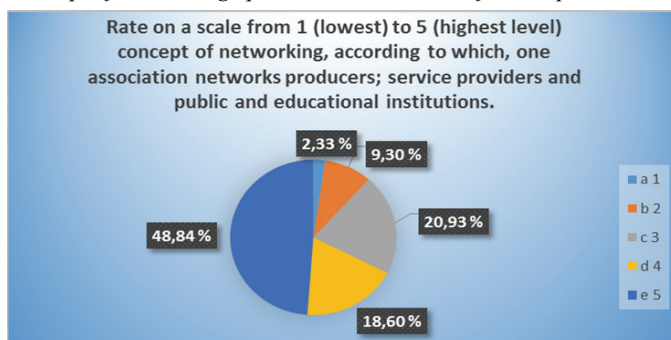
Source: Independently conducted research, February 2015.

**Figure 4** Brand recognition in the tourist markets of neighboring countries, questions and answers of the respondents



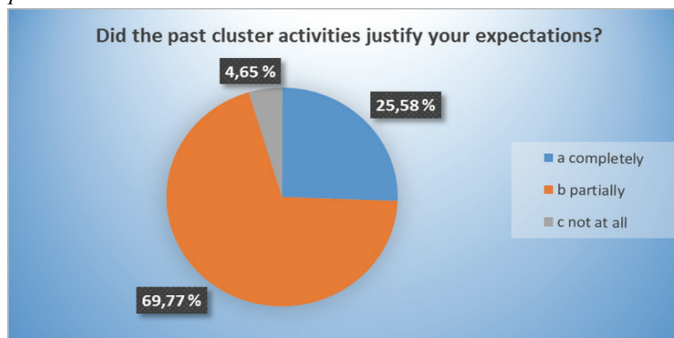
Source: Independently conducted research, February 2015

**Figure 5** Concept of networking, questions and answers of the respondents



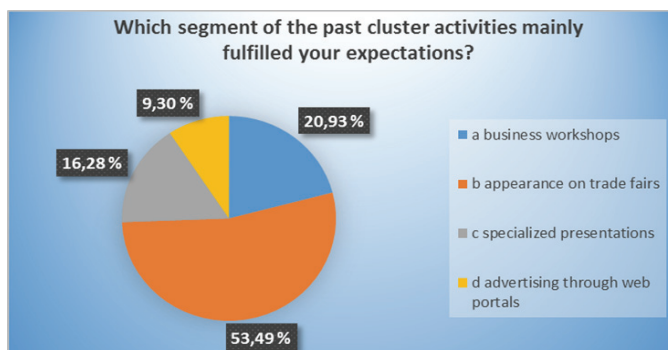
Source: Independently conducted research, February 2015

**Figure 6** The past cluster activities as expected by cluster members, questions and answers of the respondents



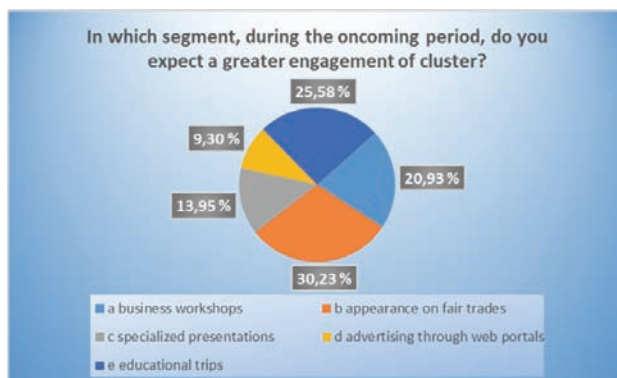
Source: Independently conducted research, February 2015

**Figure 7** Segments of the past cluster activities as expected by cluster members, questions and answers of the respondents



Source: Independently conducted research, February 2015

**Figure 8** Segments of the cluster activities to be provided accent to, questions and answers of the respondents



Source: Independently conducted research, February 2015.

**Figure 9** expectations of cluster members with regard to support of the Ministry of Entrepreneurship and Crafts, questions and answers of the respondents



Source: Independent research conducted, February 2015

**Figure 10** Cluster membership, questions and answers of the respondents



Source: Independent research conducted, February 2015

Results of primary research showed that:

- 67.44% of respondents believed that it was most appropriate, when talking about tourism sector, to implement networking at the regional level,
- by quarter of respondents recognition of brand „Slavonska košarica“ in domestic markets was assessed as "excellent", while just over half of respondents cluster brand in domestic markets evaluated as "good",
- average score of respondents with regard to recognition of brand "Slavonska košarica“ in the tourist markets of neighboring countries was 2.61%
- almost half of the respondents concept of networking, whereby in one association networked producers; service providers and public and educational institutions assessed as "excellent",
- past cluster activities justified the expectations of 67.77% cluster members partially, while quarter of cluster members was fully satisfied with the results of cluster activities in the previous period,
- performances at fairs was activity that had largely fulfilled the expectations of the majority of the cluster members (53.49%), while greater involvement of the cluster was expected just in this segment of activity by nearly one third of respondents,
- 60.47% of respondents believed that in 2015 the cluster would be supported by the Ministry of Entrepreneurship and Crafts, while slightly more than one third believed that this is possible,
- more than 90% of respondents intended to remain in cluster membership in the future.

## 6. Conclusion

Regardless of the form of networking, competitiveness strategy should be primarily based on the connections established between economic and non-economic entities within a specific area focused on meeting the needs of tourists. Thus, by using of cluster models it is possible to reduce regional imbalances, and to emphasize entrepreneurial activities and create mutually organized and linked groups of tourist attractions, infrastructure, services etc. These are updated with the aim of greater success in the market, and at the same time form an integral tourist product. In doing so, and to get greater support by state and public sectors, clusters often, with economic operators, include a variety of institutions, such as government

organizations, universities, etc., what, along with the economic significance, has social dimension.

According to McGregor and Hodgkinson (MacGregor, RC, Hodgkinson, A., 2007, 227), clusters are agglomerations of small and medium-sized business entities (SMEs) located in a relatively limited geographical area which are engaged in the production of related or complementary products. These two authors advocate a modern approach to clustering that gives importance to the role of social capital, i.e. the social (create a trust relationship between economic operators, the inclusion of institutions that provide infrastructure such as government, educational institutions, etc.), and not only the economic dimension.

According to Horvat and Bogdanić, M. (Horvat, Đ., Bogdanić, M., 2014, 312), clusters represent organizational forms that connect business subjects of one economic sector whose motives are to merge for the benefit of efficiency in placing products and services. A model of cooperation which involves these three sectors is called triple – helix model.

In doing so, the clusters should be promoted systematically, because individual promotional initiatives undertaken by commercial entities can not be coordinated and balanced in scope, message, and regularity in reporting. Therefore, the promotion of clusters, economic entities in the cluster and their products should include the institutions that give support such as research institutions, chambers of commerce, local authorities, etc., and that thus is in the function of the valorization of the image of the cluster in the domestic and international markets.

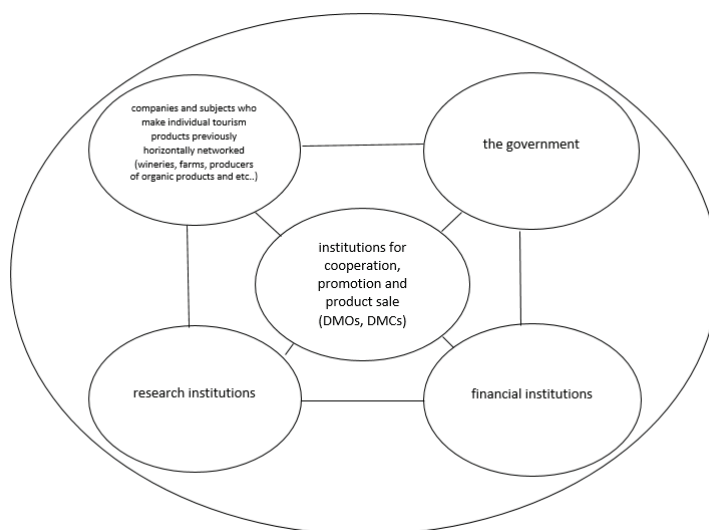
When it comes to networking at the regional level, it is evident that it has become the practice in international settings, including the tourism industry, where there are frequent connections between the small tourist entrepreneurs, development agencies, regional tourism organizations and authorities. For example, according to Porter (Porter, ME, 1998, 78, 88, 89), clusters are geographically concentrated, interconnected businesses entities and institutions in a particular area in which many include government and other organizations such as universities, development agencies, training institutions, trade associations, etc., that provide services including education, special training, information, research and technical support.

At the same time, economic operators belonging to a geographical cluster can share resources, responsibilities, communication and marketing, have a collective local brand, collective management and/or consulting. They can also plan joint activities involving analytical, strategic and operational marketing primarily as joint promotional activities undertaken by both the private and public sector.

According to the Tourism Development Strategy of the Republic of Croatia by 2020 (Ministry of Tourism, 2013, 28), one of the ten basic principles of Croatian tourism by 2020 is to create partnerships, because understanding „the tourist product“ as an aggregate category, its development implies horizontal (interdepartmental) and vertical (national - regional - local) co-operation, but also co-operation between public authorities and the private sector (businesses), the civil sector, institutions in the field of environmental protection, culture, transport, health, safety etc.

Figure 11 shows the possible members of a comprehensive geographic clusters in the region of Slavonia, among which would, along with previously horizontally related entities that create tourism products; research and financial institutions and local authorities, a significant place should belong to institutions for promotion (County Tourist Board operating in the region and the regional tourism organization that is formed at the regional level), or the companies for the sale of tourism products (receptive travel agencies in operation destination management company) (Lončarić B., 2012, 333).

**Figure 11** Potential members of the geographical region cluster of Slavonia



Source: Lončarić, B.: *Marketing in Tourism of Slavonia and Baranja*, PhD thesis, 2012, 333

Organizationally, but also economically, the tourist cluster "Slavonska košarica" is a good example of networking and joint marketing activities of various stakeholders of tourism development in the region of Slavonia, regardless of the modest financial resources and a limited number of sources from which financed its activities. It is also shown in the results of the study.

In the coming period, based on the view of Figure 11, the board of clusters should focus its efforts on lobbying the ruling state structures for the entry of state officials in membership of the cluster, which would (at least to be expected) increase the state's interest to support clustering in financial terms. On the other hand, membership in the cluster of some of the financial institutions (banks) for sure would also be a function of how greater liquidity of membership, as well as implementation of various benefits in the area of improving business conditions of membership.

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**ANALYSIS OF THE ECONOMIC COST EFFECTIVENESS OF THE  
INTERNATIONAL GARDEN CENTER IN SLAVONSKI BROD**

**ANALIZA EKONOMSKE ISPLATIVOSTI INTERNACIONALNOG  
VRTNOG CENTRA U SLAVONSKOM BRODU**

***ABSTRACT***

*Agriculture is a key factor and one of the greatest comparative advantages of eastern Croatian and Slavonia region. The question is whether it will be attractive for business investment? The answer on this question will be given by economic analysis of project feasibility of building the international garden center in Slavonski Brod as a part of the secondary school center for agriculture Matija Antun Reljković. The project aim is the development and modernization of agricultural activities in area of eastern Slavonia according to EU standards, and stimulation of development of area through horticultural production. Garden center, apart from production, provides services of planting and decorating the garden, maintains training seminars for potential producers and has an exhibit space. It is expected that the project of garden center would contribute to the development of awareness of the dynamic agriculture and thus improve the standard of production on agricultural holdings by using modern technology in glasshouse production. The center is intended as a place where would be consolidated the expertise of the academic community, led by the Faculty of Agronomy and Agricultural Institute in Osijek on the one hand, and on the other hand the Agricultural Land Agency and the Agricultural Extension Service of the Brod-Posavina County, which would allow center to become a key location for technical and business support for agricultural producers in the broader region. Center includes three objects: the administration building, which comprises a laboratory expanse and classroom, buildings for production and storage of plant material, tools and machines, and canopies used for loading and unloading materials. Economic analysis will be based on data from the financial statements and the financial data plans that are available in public disclosures. During research of facts and possibilities that currently exist, for the formulation of the research results in this paper, the following research methods are used in a different*

*combination: historical method, the method of analysis and synthesis, classification and description method.*

**Key words:** *Garden center, Investments, Cost-benefit analysis, Agriculture, Slavonia.*

## SAŽETAK

*Poljoprivreda je ključan čimbenik i jedna od najvećih komparativnih prednosti istočne Hrvatske i regije Slavonija. Pitanje je može li to biti atraktivno za poslovne investicije? Na ovo pitanje će se pokušati odgovoriti ekonomskom analizom isplativosti projekta izgradnje internacionalnog vrtnog centra u Slavonskom Brodu u sklopu srednjoškolskog centra za poljoprivredu Matija Antun Reljković. Cilj projekta je razvoj i osuvremenjivanje poljoprivredne djelatnosti na području istočne Slavonije prema standardima Europske unije, te stimulacija razvoja područja kroz hortikulturalnu proizvodnju. Vrtni centar, osim proizvodnje, pruža usluge sađenja i uređenja vrta, održava seminare za obuku potencijalnih proizvođača te ima izložbeni prostor. Očekuje se da će projekt vrtnog centra korištenjem suvremene tehnologije u stakleničkoj proizvodnji doprinijeti razvoju svijesti o dinamičkoj poljoprivredi te tako poboljšati standard proizvodnje na poljoprivrednim gospodarstvima. Centar je zamišljen kao mjesto gdje će se objediniti stručna znanja akademske zajednice na čelu sa Agronomskim fakultetom i Poljoprivrednim institutom u Osijeku s jedne strane, a sa druge strane Agencije za poljoprivredno zemljište i Poljoprivredno savjetodavne službe Brodsko-posavske županije što bi omogućilo da postane ključno mjesto za stručnu i poslovnu podršku poljoprivrednicima u široj regiji. Centar obuhvaća tri objekta: upravnu zgrade u sklopu koje se nalazi laboratorijski prostor i učionica, zgrade za proizvodnju i skladištenje biljnog materijala, alata i strojeva, te nadstrešnice koja služi za utovar i istovar materijala. Ekonomska analiza bit će bazirana na podacima iz financijskih izvješća i podacima iz financijskih planova koji su raspoloživi u javnim objavama. Pri istraživanju činjenica i mogućnosti koje trenutno postoje; a za formuliranje rezultata istraživanja u ovom radu su u različitoj kombinaciji korištene sljedeće znanstvene metode: povijesna metoda, metoda analize i sinteze, metoda klasifikacije te metoda deskripcije.*

**Ključne riječi:** *Vrtni centar, Investicije, Analiza isplativosti, Poljoprivreda, Slavonija.*

### 1. Introduction

The company "Regional center for biotechnology research and development Brod-Posavina County Ltd" was established in Slavonski Brod at the end of 2013. Company foundation is the final part of the project worth 1.5 million euros and which was financed by European Union funds. The project leader was a high school M. A. Reljković from Slavonski Brod with the help of Brod-Posavina County and the CTR - Development Agency from Brod-Posavina County. The company was established as a limited liability company with a share capital worth 20.500,00 kn. Founder of the company is Brod-Posavina County, and members of the company are High school Matija Antun Reljković from Slavonski Brod and Technology Development Center - Development Agency from Brod-Posavina County. By project is envisaged that a regional center for biotechnology research and development of Brod-Posavina County is the main core of innovative ways of producing virus-free plants in the region. The center should initiate the development of Brod-Posavina County. The aim of this paper is according to available financial reports for the first year of business to make a financial analysis of operations of the Regional Centre for biotechnology research and development of Brod-Posavina County.

## 2. Financial analysis as a process

Analysis of financial reports can be described as the process of applying various analytical tools, methods and techniques by which the data is converted into usable information used internally and externally, and mostly used as a base management function. Financial management has to do primarily the business analysis which shows what has been achieved in previous periods, and that is the base on which management can work plans for the future.

Economic operators who are currently operating throughout the world, most often are organized as companies. In the case of large firms they are organized as joint stock companies. By issuing shares, the business of the company is monitored by all those who participated in the investment. Investors will, therefore, expect earnings as a result of their investment and therefore are interested in doing business. Smaller companies are founded by one or more of business stakeholders. And they will expect for its investment as higher profits.

Every company is an economic entity in its country, and many of them operate in the wider market. This means that companies must operate between themselves. In addition to all the business, there is a need for additional financial resources at the disposal of banks and other financial institutions. All this points to the fact that the operation of companies takes place a greater or lesser extent under public scrutiny. Except founders, interest for small business companies will have their suppliers, creditors and the state.

By exiting on broader market, beyond national, a company comes to business relationships with more business partners. Therefore there is a need to display position and business results on accessible way using financial reports. This is why the International Committee is established which made the guidelines entitled International Financial Reporting Standards by which the financial statements are made, that will allow all interested parties an insight into the operations of a particular company.

The Republic of Croatia also accepted IFRS.

Today all businesses throughout the world, including those in our country, must keep accounting records. Accounting starts with the very founding of the company. According to the Law on Accounting fundamental financial reports are:

- Balance,
- Income statement,
- Statement of changes in equity,
- Statement of Cash Flows,
- Accounting policies and notes to the financial statements.

All of these statements must give true and fair overview of the assets, liabilities, equity, changes in financial position and profit and loss account. Taxpayers of bookkeeping and financial reporting are all entrepreneurs based in the Republic of Croatia. International Financial Reporting Standards are the basis from which results an assembly of the basic financial statements for external users. Although these standards are related to financial reporting, they affect the collecting of accounting data, as well as their processing and the entries into the books. (Skupina autora, 2004, 26)

It is very important to monitor the share of claims in the structure of assets. By the sale revenues will be earned. Only the retail business provides a regular cash inflow, while in other sectors a certain period of time has to pass for effect the conversion of receivables into cash. In order to have the sale, it is necessary to engage the funds that will result in the product. (Cmković, 2006, 112)

The business process is a continuous series of events that begin with investment of certain assets that can be own or borrowed and the use of which leads to revenue. At the end of the business period the difference between income and expenses will be determined and it will be seen how the whole process was successful. In any business there are fixed and variable costs. Fixed costs are always present, regardless of whether they use all business capacity or not and they are difficult to influence on. Unlike these, variable costs are dependent on the

scope of activities. On the other hand, revenues depend on the cost per unit of product sold amount. It is on management to decide on the extent of activities that will achieve the most favorable ratio of profitability.

First, it must be determined which is the minimum scope of activities that would only cover the cost of production, and the gross profit would be a zero. This points out to where the break-even point is, or how many units of a product or service has to be produced and sold in order to compensate the production costs. Any other, larger activity will lead to gain, while the smaller will bring loss. By increasing or decreasing the selling price per unit of product or service you can directly affect on income. It is therefore necessary to see whether the positions of variable costs can make different combinations, which would ensure equal pay and will reduce the selling price. The structure of the balance sheet will depend on the selection of sources of funding. The best and safest source of financing is own capital. However, in any business there is the need for external capital. It is therefore important to make the right decisions on choosing sources of financing. The first will be doubted whether this funding should be long-term or short-term.

One should always start from the golden rule of banking advises that for long term placements are taken long-term loans and for short term investments a short-term funding sources. Theoretically it is the best structure in which own and someone else's capital are represented in equal proportions. There certainly should always take into consideration the interest rate on borrowed capital, which can in some cases be very favorable, and by which the share of foreign capital can be increased. If there is an unfavorable structure of the balance sheet it is possible to change that in a way to make a decision not to pay dividends or share. In this way you can directly impact on the change in the liability structure through increased equity. The next way to improve the situation in the balance is the share capital increase, which also directly affects the change in capital structure. The total amount of capital will not be changed if a decision is made on the transformation of retained earnings in the share capital, but will only incur a change in the capital structure itself.

Analysis of financial statements is performed by various instruments and procedures, which are mainly the analyzing and comparing the results, classification of basic financial instruments and procedures of financial statement analysis. In carrying out its activities, the company aims to achieve an appropriate result (profit or profitability), which means that revenues exceed the costs. (Belak, 1995, 87)

### 3. Financial analysis of "Regional center for biotechnology research and development Brod-Posavina County Ltd"

Table 1 shows the balance of the company on specific days until 2014.

**Table 1** Balance of the company on the date 31.12.2012., 31.12.2013., 31.12.2014.

ASSETS	2012.	2013.	2014.
NON-CURRENT ASSETS			
land	0	0	0
building objects	0	0	0
plants and equipment	0	0	0
tools, inventory, transportation assets	0	0	11.184,00
TOTAL NON-CURRENT ASSETS	0	0	11.184,00
CURRENT ASSETS			
stocks of merchandise	0	0	18.512,00
claims	0	0	49.994,00
money	0	0	23.668,00

	2012.	2013.	2014.
TOTAL CURRENT ASSETS	0	0	92.174,00
<b>TOTAL ASSETS</b>	<b>0</b>	<b>0</b>	<b>103.358,00</b>
<b>LIABILITIES</b>			
<b>EQUITY</b>	0	0	-5.725,00
share capital	0	0	20.490,00
loss	0	0	26.215,00
<b>TOTAL EQUITY</b>	<b>0</b>	<b>0</b>	<b>-5.725,00</b>
<b>NON-CURRENT LIABILITIES</b>			
long-term loans	0	0	0
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CURRENT LIABILITIES</b>			
other current liabilities	0	0	7.561,00
liabilities to suppliers	0	0	69.340,00
liabilities for taxes and contributions	0	0	12.376,00
liabilities to employees	0	0	19.806,00
<b>TOTAL CURRENT LIABILITIES</b>	<b>0</b>	<b>0</b>	<b>109.083,00</b>
<b>TOTAL LIABILITIES</b>	<b>0</b>	<b>0</b>	<b>103.358,00</b>

Source: Made by author

Table 2 shows income statement of the company in 2012, 2013, 2014.

**Table 2** Income Statement of the company in 2012, 2013, 2014.

	2012	2013	2014
SALES REVENUE	0	0	70.123,00
OTHER OPERATING INCOME	0	0	435.216,00
<b>TOTAL INCOME</b>	<b>0</b>	<b>0</b>	<b>505.339,00</b>
raw materials	0	0	58.930,00
sold goods costs	0	0	24.644,00
costs of salaries	0	0	280.782,00
other costs	0	0	167.198,00
<b>TOTAL EXPENDITURES</b>	<b>0</b>	<b>0</b>	<b>531.540,00</b>
PROFIT OR LOSS BEFORE TAXATION	0	0	-26.215,00
LOSS BEFORE TAXATION	0	0	-26.215,00
INCOME TAX	0	0	0
<b>LOSS OF THE PERIOD</b>	<b>0</b>	<b>0</b>	<b>26.215,00</b>

Source: Made by author

#### 4. Financial Indicators

In order to obtain financial indicators we need to put an economic size in relationship with another economic size. By stating this we need to place in relations sizes that were got on a particular day or the result of operations in a given period. The results are going to be used as a base on which economists could work plans and make decisions about future business. What indicators will be used depends in a given moment on the user. (Novak, 2002, 54) Long-term investors are interested in the efficiency of operations, banks for granting short-term loans need financial situation, which is expressed by the coefficient of liquidity. Furthermore, the management of the company is monitoring all the aspects of financial

analysis, because it has to take care of the whole business and provide short-term and long-term stability, profitability and to ensure further development.

The most commonly used are the following indicators:

1. Liquidity indicators - measures the ability of the company to meet its short-term liabilities.
2. Debt indicators - measures how much the company is financed by external sources of funds.
3. Indicators of activity - measures how efficiently the company uses its resources.
4. Indicators of cost effectiveness - measures the ratio of income and expenditure, and shows how much the revenue is generated per unit of expense.
5. Profitability Ratios - measure return on capital.
6. Investment indicators - measures the performance of investments in ordinary shares.

For business security the most important indicators are liquidity indicators and debt indicators. However, each indicator has its own meaning, which will become apparent when it is compared with a certain standard size. These sizes can be plans, comparison of size in a given period and comparison with similar companies. (Popović, Vitezić, 2006, 7)

Using the previous operating data, it can be calculated what size the individual indicators are for all three years:

#### **4.1. Indicators of liquidity**

##### **4.1.1. Accelerated liquidity coefficient**

This coefficient is obtained as the ratio of the sum of cash and receivables with short-term liabilities. Based on the information that will be obtained from data on accelerated liquidity coefficient it can be concluded what is the ability of a company that in a very short time provide a certain amount of money. This can be of great importance in emergency situations that may occur as a sudden need for cash.

To calculate this coefficient stocks are excluded because of their conversion into money takes a long period. This is understandable because in the case of materials on stock first they should be used in the production process to obtain the finished product, and then should take some time to sell stocks of finished products.

$$IL = 73.662,00 / 109.083,00 = 0,67$$

The obtained indicator reveals to us that the liquidity is very poor; 0.67. It is believed that this ratio should not be less than 1.

#### **4.2. Debt indicators**

##### **4.2.1. Debt ratio**

This is one of the most important indicators of corporate indebtedness. It is obtained as a ratio of total liabilities to total assets.

Coefficient or gearing ratio shows how much of the assets are financed by external sources of long-term or short-term either. This ratio shows how much the total liabilities are represented in the overall financial structure of the company. The gearing ratio indicates the ability of the company to cover all its short-term and long-term liabilities to creditors and investors. If this coefficient is higher, the higher is the risk of investment in the company. It is believed that the level of indebtedness should not be higher than 50%.

$$DI = 109.083,00 / 103.358,00 = 1,05$$

#### 4.2.1. Financing ratio

This indicator is linked to the previous two and placed in relation to total liabilities and equity. The financing ratio shows the company's debt in relation to the value of shareholders' equity, or basic relationships within the financial structure or the structure of sources of assets. The ratio of debt to equity gives the same information as the debt ratio only starts from a different ratio. Based on experience, the company should not incur debt more than 50% of equity. This means that the liabilities and equity should be in the ratio of 1: 1.

$$\text{FR} = 109.083,00 / 20.490,00 = 5,32$$

It can be seen that total requirement in the first period were 532% higher than their own capital.

### 4.3. Indicators of activity

#### 4.3.1. Turnover coefficient of total assets

This indicator is ratio between total revenue and total assets. This analysis is called total assets turnover although there may not be the case of a real assets revolution, rather than about the coefficient which tells how one monetary unit of assets creates monetary units of income. For this coefficient are used data on income and data of the assets from the balance sheet for the current year.

$$\text{TCTA} = 505.339,00 / 103.358,00 = 4,88$$

#### 4.3.2. The ratio of trade receivables

It is obtained as a ratio of sales revenue and receivables.

$$\text{RTR} = 70.123,00 / 49.994,00 = 1,40$$

#### 4.3.3. Duration of collection of receivables in days

To calculate this, we will use the ratio of trade receivables obtained in the previous case, so the number of days in the year will be divided with these sizes.

$$\text{DCR} = 365 / 1,40 = 260$$

### 4.4. Indicators of cost effectiveness

#### 4.4.1. Effectiveness of total activity

All the indicators of cost effectiveness are obtained by using data from the income statement. They indicate how much income is realized per unit of expenditure. The first coefficient is obtained as the ratio of total income and expenses.

$$\text{ETA} = 505.339,00 / 531.540,00 = 0,95$$

#### 4.4.2. Activity effectiveness

In order to obtain this indicator we'll put in relationship sales revenues with expenditures from the sale.

$$\text{AE} = 70.123,00 / 24.644,00 = 2,84$$

Unlike the previous indicator, it is shown that the effectiveness of operations in the first year was very good.

## 5. Conclusion

Based on the analysis and financial indicators it can be concluded that the mentioned company in the first observed fiscal year recorded a modest financial result. However, it was based on the profit from financial investments, while the result from operating activities for this year was very poor. The reported loss is the result of inactivity of observed society, the indicator of liquidity is low. Investment in working assets is very small. If there is no significant shift in the phase of investments, the company will have deteriorating indicators and is likely to find itself in situation where will be noticeable increase of the loss in the future.

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## **IMPORTANCE OF AGROTOURISM FOR SUSTAINABLE ECONOMIC DEVELOPMENT OF BARANJA**

### **ZNAČAJ AGROTURIZMA ZA ODRŽIVI RAZVOJ GOSPODARSTVA BARANJE**

#### **ABSTRACT**

*Rural tourism is an important backbone of the current and future socio-economic development of the Osijek-Baranja County, and one of its forms is the agrotourism which is increasingly in the focus of farms. The basis for its development is reflected in the richness of the rural landscape, healthy ecological and climate conditions, diverse cultural heritage and interest as well as hospitality of the rural population.*

*Introduction of agrotourism on farms extends primary agricultural activity to meals and accommodation services and also to a variety of other contents such as participation in agricultural activities, direct contact with farm animals, involvement in the life of the host, etc, so thus farmers can ensure a better placement of their own products and consequently increase their income. Although agrotourism is not present in massive scale it is still one of the ways that young people remain within their family farms thus contributing to sustainable development of rural areas.*

*The paper presents results of a study conducted in Baranja in order to analyze the current agrotourism supply, level of education of people involved in rural economies, levels of marketing activities aimed at attracting guests and interconnectivity with other agrotouristic entities and key development institutions. Also, the access to financing and co-financing growth and development of businesses has been analyzed, as well as the vision of the future development of farms in the field of agrotourism.*

*The paper aims to show the growing importance of the tourism offer in rural farms in terms of growth and sustainable development of the economy in region Baranja.*

**Keywords:** *agrotourism, rural economy, sustainable development, Baranja*

## SAŽETAK

*Ruralni turizam značajna je okosnica sadašnjeg i budućeg društveno-gospodarskog razvoja Osječko-baranjske županije, a jedan od njegovih oblika je i agroturizam koji je sve više u fokusu seoskih gospodarstava. Temelj za njegov razvoj ogleda se u bogatstvu ruralnog krajolika, zdravim ekološkim i klimatskim uvjetima, raznolikoj kulturnoj baštini te interesu i gostoljubivosti ruralnog stanovništva.*

*Uvođenjem agroturizma na poljoprivredna gospodarstva proširuje se primarna poljoprivredna djelatnost uslugama smještaja i prehrane te raznim drugim sadržajima kao što su sudjelovanje u poljoprivrednim radovima, izravan kontakt s domaćim životinjama, uključivanje u život domaćina i slično, te se na taj način poljoprivrednicima omogućuje kvalitetniji plasman vlastitih proizvoda i posljedično tome povećanje dohotka. Iako agroturizam nema obilježje masovnosti jedan je od načina da mladi ostaju u krugu svojih obiteljskih poljoprivrednih gospodarstava čime doprinosi održivom razvoju ruralnih krajeva.*

*Rad prikazuje rezultate istraživanja provedenog u Baranji u cilju analiziranja aktualne agroturističke ponude, stupnja obrazovanja i osposobljenosti sudionika seoskih gospodarstava, razine marketinških aktivnosti usmjerenih ka privlačenju gostiju te međusobne povezanosti s ostalim agroturističkim gospodarstvima i ključnim razvojnim institucijama. Također, analiziran je i pristup izvorima financiranja i sufinanciranja rasta i razvoja gospodarskih subjekata te vizija budućeg razvoja seoskih gospodarstava u domeni agroturizma.*

*Rad ima za cilj prikazati sve veći značaj turističke ponude na ruralnim poljoprivrednim gospodarstvima u funkciji rasta i održivog razvoja gospodarstva Baranje.*

**Ključne riječi:** *agroturizam, seoska gospodarstva, održivi razvoj, Baranja*

### 1. Introduction

In Croatia even 92% of the rural areas make an excellent base for the development of rural tourism. Bearers of tourism development in rural areas are primarily family farms, which thus have the opportunity to achieve additional revenues, through the expansion of their basic agricultural activities by introducing additional tourist activities on the farm.

There are numerous advantages that rural tourism brings to family farms and rural areas such as efficient use of smaller agricultural areas within the household, then growing better and healthier food and providing tourists unique experience concerning the local gastronomy, traditions and cultural heritage, as well as involvement in agricultural production and an active relation toward nature.

Nowadays, tourists, or as many caterers prefer to call them guests or visitors, are becoming more demanding, better informed, unpredictable and next to the rest they seek also other contents (Vrtiprah 2006, 280).

Thus the purpose of this paper is to explore the basic features of agrotourism farms in Baranja, a primary offer and additional services offered to farm visitors, the characteristics of agrotourism facilities and manpower, methods of promoting the farms, networking with other participants in rural areas, type of visitors and the length of their stay on the farms, as well as prices of services and distribution channels.

## 2. Defining agrotourism

In this section we look at the term of rural tourism, country tourism, tourist country family farm (TCFF) and agrotourism as well as differences in their definition. Rural tourism is the widest term and refers to the various activities carried out in rural areas, so we distinguish the following types (Baćac, 2011, 18):

- <b>country tourism</b>	- tourism in national parks and nature parks
- wine tourism	- religious tourism
- <b>culinary tourism</b>	- cultural tourism
- hunting tourism	- adventurous (adventure) tourism
- fishing tourism	- medical tourism

Rural tourism can be a professional activity as a primary activity of family farms, but also as a complementary activity which generate additional income.

From the above review we see that one of the types of rural tourism is country tourism, which is somewhat narrower term and refers to the rural environment and the activities that are carried out locally (agriculture, gastronomy, cultural heritage, various traditional events, etc.). Country tourism further comprises the following subcategories:

- <b>TCFF or agrotourism</b>	- rural B & B (bed and breakfast)	- folklore
- tasting room	- rural camp	
- excursion area	- ethno village	
- rural holiday house	- ethnography collection	
- rural family hotel	- country events	

Unlike rural and country tourism **agrotourism** or **tourism on country household** or **village holding** or **tourist country family farms (TCFF)** can be carried out only as a supplementary activity with the primary agricultural activity where own agricultural products are directly sold to guests. Agrotourism includes: a) **overnight services / accommodation**, b) **meals / food services**, and c) **other active holiday services on country farms**. Accommodation services can be offered in the rooms, apartments, rural holiday houses and camps. Food services may also be offered independently through tasting rooms, wine shops, excursion areas and restaurants.

According to the Croatian Chamber of Commerce tourist country family farm is defined as: "... smaller economic entity located in the tourist attractive area giving an original product or a service on the farm, and in which work are involved all family members. Agricultural, country, family farm which provides tourist product or service has the status of 'tourist country family farm' ... " (Brščić, Franić, Ružić, 2010, 33).

Šergo and Tomčić point out that "the development of agrotourism is primarily stimulated by true adventure need of modern consumers to stay in the country area, to experience regional dishes, to experience deep contrast of life in the big city and small traditional environment by seeking inner spiritual harmony and lost integrity " (Šergo, Tomčić, 1998, 315).

## 3. Preconditions for successful development of agrotourism

The owners of family farms engaged in agriculture who want to be additionally engaged in agrotourism before such decisions they should assess the attractiveness of the rural area in which they live, then also attractiveness of their own farm and in the end to check are the household members enough motivated and do they have characteristics needed for kind communication with guests.

If the owners estimated that the farm is in an attractive location (preserved environment, pleasant climate, clean air and water) it is also important to enable tourists a good road connections, mobile communications and other services important for the safety and comfort of visitors (health centers, post offices, restaurants, shops, etc.) (Ćurić, 2010, 103). Owners should also consider could they offer tourists a variety of recreation, tours of cultural and natural heritage and enable tourists to participate in local traditional events. The characteristics of cultural heritage sites are one of the most important factors for attracting visitors and creating a tourism brand. Many world-famous cultural attractions are among the top tourist destinations (Vrtiprah, 2006, 290).

When owners evaluate the attractiveness of their farms they need to consider can they involve the guests in certain agricultural activities in the farm, such as gardening, harvesting and processing of fruits and vegetables, feeding and milking animals etc, and also include them in the preparation of traditional foods and drinks. Regarding recreational activities most farms can offer guests hiking, jogging, bicycling and horseback riding. These are the elements that create a unique experience for the customer, and that is exactly the purpose of the trip.

While assessing whether the members of farm households have the characteristics important for the kind and appropriate communication with the guests owners should consider their communication skills, entrepreneurial preferences, knowledge of foreign languages, general culture, local customs and along with the knowledge of agricultural activities on the farm it is also necessary to possess knowledge in the field of tourism. In addition to all of the mentioned above the motivation of family members to engage in tourism activities is also very important. Brščić, Franić and Ružić have conducted a study on the subject of motive for starting agrotourism activity where 49% of respondents in a sample of 43 farmers responded that the main reason was self-employment, followed by the use of space, sale of own agricultural products and providing the jobs for children so the family could stay together in future. Among the major limitations in agrotourism activities respondents cited insufficient organization of agrotourism farms, unadjusted legal regulations and insufficient help in education (Brščić, Franić, Ružić, 2010, 31).

#### **4. Methodology of the research part of the work and analysis of the study**

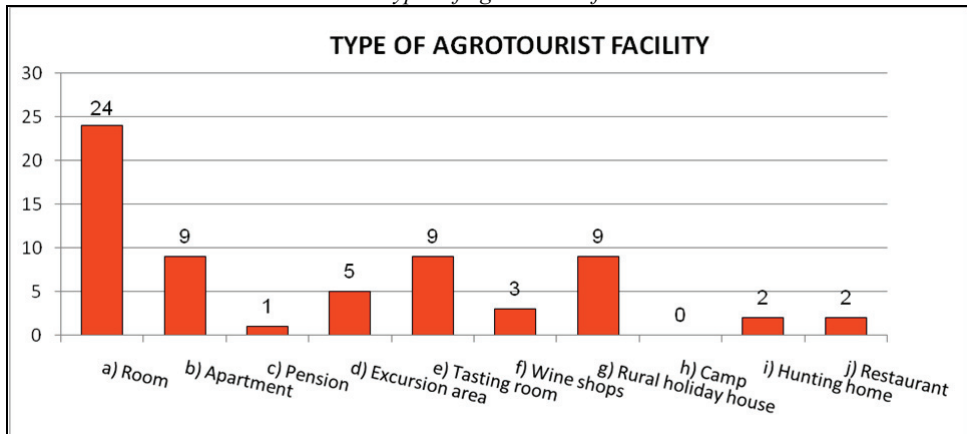
In order to analyze market of agrotourism farms in Baranja, by the help of Croatian Chamber of Commerce - Department of Tourism, from the State Administration Office in the Osijek-Baranja County was obtained current list of 96 businesses engaged in catering and agrotourism services in Baranja (04/2015). Based on this list a survey is conducted during April 2015 with the help of the Tourist Board of Baranja and LAG Baranja. The questionnaire included 21 questions and it was responded by 50% (N = 48) agrotourism entities in Baranja via telephone interviewing randomly.

It is interesting to note that a similar study was conducted in Osijek-Baranja County during October 2012 (Tubić, Bosnić, Blažević, 2013, 686-692) on a sample of 39 agrotourism farms out of total 56 registered entities in Osijek-Baranja County. From the above it can be seen that in the period of 2.5 years the number of agrotourism farms doubled (taking into account that the majority of rural tourism takes place in Baranja). The paper will also present the results of research conducted in 2012 and compare them with the results of research which is the subject of this paper, also will show a further development trend of agrotourist sector in Baranja.

In following the categorization of the surveyed subjects is shown. From a *chart 1*. we see that 50% of respondents have registered renting rooms, apartments 18,75% and 18,75% rural holiday houses. Including pension renters (2,08%) and homes (4,17%) even 85,41% (in total 41) of surveyed agrotourism farms are offering accommodation in Baranja. Of this number 58,33% offer both - accommodation and food services (usually breakfast - B & B (bed and breakfast)). 18,75% of the

subjects are registered as a tasting rooms, 10,42% as a excursion areas, 6,25% as a wine shops and only 4,17% as a restaurants.

**Chart 1** Types of agrotourism facilities



Source: author's calculations

**Table 1** Gender of farm owners

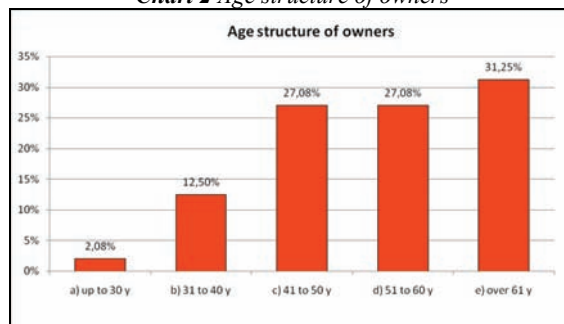
Gender of farm owners	N=48	100%
a) Male	26	54,17%
b) Female	22	45,83%

Source: author's calculations

Considering the gender of agrotourist farm owners, as well as in a survey in 2012, a little priority is given to men (26 - male vs. 22 - female).

Regarding the age structure of owners 85% is older than 41 years (41 to 50 years - 13 respondents; 51 to 60 years - 13 respondents and older than 61 years - 15 respondents), which confirms that in agrotourism are mainly engaged people who dispose with a certain life and business experiences as well as with material assets (chart 2).

**Chart 2** Age structure of owners



Source: author's calculations

It is recorded a significant deviation in the age structure of the owners during 2015 compared to the research in 2012 where even 92,3% of respondents were among the age group from 18 to 50 years (2015 – 41,66%). This change can be explained by increased awareness of elderly population about the new trends which combine agriculture and tourism, and the aforementioned fact that older adults are already to some extent accumulated funds and assets needed for starting a business. But it is only a small change regarding 2012 in the previous owners' experience in tourism (2012 - 64% without experience, with the experience of 36%), which again confirms the attractiveness of this industry and the possibility of combining the various previous and current activities on farms.

**Table 2** Main features of agrotourist farms

Previous experience in tourism	N=48	100%
a) No	33	68,75%
b) Yes	15	31,25%
The obtained financial assistance during starting the business		
a) No	41	85,42%
b) Yes, (from who?)		
- from family, friends	0	0,00%
- bank loans, state aid, EU funds...	7	14,58%
Registration type of agrotourism activities		
a) Family farm	21	43,75%
b) Tourist country family farm	19	39,58%
c) Limited company	5	10,42%
d) Craft	2	4,17%
e) Association	1	2,08%
Duration of an agrotourism business		
a) up to 5 years	18	37,50%
b) from 6 to 15 years	28	58,33%
c) from 16 to 25 years	2	4,17%
d) more than 26 years	0	0,00%

Source: author's calculations

85,42% of farms did not receive any financial help to start a business (2012 - 64%), which once again confirms that the adult population which starts the business has a certain property that is used in tourism activities. Among the sources of funds received respondents cited the Ministries of tourism and agriculture.

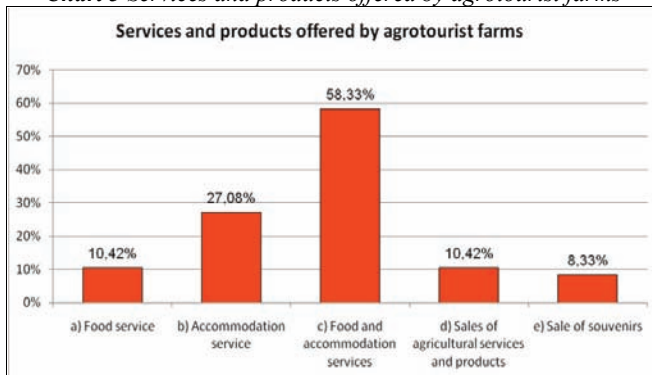
Furthermore, *table 2* shows the registration types of agrotourism activities where the most common form is family farm (21 respondent), then TCF (tourist country family farm, 19 respondents), and in smaller extent other forms (limited company-5, craft-2 and association-1). The structure of registered agrotourism subjects is equal to that of 2012.

Most of the farms are in the business between 6 to 15 years (58,33%), but it is also a significant number of *young* businesses who operate up to 5 years (37,5%). The share of *young* farms grew by 4% compared to 2012, while the share of businesses operating from 6 to 15 years decreased for 6%, which also confirms the arrival of competitors in this market segment.

The *chart 3* shows that more than half of the farms offer both accommodation and food services (58,33%, a total of 28 subjects) whereby the food services are mainly consists of breakfast (B&B – bed and breakfast). 27% of respondents (13 in total) offer only accommodation, which means the total share of subjects that provide accommodation services is 85,41%.

Number of beds (including extra beds) offered by the surveyed entities is 404, and taking into account that 50% of agrotourism farms are interviewed, we can estimate that the total number of beds in Baranja is about 800 (currently there are no accurate data, so this figure is based on conducted research and author's assessment).

**Chart 3 Services and products offered by agrotourist farms**

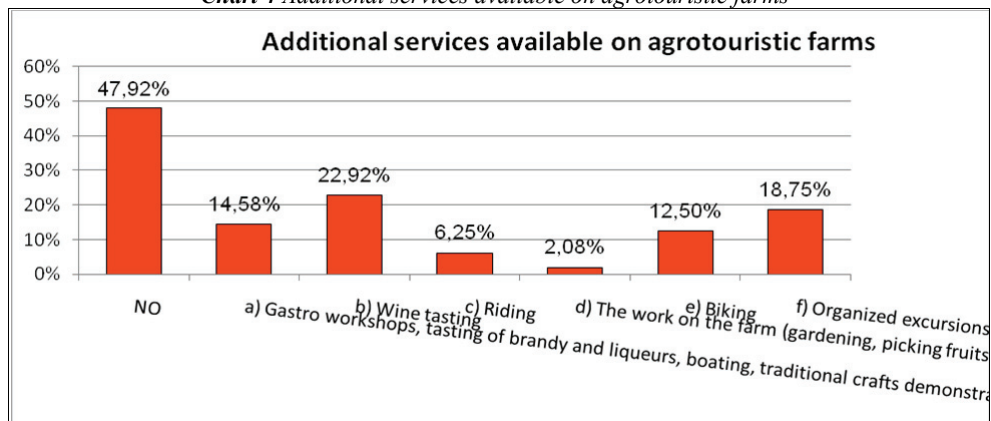


Source: author's calculations

The average number of beds per surveyed farm is 9,85 while the most frequent number of beds in the farms is 6 (mode). According to a survey from 2012 significant difference is presented by the number of households that sell agricultural services and products (48,9%) and souvenirs (20,5%), which indicates that at the moment there are smaller proportion of those farms engaged in agriculture as a primary activity and tourism as additional activity, while there are more of those farms that offer accommodation as a primary activity. In this case the food for a breakfast is obtained from the own garden (in whole or partly) and from surrounding households. One of the respondents operating for many years, who offers catering services and accommodation on the farm, has characterized the accommodation services in households as a type of rural tourism where people can '*easily earn money with the least effort and costs*', which is likely to be recognized by the other owners too.

Chart 4 shows the additional services that agrotourist subjects offer within their activities. Almost half of respondents (23 in total) do not offer any extra services except their registered core business, while within the other half of the respondents the most frequent service is wine tasting (total 11), organized trips (9 in total), and culinary workshops, brandy and liqueur tasting, boating, traditional crafts demonstration (7 in total) and cycling (6 in total). The average number of additional activities on the total sample is 1,25 while that number in a sample of farms that offer additional services is 1,48. In a survey from 2012 this number was higher (2), which confirms the trend of focusing on renting beds, and that is off course not enough to attract tourists and increase the number of overnight stays, since the attractive additional activities are exactly what tourists are looking for.

**Chart 4 Additional services available on agrotouristic farms**



Source: author's calculations

Table 3 describes the characteristics of appearance and the operation of agrotourism farms as well as engaged workforce. Those who offer tourist services recognized the importance of native and traditional elements in order to attract tourists, so the 2/3 of respondents noted that their facilities were traditionally decorated in whole or partly. The remaining 1/3 of facilities that does not contain any traditional elements are mostly related to renters who offer overnight stays in rooms and apartments of their own household. Share of facilities without traditional elements increased significantly compared to 2012 when it was 15,5% (35,42% in 2015), while the share of the old in whole or partly traditional facilities decreased from 79,9% in 2012 to 54,16% in 2015.

Most agrotourism farms are open to visitors throughout the year (62,5%; 2012 – 64,1%), while for the other farms visitors have to announce their arrival (37,5%; 2012 – 28,2%).

**Table 3 Characteristics of agrotourism facilities and workforce**

Characteristics of facility appearance and workforce on agrotourist farms:	N=48	100%
a) Old traditional facilities	16	33,33%
b) Partly traditional facilities	10	20,83%
c) Newly built traditional objects	5	10,42%
d) Objects without traditional elements	17	35,42%
Working hours of agrotourism farms:	N=48	100 %
a) During the whole year	30	62,50%
b) During the whole year, but only with reservations (announcement)	18	37,50%
c) On weekends throughout the year	0	0,00%
The workforce on farms make:	f	%
a) Family members	43	89,58%
b) Permanent staff	6	12,50%
c) Seasonal workers	4	8,33%
Educational background of farm workers:	f	%
a) Secondary School	31	64,58%
b) High school	8	16,67%
c) Faculty (College)	21	43,75%
d) MA and Ph.D.	1	2,08%
Knowledge of foreign languages at farms:	f	%
No foreign language	6	12,50%
a) English language	37	77,08%



Characteristics of facility appearance and workforce on agrotourist farms:	N=48	100%
b) German language	29	60,42%
c) Hungarian language	15	31,25%
d) Italian language	7	14,58%
e) Other languages (Spanish, Slovenian, French etc.)	6	12,50%

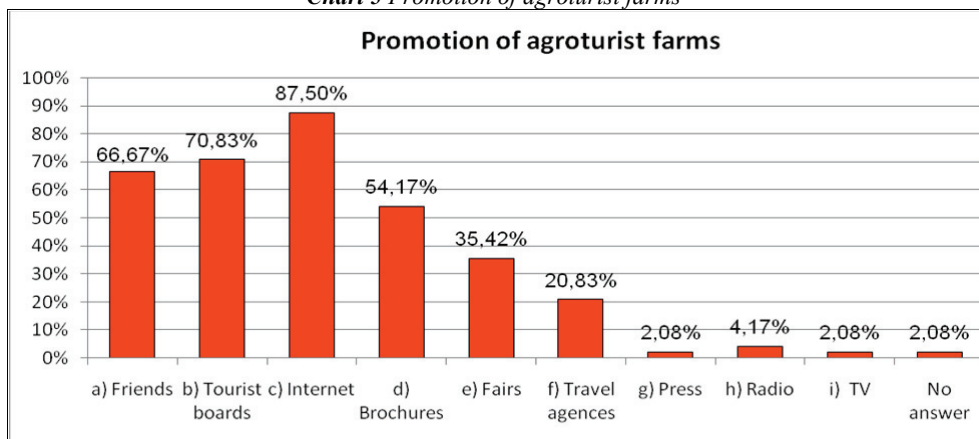
Source: author's calculations

When it comes to labor force engaged in the farms 89,58% of total respondents said that family members participate in the work on the farm, 12,50% of respondents constantly employ workers and only 8,33% of them employ seasonal workers. The average number of family members involved in the work on the farm is 2,6 while the average number of full time employees is 6,7 and seasonal workers 2,8 (in the farms which employ workers). The share of engaged family members was equal in 2012, while the proportion of permanent employees was higher (20,5%), as well as seasonal workers (15,5%). This comparison indicates that the increase in the number of agrotourism farms is mainly based on small private households where the involvement of family members is sufficient.

Almost two thirds of respondents said that people with a high school education are engaged in work on the farms, which is the same share as in 2012, while the share of higher education (college and university degree) on a small scale decreased from 66.6% (2012) to 62.5% (2015), but in both cases we find that the proportion of highly educated people is above average which is a good basis for quality and innovative further development of this industry. The average number of hired workers with secondary education is 1,9 while the average number of workers with undergraduate degree is 0,3 and graduate degree 0,9.

The most common foreign language on farms is English (77,08%; 2012 – 92,3%), followed by German (60,42%; 2012 – 61,5%) and Hungarian (31,25%; 2012 – 43 , 6%). Approximately 2 foreign languages are spoken on each farm.

**Chart 5 Promotion of agrotourist farms**



Source: author's calculations

Chart 5 shows what promotional techniques and channels agrotourism farms mostly use in order to attract guests and we can see that the most common is Internet (42 in total; 2012 – 97,4%), followed by advertising through tourist offices (34 in total; 2012 - 61,5%), friends (32 in total; 2012 – 58,9%), brochures (26 in total; 2012 – 74,3%), fairs (17 in total; 2012 – 46,15%) and travel agencies (10 in total; 2012 - 25,64%).

**Table 4** *Networking of agrotourism farms*

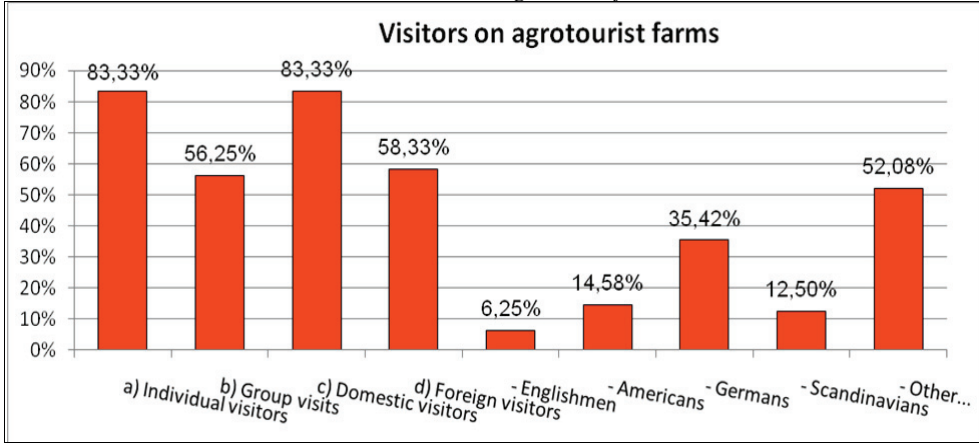
Cooperation of farms while appearing on the market (to lower marketing costs)	f	%
a) No	22	45,83%
b) Yes, (with who?):		
- with LAG Baranja	12	25,00%
- with Tourist Boards	24	50,00%
- with local governments	2	4,17%
- other (family farms, association of wine producers, etc...)	4	8,33%
Are the farms members of associations?		
a) No	40	83,33%
b) Yes, (which ones?):		
- Lag Baranja	4	8,33%
- Croatian farmer	0	0,00%
- Community for rural tourism in Croatian Chamber of Commerce	0	0,00%
- Tourist cluster	0	0,00%
- Other...	6	12,50%
The participation of farms members in trainings		
NO	21	43,75%
a) Seminars by Croatian farmers	2	4,17%
b) Seminars by Croatian Chamber of Commerce	13	27,08%
d) Seminars by Ministry of tourism	13	27,08%
e) Seminars by Ministry of regional development	3	6,25%
f) Seminars by Ministry of agriculture	8	16,67%
g) Seminars by Tourist Board of Baranja	13	27,08%
h) Seminars by Croatian Employment Bureau	1	2,08%
i) Other...	1	2,08%

Source: *author's calculations*

Table 4 shows that the agrotourist farms have recognized the importance of cooperation with the tourist boards in 50% of cases and with the LAG Baranja in 25% of cases, while almost half of them (45,83%) think that such cooperation will not bring them significant benefit. Cooperation with tourist boards and LAG Baranja is achieved primarily through the web presentation and participation in local gastronomic festivals, fairs and other various thematic and special events.

Respondents are mostly not members of associations (83,33%; 2012 - 64%), while only a part of them a member of the LAG Baranja (8,33%) and other organizations such as associations of wine producers, vintners and fruit growers (12,5%) . To upgrade the future performance on the market a systematic and sustained cooperation among agrotouristic farms and other local development stakeholders is needed. Equally important is to raise awareness of farm members about the importance of continuous and lifelong learning through seminars which are mainly free of charge. In such seminars organized by the Ministry of Tourism, Croatian Chamber of Commerce and Tourist Board of Baranja participated 27% of respondents so far, and seminars by the Ministry of Agriculture were attended by 16.67% of respondents. But even 43,75% of farms did not recognize the importance of participation in trainings, while the proportion of them was 31% in 2012.

**Chart 6** Visitors on agrotourist farms



Source: author's calculations

The *graph 6* shows that the number of individual visits to farms is larger than the number of group visits (a total of 40 vs. 27; 2012 – 56,17% of individual visits vs. 42,47% of group visits), but in common for both categories is increasing number of visitors compared to 2012. Furthermore, the farms recorded a higher number of domestic visitors (40 in total; 2012 – 59,9%) compared to foreign visitors (28 in total; 2012 – 38,4%), but again both categories have had a positive significant increase of visitors compared to 2012. Among the foreign visitors the most common are Germans, Americans, Scandinavians and other nationalities (Englishmen, Austrians, Hungarians, Slovenes, Czechs, Poles, French and others).

**Table 5** Duration of stay on the farm

Duration of stay of farm visitors according to owners' opinion (1= most attractive arrangement, 4 = least attractive arrangement)				
SCORE	a) One-day trips	b) Weekends	c) Up to 5 days	d) More than 5 days
1	29	20	3	1
2	13	12	2	0
3	2	1	15	1
4	4	15	28	46

Source: author's calculations

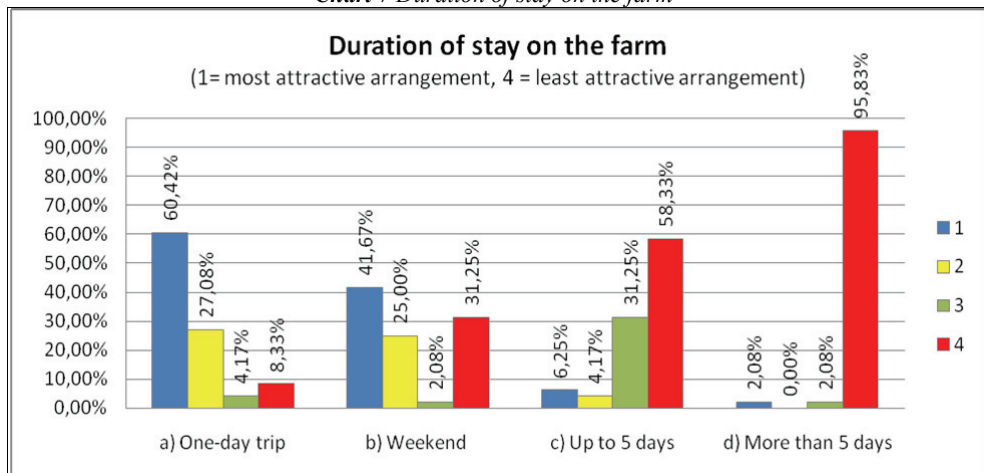
The owners of agrotourism farms assessed as the most attractive arrangement *one-day trips* (60,42% of them rated it by score 1; 2012 - 56,41%), but with the increase of days arrangements are

rated by lower score, thus the lowest demand is registered for arrangements *longer than 5 days* (95,83% of owners assessed it by score 4; 2012 – 84,62%).

41,67% (2012 - 30,77%) of respondents stated a *weekend* as the most wanted arrangement, only 6,25% (2012 - 10,26%) of owners assessed the arrangements *up to 5 days* the most wanted, while only 2,08% (2012 – 2,56%) of respondents indicated stays *longer than 5 days* as the most common arrangement.

From the foregoing it follows that demand for *one-day trips* and *weekends* has been increased compared to 2012, and to a lesser extent the demand for the stays *up to 5* and *more than 5 days* has been decreased. This conclusion is in line with previously observed trend of focusing on renting beds without additional activities that will keep visitors on the farm for several days. This trend needs to be changed by introducing various additional contents in overall offer on the farms.

**Chart 7 Duration of stay on the farm**



Source: author's calculations

Table 6 presents the prices of food and accommodation services at the farms, and only those farms that offer these services were taken into account. In comparison to 2012 prices are now slightly lower on average (2012 – the average food price was 83,46 Kn while the average accommodation price was 152,69 Kn), which is in our opinion a result of increased competition. By selecting meals on breakfast (which is combined with overnight stay), and lunch / dinner (as individual catering service) average price can accurately be expressed - 40 Kn for breakfast and 80 Kn for lunch / dinner.

**Table 6 Service prices and distribution channels at the farms**

Prices of food and accommodation services at the agrotourist farms (Kn)	Min. price	Average price	Max. price
a) Food services (Kn/person):	25	60,59	100
b) Accommodation services, food not included (Kn/person):	70	136,7	290
The methods of distribution (selling) of products and services at the agrotouristic farms, according to the owners' opinion		f	%
a) By Internet		23	47,92%
b) By word of mouth		45	93,75%
c) By help of the agencies		13	27,08%

Source: author's calculations

As the most common way of selling goods and services on the farms owners cited *word of mouth* (93,75% vs. 2012 - 62,62%), followed by *internet booking* using e-mails (without the use of web sales; 47,92% vs. 2012 - 25,12%) and *intermediaries / agencies* (27,08% vs. 2012 - 10,25%). In accordance with the above, we can conclude '*the good news travel fast, and by the Internet they travel even further and faster*'.

## 5. Conclusion

At the present time it is a great competition in the tourism sector on a global level especially thanks to mobile communications. To distinguish the tourist farms have to develop native and traditional contents that will provide guests a unique experience. In addition to a primary agricultural activities and accommodation services it is necessary to introduce additional and diverse activities at the farms. Also, in order to successfully overcome the challenges of agrotourism the farms should be connected to each other and more closely cooperate with the other tourist stakeholders, thus the farms could be presented more successfully.

It is as well needed a strong support at the local, regional and national level, especially in educational, financial and promotional meaning. In addition, it is extremely important to raise awareness of farm members on the importance of continuous and lifelong learning in the field of tourism, marketing and usage of EU funds.

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**COMPARATIVE WOOD CLUSTER MAPPING WITH A SPECIAL FOCUS  
ON THE WOOD CLUSTERS IN EASTERN CROATIA**

**USPOREDNA ANALIZA MAPIRANJA DRVNIH KLASTERA S POSEBNIM  
OSVRTOM NA KLASTERE U ISTOČNOJ HRVATSKOJ**

***ABSTRACT***

*Over the last two decades Croatia's wood industry has recorded mostly negative trends reflected in an unfavorable structure of production (dominated by primary products), the decline in employment and unfavorable foreign trade balance for furniture products, as one of the highest value-adding products. In order to reverse the negative trends various forms of association in the wood industry have been proposed to propel growth of this important economic sector. In the last fifteen years in Croatia a significant interest has been dedicated to strategic alliances. Policymakers believe there is a great potential in clusters. The wood industry has been identified as one of the key strategic industries; different activities have been developed and a number of measures have been adopted by the Government to support the establishment of clusters. So today we have as many as 12 active clusters, which can be divided into two groups: operational clusters and clusters that represent advisory bodies and as such have no productive function. The main objective of this paper is the presentation of mapping of clusters in Croatia's wood industry with a specific purpose of assessing clusters from the eastern part of Croatia (Wood Cluster of Vukovar-Srijem County, and Wood Cluster of Slavonia). If we compare the findings of our research with data obtained by the relevant international institutions, it follows that most of the clusters in Croatia do not have the required characteristics for mapping which makes their statistical monitoring and eventually management difficult. The paper includes an example of managing operational cluster in Austria with the aim to highlight the possibilities and benefits which can be achieved by clustering. For the purpose of this paper the method of desk research was used. All relevant scientific and professional papers by domestic and foreign authors related to the research topic were studied. The results were interpreted by using the methods of comparative analysis, compilation, description, classification, inductive and deductive analysis and case study method. The aim of this research is to compare*

*strategic management of wood clusters in Croatia with successful wood clusters in European union (Austria).*

**Key words:** *Wood Clusters, Eastern Croatia, Strategic Alliances, Cluster Mapping, Supply Chain Management*

## SAŽETAK

*Drvena industrija Republike Hrvatske u posljednja dva desetljeća uglavnom bilježi negativne ekonomske trendove koji se ogledaju u nepovoljnoj strukturi proizvodnje (dominiraju primarni proizvodi), padu zaposlenosti i nepovoljnoj vanjsko trgovinskoj bilanci namještaja kao proizvoda s najvećom dodanom vrijednosti.*

*Kako bi se negativni trendovi preokrenuli predlažu se različiti oblici udruživanja u drvnoj industriji koji će omogućiti propulzivni rast ove važne gospodarske grane. U posljednjih petnaest godina značajan interes u Hrvatskoj je posvećen strateškim savezima, a nositelji ekonomske politike smatraju kako veliki potencijal leži u klasterima. Kako je drvena industrija identificirana kao jedna od strateški važnih industrija, država je različitim mjerama i aktivnostima podupirala osnivanje klastera, što je u velikoj mjeri utjecalo da ih je danas aktivno čak 12. Identificirani klasteri se mogu podijeliti u dvije skupine: operativni klasteri i klasteri koji predstavljaju savjetodavna tijela te kao takvi nemaju proizvodnu funkciju.*

*U radu je izvršeno mapiranje klastera u drvnoj industriji Republike Hrvatske, a posebno su analizirani klasteri iz istočne Hrvatske (klaster Vukovarsko-srijemske županije i drvni klaster Slavonije). Ukoliko se usporede rezultati istraživanja sa rezultatima koje su provele relevantne međunarodne institucije, proizlazi da većina klastera u Hrvatskoj nemaju potrebna obilježja za mapiranje što otežava njihovo statističko praćenje i u konačnici upravljanje.*

*U radu je iznesen primjer upravljanja operativnim klasterom u Austriji s ciljem da se ukaže na mogućnosti i prednosti koje se mogu ostvariti klasterizacijom.*

*U radu je primijenjena metoda istraživanja za stolom pri čemu je proučena sva relevantna domaća i strana znanstvena i stručna literatura o predmetu istraživanja, a rezultati su interpretirani korištenjem metode komparacije, kompilacije, indukcije i dedukcije, klasifikacije i metode studije slučaja.*

*Cilj istraživanja je komparirati strateško upravljanje drvnim klasterima u Hrvatskoj sa praksama upravljanja uspješnih drvnih klastera u Europskoj uniji (Austrija).*

**Ključne riječi:** *drvni klasteri, istočna Hrvatska, strateški savezi, mapiranje klastera, menadžment opskrbnog lanca*

## 1. Introduction

Forestry and wood industry are important branches of Croatia's industry and, historically speaking, have generated positive economic effects in terms of employment, production and export. However, Croatia's wood industry has been stagnating for the past twenty years, recording mostly negative trends in end products, employment and export. In 1989 it employed around 75,600 people, while in 2009 the number of people employed in this sector fell to 29,907, pointing out a substantial decline in the workforce (Croatian Chamber of Commerce, 2010). Furthermore, if we compare values of production of primary products and the values of production of furniture, as products that deliver higher added value, it follows that higher primary productivity values were measured in the period from 2000 to 2008, producing a mean value of 432,4 million euros, with respect to the products with higher added value, producing a mean value of 349,5 million euros (Wood Technology Conference, 2013). Finally, Croatia's furniture import to export ratio over the 1994-2011 period (3,588,227.129 euros / 3,060,211.824 euros) indicates an inadequate wood industrial development strategy.

Various solutions have been proposed to reverse these negative trends such as exporting products of a higher degree of processing, building infrastructure networks to support the development process, making new development policy for wood industry etc. Clustering strategy is being suggested as the most effective long-term solution to linking functionally all the entities in the wood industry, which should jointly try to change the unfavorable production structure in this industrial sector providing benefits to production and export of end products. In Croatia, first ideas on industrial clusters were launched in 2003, mainly on government initiatives (top-down approach), and then were created and developed in the private sector (bottom-up approach). Government-operated clusters have not returned the expected results, because in most cases they haven't even started operating (*Klaster drvo-namještaj* [Wood and Furniture Cluster] as planned by the Croatian Export Offensive, 2006). Only a few clusters (*Drvni klaster Zapadne Hrvatske* [Wood Industry Cluster of Western Croatia], *Drvni klaster Vukovarsko-srijemske županije* [Wood Industry Cluster of Vukovar-Srijem County]) have been able to successfully enter the EU market. In 2015, we have three active clusters built by top-down approach (*Drvni klaster Vukovarsko-srijemske županije* [Wood Industry Cluster of Vukovar-Srijem County], *Drvni klaster Virovitičko-podravske županije* [Wood Industry Cluster of Virovitica-Podravina County], and *Hrvatski klaster konkurentnosti drveno prerađivačkog sektora* [Croatian Competitiveness Cluster for Wood Processing Industry]), as well as nine clusters established on private sector initiatives. Economic effects did not materialize as expected partly also, because of inappropriate models of organizational structure that are based on horizontal rather than vertical process integration of cluster members.

## **2. Cluster - model of strategic integration of business systems**

Over the last twenty years, the academic community has devoted considerable attention to the phenomenon of business cluster, and the analysis of various driving forces behind cluster creation and development. Trends in business organization change as competition intensifies. The importance of linking local diminishes, as the importance of regional and recently global business strategies grows. Today, distance is no longer a relevant barrier for organizing business. The impact of contemporary factors is increasing; knowledge, information and technology facilitate the unimpeded flow of money, materials and information between business systems in a globalized market. The modern concept of cluster that lays emphasis on functional relationships between members, proved to be a successful model for achieving economic benefits (economies of scale, flexible specialization, innovation) in a large number of labor intensive industries (wood, steel, shipbuilding) and capital intensive industries (film, IT etc.).

When defining the concept of cluster we depart from Michael Porter's cluster theory. In his book "The Competitive Advantage of Nations" (1990) he has formulated the most influential definition of a cluster: "geographic concentrations of interconnected companies and institutions in a particular field". Porter believes that clusters occur in many types of industries, and involve interactions with other entities contributing differently to gaining competitive advantage such as suppliers of various inputs, as spare parts manufacturers, finished products manufacturers, equipment manufacturers, suppliers of intellectual service, supporting institutions (banks, scientific and educational, research centers) or entities that provide access to specialized infrastructure. Clusters may involve cooperation between members at the same (horizontal) or different (vertical) stages along the production chain. It is not uncommon for companies to share technology, production inputs, infrastructure and manpower. Also, the Government is helping many clusters providing them support through its institutions, which include universities, supporting agencies, specialized training institutions, trade associations and financial institutions, playing the role of education, information, research and technical support.



### 3. Mapping of Croatia's wood-based industry clusters

To date, only one relevant study on the mapping of wood-based industry clusters in Croatia has been undertaken by competent institutions. In 2011, a document entitled *Report on Cluster Mapping* was released, which identified four clusters in Croatia's wood industry: *Drvi klaster* (Wood Industry Cluster), *Zadruga Slavonski hrast* (Cooperative Society 'Slavonian Oak'), *Drvni klaster Vukovarsko-srijemske županije* (Wood Industry Cluster of Vukovar-Srijem County) and *Hrvatski interijeri*. The report does not take into consideration organizational specifics of cluster initiatives. It is therefore impossible to make exact analysis of internal processes between members based on the published results, neither it is possible to conduct a comparison of internal processes with wood clusters in the European Union.

The issue of cluster mapping in Croatia is multifold. Firstly, statistical monitoring of clusters in Croatia depends on the legal framework on which it is built. Taking into consideration that any kind of association in the wood industry is called a cluster, today in Croatia we have 12 active clusters, which differ in a conceptual and organizational way. There are no specific legal regulations concerning clusters, so trying to categorize and differentiate them is proving difficult both at a national and international level. Secondly, according to a Meta study from the United States, the minimum number of members required to establish a new cluster is 150 indicating huge disparity with respect to the average number of companies in Croatia's clusters (13.66). According to this criterion clusters in Croatia do not have the required characteristic therefore cannot be mapped. Thirdly, the problem of cluster mapping in Croatia comes into the picture when we try to analyze data from corresponding foreign institutions that are relevant for cluster mapping (European Cluster Observatory and the Institute for Competitiveness). The European Cluster Observatory represents a relevant database with a variety of information, analysis, business and statistical indicators which are used for cluster mapping and also provide guidance on the existing clusters for strengthening competitive advantage. According to the Observatory, which has more than 2000 registered regional clusters at its base, there are no active clusters in Croatia's wood industry. This result is a consequence of cluster mapping methodology that includes geographic and functional characteristics. While the geographic boundaries are somewhat easy to prove, because it is assumed that the boundaries of a cluster correspond with the existing national and regional boundaries, functional relationships between members are much harder to prove, at least when speaking of Croatia. Using input-output analysis we can identify groups in interrelated vertical fields (Feser and Bergman, 2000; Czamanski, 1974; Roepke et al., 1974, Hauknes et al., 1999), proving relationships between suppliers, manufacturers and customers along the supply chain. While the European Cluster Observatory analyzes data primarily from the European Union, Institute for Competitiveness collects data on clusters at a global level. The Institute was founded in 1998 and involves experts and scholars from various fields. The aim of the Institute is mapping and detailed analysis of cluster initiatives and their competitive advantages. According to the Institute, there are two registered clusters in Croatia, *Tehnointerijeri* and *Drvni klaster Sjeverozapadne Hrvatske* (Wood Industry Cluster of Northwestern Croatia). These clusters are characterized by vertical integration. Their members appear jointly on markets, although not in the production of complementary products, but in providing the service of furnishing facilities, in which the methodologies of the Institute for Competitiveness established its foothold.

The methodology of the Institute for Competitiveness is relevant for this study. Unlike other cluster mapping methodologies, it is not only based on a minimum number of members, but also takes into account functional relationships between members (vertical and horizontal configuration). From the aforementioned, it can be concluded that there are more active clusters in Croatia comparing to the number of clusters as mapped by foreign institutions. Besides two vertical clusters, there are also ten horizontal clusters. Croatia's clusters are listed in Table 1. They can be divided into operational and advisory. Operational clusters are seeking to make a joint appearance on the market by participating in the implementation of business processes through the orchestration of activities. The goal of advisory cluster is not a procedural cooperation between members, but giving

guidelines to the competent ministry or the Government with regard to the formation of strategies in the wood industry.

**Table 1: Wood-based industry clusters in the Republic of Croatia**

Name of the cluster	Number of members	Cluster type
<i>Drvni klaster Sjeverozapadne Hrvatske</i> (Wood Industry Cluster of Northwestern Croatia)	15	Operational clusters
<i>Tehnointerijeri</i>	20	
<i>Udruga malih pilanara PGŽ</i> (Association of Small-sized Sawmills of Primorje-Gorski Kotar County)	15	
<i>Klaster drvnih prerađivača LSŽ</i> (Wood Processing Industry Cluster of Lika-Senj County)	13	
<i>Drvni klaster Zapadne Hrvatske</i> (Wood Industry Cluster of Western Croatia)	4	
<i>Drvni klaster Vukovarsko-srijemske županije</i> (Wood Industry Cluster of Vukovar-Srijem County)	22	
<i>Drvni klaster Virovitičko-podravске županije</i> (Wood Industry Cluster of Virovitica-Podravina County)	6	
<i>Hrvatski interijeri</i>	10	
<i>Proizvođači masivnog namještaja</i> (Solid Wood Furniture Manufacturers)	6	
<i>Zadruga Slavonski Hrast</i> (Cooperative Society 'Slavonian Oak')	12	
<i>Hrvatski klaster konkurentnosti drvno prerađivačkog sektora</i> (Croatian Competitiveness Cluster for Wood Processing Industry)	37	Advisory clusters
<i>Drvni klaster Slavonije</i> (Wood Industry Cluster of Slavonia)	4	
<b>Total members</b>	<b>164</b>	

Source: author

There are three clusters operating in the region of Slavonia: *Drvni klaster Slavonije* (Wood Industry Cluster of Slavonia) (4), *Drvni klaster Vukovarsko-srijemske županije* (Wood Industry Cluster of Vukovar-Srijem County) (22) and *Zadruga Slavonski Hrast* (Cooperative Society 'Slavonian Oak') (12). The Wood Industry Cluster of Slavonia is made of the following companies: TWIN Ltd., SPIN Valis, Brestovec j.s.c. and AG-Dinas. The companies have joined together in a cluster to promote, develop and improve domestic wood industry, ensure cheap supplies of raw materials and production materials, improve national and international marketing and develop favorable relationships with banks, funds and public institutions (*VIDRA* (Regional Development Agency of Virovitica-Podravka County), 2011). The Wood Industry Cluster of Vukovar-Srijem County brings together wood-processing manufacturers, scientific and educational institutions and local communities as well as other interested parties relating to forest exploitation and wood processing including marketing, research, development, innovation and improvement of products and technology aimed at promoting Slavonian oak and increasing competitive advantage, production and employment in companies dealing with wood processing and production of wood products. Presently the cluster has 22 members, of which 3 institutions and 19 wood-processing manufacturers (<http://drvni-klaster-vsz.com/index.php?link=2>, as of 1 Feb 2015). The cooperative society "Slavonian oak" brings together craftsmen that manufacture products made of oak. The cluster members are primarily dealing with common oak, which grows in the Slavonian forest, and offer a complete range of products from this oak. They aim to strengthen their own bargaining power, following a strategy of product diversification and expand their market share. Analysis of the cluster's activities reveals horizontal cooperation as the dominant form of cooperation between members of the cluster. Horizontal cooperation means that there is no vertical supply chain, or process integration of members with the aim of producing a joint end product with high added value.

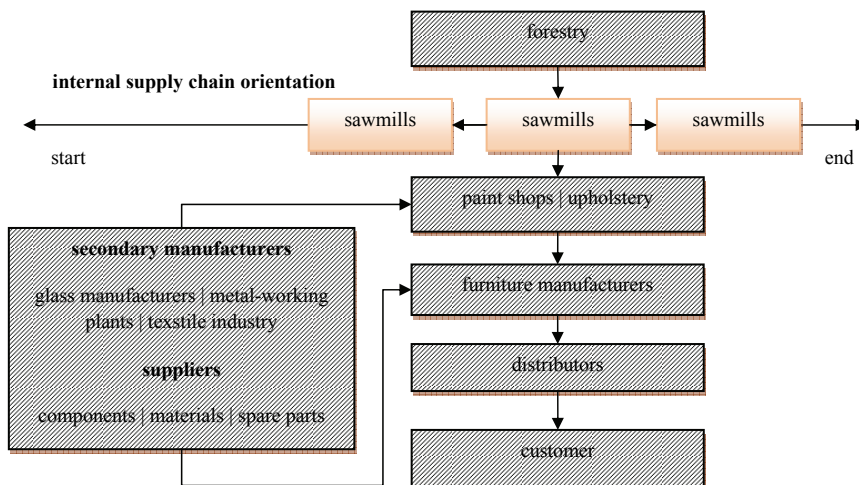
#### 4. Supply chain in the wood industry

Supply chain is a term that encompasses all activities involved in the production and distribution of the end product from supplier's supplier to the consumer's consumer. The American Production and Inventory Control Society define supply chain as a set of interdependent processes, from the initial raw materials to the ultimate consumption of the finished product linking across supplier-user companies in an integrated process (Apics, 2011, 1). Supply chain includes all the activities inside and outside the company enabling creation of products or services for the final consumer. In the wood industry, a supply chain involves various participants who make part of the value adding process at different stages of production. As the wood industry is characterized by the complexity of the overall system, or in other words, it involves many interdependent activities (production of furniture, paper, wood-pulp, bio-fuel) that are closely related to forestry, implementation of supply chain management practices is complex in terms of integration of all the participants into a single supply chain.

##### 4.1. Supply chain in Croatia's wood clusters

In Croatia's wood industry, clusters have been established in sawmill industry and furniture manufacture with the aim to form an internal supply chain, which is to strengthen the competitive advantage of individual companies. By analyzing internal supply chains in Croatia's wood clusters we can identify a dominant, horizontal form of cooperation between members.

*Scheme 1: Internal supply chain in Croatia's wood clusters*



Source: author

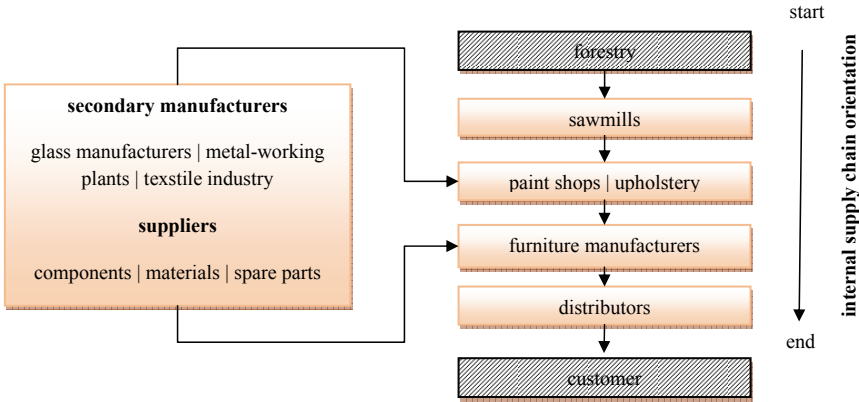
Scheme 1 reveals a horizontal supply chain which is characteristic of wood clusters in Croatia. Companies primarily collaborate on the same level of the supply chain which means that they produce and sell identical or similar product intended for common market. Horizontal cooperation is particularly expressed in sawmill clusters and the Cluster of Slavonian oak, as companies produce products with a low degree of differentiation. The cluster members have joined together primarily to improve procurement of raw materials and achieve better market appearance, so that horizontal cooperation is expressed only in the procurement of raw materials, and not in the exchange of tacit knowledge which would result in the production of common competitive

products. Horizontal cooperation is particularly evident in the Wood Industry Cluster of Slavonia which is an advisory cluster. The purpose of the cluster is to connect all the relevant economic entities around common objectives, strategies and priorities based on which research, development, business and other activities are designed and carried out to increase competitiveness of the whole industry. In furniture clusters and the Wood Industry Cluster of Vukovar-Srijem County members are partly vertically integrated, since it involves producing products of a higher degree of processing. The companies have joined hands with the aim of joint market approach and intensively participate in activities that are likely to help them in finding and capturing new market niche that is not the case with vertically integrated clusters. In order to establish vertical integration it is necessary that the cluster members specialize in their field (efficiency), which will strongly contribute to the innovation capacity of all the members and the achievement of economies of scale (effectiveness).

**4.2. Supply Chain of Austrian Wood Industry Cluster**

Wood Cluster Styria in Austria was founded in 2004 as operational cluster. The cluster's core business activity is production of furniture and wood constructions including planning and designing, assembling components and furniture manufacture. As we can see in Scheme 2, the Austrian cluster is characterized by more operational levels comparing with Croatia's clusters as it integrates various enterprises and supporting institutions that are performing activities at different process levels thus contributing to the improvement of the final product and increasing the added-value.

*Scheme 2: Supply Chain of Austrian Wood Industry Cluster*



Source: author

Companies that participate directly or indirectly in a value creation chain can be classified into three categories, depending on the position in a chain of furniture production - primary manufacturers (furniture), secondary manufacturers (components and spare parts) and materials suppliers. Primary manufacturers include companies that participate actively, on a daily basis in a chain of furniture production, including companies that are participating at the intermediate stages (sawmills, dry kilns, furniture manufacturers, manufacturers of metal frames, veneer manufacturers, paint shops, upholsterer's workshops and furniture stores). Secondary companies include entities that produce material inputs used in production process to improve the final product. These entities are indirectly involved in the furniture manufacturing process and include various activities (glass manufacture, metal processing, and textile industry). Such companies can foster integration of business processes related to the furniture in order to gain a competitive edge. The third category includes suppliers of inputs which may comprise suppliers of materials, equipment and machinery for the production of furniture or production materials. Suppliers may be retailers, distributors or agents often located

outside the geographical boundaries of the cluster, but are still part of the internal supply chain. The Austrian Wood Industry Cluster is characterized as vertical integration wherein the companies are motivated to cooperate along the process to build a single internal supply chain with the aim of manufacturing and distributing joint products to end customers. The Austrian Wood Industry Cluster is an example of strategic alliance built on contemporary concepts of supply chain management.

### **5. Supply Chain Management - a precondition for the efficient functioning of wood cluster**

Supply chain management is a set of components and functions related to the procurement of materials, including manufacture, to the final delivery of finished products and services to the customer (Zekić, 2000, 99). This concept incorporates the flow of materials, information and finances between a minimum of three companies in a strategic alliance, from the starting point in the supply chain to the place of consumption of products or services, with the aim of maximizing customer satisfaction at the lowest possible expense. The Austrian Wood Industry Cluster is an example of cluster of a successful implementation of the concept of supply chain management. The cluster has a more complex organizational structure comparing with Croatia's clusters, primarily due to a larger number of members that cooperate at different production stages, and thus creating an integral, internal supply chain. The cluster involves interactions with all the process-related entities from primary raw material processing to direct distribution to end customers. Such approach reveals that companies in Austrian Wood Industry Cluster not only cooperate in logistics activities but also in marketing, sales, service, manufacturing processes and research and development, which suggests that the concept of supply chain management has been effectively implemented enabling an efficient management of vertically integrated strategic alliance. The Austrian Wood Industry Cluster is characterized with a full process integration, which integrates individual material flows in a single material flow moving from raw material supplier to end customer. Also, a single supply chain enables members to exchange information in both directions, which is important from the perspective of creating future business strategies. Finally, the money comes at the end of the supply chain and is transferred to the members that are closer to the origin of the supply chain. Optimizing the flow of the supply chain leads to the optimization of business processes in the cluster as a system including all of its entities.

### **5. Conclusion**

Business clusters have been recognized as a promising model for interconnection of business entities in wood industry, which could improve the competitiveness of this important industrial sector in Croatia in the long run. When speaking of Croatia, first clusters were established in 2003, but they have not returned the expected results, mainly because they have not been organized according to the modern conception of clusters. Differences between clusters in Croatia and European Union in terms of conceptual and organizational issues imply that there is a problem of mapping, which is especially evident when analyzing research data produced at relevant institutions such as the European Cluster Observatory and the Institute for Competitiveness. According to the results of the cluster mapping, there are only two clusters in Croatia. However, according to Croatia's laws we have twelve active clusters, of which three in the region of Eastern Croatia. The problem of functional management of clusters in Croatia is related to the lack of implementation of the concept of supply chain management in the overall management system. The concept of supply chain management allows for integration of members in a single business system that is a function of the optimization process of the transformation of raw materials into finished products. Croatia's clusters have still not established vertical integration or the internal supply chain, which is a major limitation of exploiting the full potential of the cluster and generally resources in the wood industry. Without building a single internal supply chain whose purpose is efficient production of a competitive final product or service, it is unrealistic to expect achievement of business benefits

arising from modern clustering strategies (innovation, flexibility, economies of scale). It is therefore necessary to establish a vertical supply chain to implement unique supply chain management techniques to take the advantages of specialization (efficiency), innovation and competitiveness and economies of scale (effectiveness), which could significantly improve their performance.

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**Ljudski kapital  
u funkciji  
razvoja regije**

**Human capital  
in a function of the  
development of  
the region**



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**CENTER FOR CONSERVATION OF THE INTANGIBLE CULTURAL  
HERITAGE IN SLAVONIA, BARANYA AND SYRMIA**

**CENTAR ZA OČUVANJE NEMATERIJALNE KULTURNE BAŠTINE  
SLAVONIJE, BARANJE I SRIJEMA**

**ABSTRACT**

*This paper aims to define the Centre for intangible cultural heritage of Slavonia, Baranya and Syrmia in the context of the safeguarding of speeches, customs and historical and traditional cultural resources. Intangible cultural heritage of the Republic of Croatia is endangered and it is becoming extinct due to the influence of a number of factors. Since the formulation of the 1999 Act on the Protection and Preservation of Cultural Objects, intangible cultural heritage has been under special protection as objects of interest to the Republic of Croatia. Today, intangible cultural heritage is the subject of expert and scientific research, but it also concerns economic activities.*

*Therefore, the establishment of the Centre for the conservation of intangible cultural heritage is extremely important for Eastern Croatia. The goal of the Centre is to document as many immaterial objects in one place, and through its marketing activities (for example quality promotion) also increase interest in cultural heritage of this region, which is often not sufficiently recognized. With the high quality promotion of intangible cultural heritage (for example presentation of cultural practices through a variety of performances, games, dances, etc.) the Centre could contribute to the development of tourism in Eastern Croatia, but with the educational content also in education. The the Centre's own revenues (those from donations, fees for the provision of services, sale of souvenirs, etc.) can significantly improve conservation of the intangible cultural heritage of Eastern Croatia and help develop its sustainability.*

*The issue of sustainable development of intangible cultural heritage is complex, and as the major obstacles, we see the dispersion of the collected materials, deficiency of digitization, poor or unsatisfactory organization of the intangible cultural heritage in Eastern Croatia. The Centre would aim to connect the scientific approach with maximum use of modern technology for the digitization, processing and preservation, and economically justified model of permanent*

*preservation of intangible cultural heritage. In order to maintain sufficient redundancy of the collected data database a distributed data storage together with secure local storage in the Centre is envisaged. The Centre would be the starting point of dissemination of the collected intangible items towards users with different interests, demands and needs.*

**Key words:** *intangible cultural heritage, conservation, marketing, education, digitalization*

## SAŽETAK

*U radu se opisuje koncept Centra za očuvanje nematerijalne kulturne baštine Slavonije, Baranje i Srijema u kontekstu očuvanja govora, običaja, povijesnih i tradicijskih kulturnih vrednota. Nematerijalna kulturna baština Republike Hrvatske izložena je nizu čimbenika koji utječu na njezino ugrožavanje i nestajanje. Zato je Republika Hrvatska izmjenama i dopunama Zakona o zaštiti i očuvanju kulturnih dobara (1999. godine) posebno zaštitila nematerijalna kulturna dobra. Nematerijalnu kulturnu baštinu ne možemo promatrati isključivo kao predmet znanstvenih i stručnih istraživanja, nego ona postaje i dijelom gospodarskih aktivnosti.*

*Stoga je osnivanje Centra za očuvanje nematerijalne kulturne baštine izuzetno važno za istočnu Hrvatsku. Cilj Centra je dokumentiranje što većeg broja nematerijalnih dobara na jednome mjestu, a kroz njegove marketinške aktivnosti (primjerice kvalitetnom promocijom) ujedno i povećanje interesa za kulturnom baštinom ovoga kraja koja često nije dovoljno prepoznata. Kvalitetnom promocijom nematerijalne kulturne baštine (npr. prikaz kulturnih običaja putem različitih predstava, igara, plesa i sl.). Centar može doprinijeti i razvoju turizma u istočnoj Hrvatskoj te mnogim edukativnim sadržajima za učenike i studente. Prikupljeni vlastiti izvori prihoda Centra (prihodi od donacija, naknade za obavljanje usluga, prodaja suvenira i sl.) mogu značajno unaprijediti očuvanje nematerijalne kulturne baštine istočne Hrvatske te pomoći u razvoju njezine održivosti.*

*Problematika održivog razvoja nematerijalne kulturne baštine je složena, a kao najveće prepreke vidimo raspršenost prikupljene građe, nedovoljna digitaliziranost građe, slaba ili nezadovoljavajuća organiziranost nematerijalnih kulturnih dobara u istočnoj Hrvatskoj. Kroz Centar se želi povezati znanstveni pristup obrade građe, maksimalno korištenje suvremene tehnologije za digitalizaciju, obradu i očuvanje, uz ekonomski opravdan model trajnog očuvanja nematerijalne kulturne baštine. Kako bi se očuvala dovoljna zalihost baza prikupljenih podataka predviđeno je distribuirano čuvanje podataka uz sigurnu lokalnu pohranu u samom Centru. Centar bi bio i ishodišno mjesto diseminacije prikupljene nematerijalne građe prema korisnicima različitih interesa, zahtjeva i potreba.*

**Ključne riječi:** *nematerijalna kulturna baština, očuvanje, marketing, edukacija, digitalizacija*

### 1. Introduction

The concept of heritage is defined as: "1) property that is inherited; (...) patrimony, 2) (architecture) asset, estate b. fields, meadows c. (...) homeland; 3) totality of the past preserved and cherished cultural objects (national heritage) (Anić, 1998). Culture is defined as: 1) the totality of material and spiritual, ethical and social values created by mankind, 2) the totality of spiritual, moral, social and productive activities of a society or epoch (the Mycenaean culture, the culture of the Renaissance), 3) the totality of education, knowledge, skills, ethical and social feelings, social skills and behaviour of an individual in relation to the other (general culture), 4) (agriculture) growing, processing and cultivation of plants on a specific surface, 5) (biology) microorganisms grown for research purposes (aquaculture, bacteria culture, tissue culture) (Anić, 1998). These definitions give a broad description of the concepts this paper is based on. However, researchers do not need complete descriptions, rather individual meanings in relation to the third definition of the concept of heritage and the first and second definition concerning the concept of culture. By linking concepts of culture

and heritage we come to the widely used term - cultural heritage. Cultural heritage is a vehicle of identity, culture and history of every nation, and civilization as a whole. Preservation of cultural heritage is extremely important activity for each national, but also, supranational community. Without the preservation of cultural heritage one cannot speak about the people's identity, history or culture (Haseney et al., 2011).

Cultural heritage comprises movable, immovable, intangible cultural heritage and archaeology. With the spiritual component of cultural heritage, material cultural heritage has also developed as an economic component, but also as a vital need based on economic grounds and development in which valuable archival documents appear. Superb artwork such as palace or space ornaments, for example, may serve as symbols of economic strength. Consequently, cultural heritage has always had an economic component. Moreover, it is also a feature of a cultural identity at the local level or at the level of the modern nation state, with the increasing tendency of "branding" in the future. (Strategy for protection, conservation and sustainable economic use of the cultural heritage of the Republic of Croatia for period 2011. – 2015. (2011.)

The Register of Cultural Goods of the Republic of Croatia comprises a significant number of heritage goods/localities. UNESCO's World Heritage List features 7 Croatian localities, and 10 intangible cultural goods are on the UNSECO's list of intangible cultural heritage, which makes a significant base of cultural and tourist resources, or in other words, attractions.

The Republic of Croatia is aware that cultural heritage represents one of its core values and one of the main development resources, and this idea lies at the very heart of this work. The basic idea is to initiate the creation of the Centre for intangible cultural heritage of Slavonia, Baranya and Syrmia in the city of Slavonski Brod. Why is it important to establish the Center? Primarily because of the intangible heritage - the heritage which is substantially of a spiritual value, but also of an invaluable research potential. The concept of intangible cultural heritage includes practices, representations, expressions, knowledge, skills, as well as the related instruments, objects, artefacts and cultural spaces that communities, groups and, in some cases, individuals recognize as part of their cultural heritage.

Intangible cultural heritage is transmitted from generation to generation. It provides a sense of identity and continuity, thereby promoting respect for cultural diversity and human creativity. The preservation of intangible cultural heritage is primarily in the hands of its possessors and the local community and is implemented through various projects and activities in cooperation with experts / scientists. International cooperation is related to the individual regional projects which up to a certain extent include the preservation of intangible heritage, but there is no systematic planning of international cooperation in the preservation of intangible goods that are present on the territory of several countries (for instance in border areas).

Intangible heritage has been a part of the tourist industry for a long time. The last few years have seen a steady increase in such practices. The highlights include *Klapa* multipart singing of Dalmatia, two-part singing in Istria, *Lindó* dance, Rovinj *bitinade*, sailing Rovinj *Batana*, sailing *Gajeta Falkusa*, knitting fishing nets and various festivals, religious and secular events during which phenomena of intangible heritage of a region are on display. These also include the reconstruction of customs, traditional food preparation as part of the gastronomic offer at workshops in which tourists can participate and learn a variety of skills. In addition, intangible heritage is a source of additional economic activity in certain areas (e.g. honey and candle crafts, pottery, lace making, and gastronomy) (Berbić Kolar, Galzina, Matanović, 2014).

Establishing the Centre for intangible cultural heritage would foster multiple benefits for Croatia, Slavonia, Baranya and Syrmia, and of course, the Brod-Posavina County and the city of Slavonski

Brod. One may wonder why the Centre needs to be established in Slavonski Brod. Primarily because it is in the Brod-Posavina County that the most of the protected intangible cultural heritage appears when compared to the rest of Slavonia and Baranya. First, let us have a look at the protected speeches: in 2008 the Siče speech was protected as an intangible cultural heritage, and as early as 2010 the Stari Perkovci speech was protected too. These are the only two protected speeches on the list from Slavonia. When archaic speeches are concerned, it is noteworthy that speeches around Slavonski Brod are the most archaic old-shtokavian speeches that have retained their old features (Berbić Kolar, Kolenić, 2014).

In addition to the protected speeches in the Brod-Posavina County, a number of other cultural phenomena have been protected: *Bečarac*, Circle on two pikes, *Svatovac*, Walking rounds from Slavonia, The art of sun lace motifs from Brod Posavlje, *Zadušnjaci*. And in the area of the rest of Slavonia, Baranya and Syrmia church singing, Požega vineyard traditions - *Grgurevo*, preparation of traditional Slavonian *kulen /kulina*, church singing in Baranya, singing of old songs in Slavonia, Baranya and Syrmia, making of the traditional hairstyle, gold work (embroidery), the art of playing the solo tamburica. The protected cultural heritage testifies to the necessity of establishing such a centre, which would be a place of gathering of researchers, students, students, interested citizens, but also the tourists who would find such facilities were interesting and attractive

The Centre could yield the Dialectological Institute which would serve as a necessary base for exploring archaic old-shtokavian speeches threatened with extinction, which are very important for the national identity of the Republic of Croatia and its understanding of linguistics. The Republic of Croatia is a country characterized by linguistic uniqueness. The Croatian language is the language that comprises three distinctive supradialects which are significantly different from both - each other and from the standard language. Croatian supradialects are shtokavian, kajkavian and chakavian. The names are given after the interrogative and relative pronoun - what (*što, kaj, ča* coming from these three distinctive supradialects). Each of these supradialects is then divided into dialects, dialects into the speech groups, speech groups to the local speeches (mostly related to one village). Dialectological research is based on local speeches and speeches of one village. (Moguš, 1977: 2-3)

Numerical data, given on the case of Europe (Europa Nostra, 2006) has revealed that more than 50% of tourism is driven by cultural services. This leads to a conclusion that one must enhance diverse cultural tourist offer especially in absence of the traditional “sun and sea” aspect present in southern parts of Croatia. One segment that we find insufficiently present in Eastern Croatia is therefore the organisation and promotion of the intangible cultural heritage.

Furthermore, different and numerous studies have tended to focus more on the actual and tangible changes in local communities rather than on the local communities' views of these changes. However, as it is argued in Jimura (2011) true satisfaction for local people would depend more on their views of the changes rather than on the actual changes. He further highlighted the need for the examination of four major areas of change: economic, socio-cultural, physical and attitudinal changes in and around specific points of interests. Thus, public opinion should be monitored and public should be appropriately and transparently informed on planned activities before their actual occurrences.

Key actions of the proposed Centre could be conducted following the approach presented in the FP7 research project i-Treasures (Pozzi at al., 2013) conducted in accordance with UNESCO recommendations. As this project authors and shared that: „...aims to go beyond the mere digitization of cultural content. Its main contribution is the creation of new knowledge by proposing novel methodologies and new technological paradigms for the analysis and modelling of intangible cultural heritage“ (i-Treasures website, 2015). In their research authors had shown that most of the

current research and projects conducted in cooperation of the local and the international organizations and institutions were merely based on archival and pure encyclopaedic documentation without much concern on dissemination of collected material. Emphasis should be made on dissemination equally as it is clearly shown in the safeguarding concept presented in (Berbić Kolar, Galzina, Matanović, 2014, 222) where proposed model distinguishes collection and archival aspect as it equally recognizes dissemination aspect of intangible cultural heritage preservation.

## **2. Centre for the intangible cultural heritage in Eastern Croatia**

Establishment of the Centre for intangible cultural heritage in Slavonia, Baranya and Syrmia is extremely important for Eastern Croatia. The goal of the Centre would be to document as many intangible goods in one place (in the context of safeguarding of speeches, customs, historical and traditional cultural resources), and through its marketing activities (quality promotion) also increase interest in cultural heritage of this region, which is often not sufficiently recognized.

The basic goals of the Centre for intangible cultural heritage will focus on a clearer understanding of the intangible culture and creating a new area for its acceptance and presentation.

Intangible cultural heritage of Slavonia, Baranya and Syrmia is transmitted from generation to generation and has multiple values. In addition to cultural it has also become a part of economic activity and therefore its preservation is extremely important. Intangible cultural heritage is part of the identity of each area, and through its values it strengthens the awareness of the importance of respecting the diversity of cultures and regions.

With targeted marketing activities, especially high quality promotion of intangible cultural heritage in Eastern Croatia (for example presentation of cultural practices through a variety of performances, games, dances, etc.) the Centre may contribute to the development of tourism in Eastern Croatia and bring educational content to students. The collected sources of revenue Centre (revenues from donations, fees for the provision of services, sale of souvenirs, etc.) can significantly improve conservation of the intangible cultural heritage of Eastern Croatia and help develop its sustainability.

### **2.1. Activities of the Centre**

The intangible cultural heritage includes various forms and phenomena of spiritual creativity, which includes:

1. Language, dialects, speaks and toponyms and oral literature of all kinds,
2. Folk creativity in the field of music, dance, legends, games, rituals, customs, and other traditional folk values,
3. Traditional skills and crafts (Official Gazette 69/99, 151/03, 157/03, Article 9).

The Centre for the intangible cultural heritage in Slavonia, Baranya and Syrmia will do through its basic activities:

1. Research activity,
2. Archival activity,
3. Educational activity and
4. Production activity.

Basing its work on these four basic activities, the Centre will with the same intensity work on preservation and sustainability of the traditional customs of Slavonia, Baranya and Syrmia and archiving, storage and analysis of existing materials whose content concerns Eastern Croatia. In addition, the Centre will through its activities affect the creation and production of new documents related to the intangible cultural heritage of Slavonia, Baranya and Syrmia. Also through educational programs within the professional and scientific events, it will work to make the

intangible cultural heritage recognizable to certain groups of society (especially students, tourists and all those who through their work encounter the intangible cultural heritage in Eastern Croatia).

#### 2.1.1. Research activity

The research activities of the Centre for the intangible cultural heritage in Slavonia, Baranya and Syrmia will involve regular and systematic professional and scientific research based on modern ways of documenting, analysing and interpreting different types of intangible cultural heritage in Eastern Croatia. In addition, the main activity of research activities of the Centre will be collecting existing materials related to the intangible cultural heritage (audio and video recordings, photographs, manuscripts, etc.).

#### 2.1.2. Archival activity

Archival activities of the Centre will concern the methods of archiving, cataloguing and making inventory of new materials. However, in addition to the newly created material in the Centre, materials from the archives of other external public and private institutions (National Archive, museums, etc.) will be collected. All the material will be stored on modern media in digital format and will be available to all interested parties (daily visitors, tourists, students, students) with a specific supervision and advice of professional staff.

#### 2.1.3. Educational activity

Educational activity of the Centre will primarily be aimed at members of the local community as well as the individuals and groups who in their work deal with the issues of the identification, transmission and preservation of intangible cultural heritage of Slavonia, Baranya and Syrmia. Educational activity of the Centre will focus on the transfer of knowledge and skills through seminars, workshops, formal and informal education targeting students and other professional staff who deal with the study of intangible cultural heritage in Eastern Croatia. Educational and pedagogical methods to transfer knowledge to the mentioned group will contribute to the permanent preservation of intangible cultural heritage and its sustainability in Eastern Croatia.

#### 2.1.4. Production activity and cooperation with other institutions

Production activity of the Centre will focus on the organization of various programs and projects of independent productions and cooperation with existing partners, institutions and organizations (local, regional, national and international), in order to preserve intangible cultural heritage and stimulate economic activity in terms of intangible culture.

Four main activities of the Centre for the preservation of the intangible cultural heritage of Slavonia, Baranya and Syrmia will be financed by the following sources:

- 1 State budget revenues,
- 2 Budgets of counties and cities in Eastern Croatia,
- 3 Own revenues, revenues from donations, fees for the provision of services, sale of souvenirs, etc.

Its own revenue sources will form the majority of the Centre's budget, and as such, can significantly improve the preservation of intangible cultural heritage in Eastern Croatia and help develop its sustainability.

## 2.2. Marketing activities of the Centre

With the assistance of marketing activities, especially with the promotion of intangible cultural heritage in Eastern Croatia (for example presentation of cultural practices through a variety of

performances, games, dances, etc.) the Centre may contribute to the development of tourism in Eastern Croatia.

The objective of the presentation of cultural traditions through performances, games, dances, etc., is to open a new area for mutual understanding, learning and creating new communication between the stakeholders involved in the preservation of intangible cultural heritage of Slavonia, Baranya and Syrmia. Moreover, these events are important for the tourism development in Eastern Croatia.

With the assistance of promotional activities the preservation of intangible cultural heritage of this region can be significantly improved. Promotional activities can be accomplished by using the following parameters:

1. Personal sale,
2. Improving sales,
3. Media advertising,
4. Public relations.

#### 2.2.1. Personal sale

Within the personal sales (selling face to face) it is possible within the framework of various performances and exhibitions to present the intangible cultural heritage in Eastern Croatia to the interested groups. Proposed performances include folk dance, folk games and other customs that characterises region of Slavonia, Baranya and Syrmia, and thereby can and will contribute to the goal of preservation of intangible culture.

#### 2.2.2. Improving sales

As part of improving sales it is possible by informing, through various information leaflets, to inform interested groups about the work of the Centre, its activities, and in particular about the collection and archiving of the new material.

#### 2.2.3. Media advertising

Media advertising promoting the work of the Centre should take place in a variety of forms (television, radio, newspapers, Internet and other). Interested individuals and groups should be informed about the activities of the Centre on a daily basis.

#### 2.2.4. Public relations

The aim of the PR should be to influence public opinion and create and continuously maintain a positive opinion about the Centre and its activities.

Through clearly defined promotional activities it is possible to significantly affect the efficient functioning of the Centre and the preservation of intangible cultural heritage as well as its ongoing viability. The issue of sustainable development of intangible cultural heritage is complex, thus the dispersion of the collected materials, deficiency of digitization, poor or unsatisfactory organization of the intangible cultural heritage in Eastern Croatia can be perceived as the major obstacles. The Centre will consequently aspire to connect the scientific approach with maximum use of modern technology for the digitization, processing and preservation, and economically justified model of permanent preservation of intangible cultural heritage.

### 3. Discussion and conclusions

Different experiences found in literature reviews and current projects in diverse phases of implementation lead us to conclude that today, more than ever, we need to plan the activities in each step carefully taking into account as many parameters as possible, both internal and external. As it is stated in the introduction, public's views and opinions should be taken into consideration as early as at the preliminary preparation phase. Proposed framework for the Centre for intangible cultural heritage of Eastern Croatia is trying to put focus on current intangible cultural resource with the state-of-the-art digitization safeguarding concept (Berbić Kolar, Galzina, Matanović, 2014) with predefined main activities: research, education, archiving, production, and necessary marketing activities: sales, media advertising and public relations.

Real and eminent danger of disappearance of intangible cultural heritage needs to be prevented at all possible levels. The formation of the Centre, in cooperation with institutions engaged in similar activities, can lead in the direction of preservation and parallel dissemination of intangible heritage in a systematic and organized way.

Since the Brod-Posavina County has the most protected intangible cultural heritage in Eastern Croatia, it stands as a logical choice for the establishment of the Centre. Moreover, its urban centre - Slavonski Brod is located at the intersection of regional routes (road and rail network, the navigable river Sava, country border) that are not satisfactorily exploited in terms of tourism and could be an attractive point of interest to the potential tourists and random visitors. As Slavonski Brod is a medium size town we should take into account locally adjusted framework based on three pillars: policy context (EU, UN, cross-border cooperation with non-EU states, state), theoretical perspective and strictly local issues as stated in Othman (2013, 477-482) and firstly introduced in Coombes, Wong (2004), which will be the subject of further research on this subject.

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**POSSIBILITIES OF PRODUCING SYMBOL OF PLANNED  
AGRICULTURAL SETTLEMENT**

**MOGUĆNOSTI PROIZVODNJE SIMBOLA PUSTARA**

***ABSTRACT***

*Planned agricultural settlements have been built in the end of 18<sup>th</sup> century and at the beginning of 19<sup>th</sup> century in the eastern part of Republic of Croatia. These settlements differ from other villages and living there provided better conditions for the inhabitants. In the agricultural settlements there were administrative buildings, residential buildings for seasonal workers, public and industrial buildings, but also area for sports and, according to plans, green infrastructure. On bigger settlements lived more than 50 families. After losing initial reasons of founding they started to disappear and decline in population. Lately few isolated, non-governmental groups expressed their intention to keep the memories referred to life in these settlements, wherein uniqueness of spatial and organizational way of life gets the cultural meaning. The settlements were underestimated until one of these building complexes has been inscribed on the list of Cultural Heritage. The aim of this research paper is to compare macro level as national level of producing and materialization of collective memories and micro level as local level on which narratives of collective memories appear. Overlapping of these levels gives an overview of possibilities and direction of development of symbols referring to Baranya's planned agricultural settlements. The paper provides relevant literature overview and the results of the empirical research. The research methodology includes questionnaires of target groups, gathered in communities oriented on maintaining memories on observed settlements. Given results are indicative and they are interpreted in accordance with limited sample of the examinee.*

**Key words:** *planned agricultural settlements, collective memories, narratives of the past, symbols*

## SAŽETAK

*Pustare su planska naselja nastala krajem 18. i početkom 19. stoljeća na istoku Republike Hrvatske koja se prostornim sklopom, ali i načinom života stanovnika, razlikuju od sela u istom prostoru. Stanovanje na pustarama je tijekom 19. stoljeća predstavljalo zavidni standard radničkog stanovanja u sektoru poljoprivrede. Pustare su imale upravne zgrade, stambene nizove za sezonske radnike, javne i proizvodne funkcije kao i prostore za sportske namjene i prema planovima izvedenu zelenu infrastrukturu. Na većim pustarama živjelo je i više od 50 obitelji. Planirana i locirana iz agroekonomskih razloga ova naselja su nestankom početnog interesa počela demografski nestajati te se prostorno i materijalno rastakati. U posljednje vrijeme pojavila se inicijativa nekoliko izdvojenih, vaninstitucijskih grupa da održe sjećanja vezana za život u ovim naseljima pri čemu posebnost prostornog i organizacijskog načina života tendira kulturnom značenju. Dosadašnja slika i značenje ovih prostora nisu bili institucionalno formirani i poticani, sve do nedavnog stavljanja jedne od pustara pod institut zaštite kulturnih dobara. Cilj rada je usporediti makro, nacionalnu razinu kao aktivnog usmjeravatelja proizvodnje i materijalizacije kolektivnih sjećanja i mikro razinu na kojoj se sjećanja stvaraju individualno. Usporedba ove dvije razine usmjerava mogućnosti razvoja simbola baranjskih pustara. U radu se daje pregled relevantne postojeće literature i rezultati empirijskog istraživanja. Istraživanje je obuhvatilo prikupljanje stavova, mišljenja i naracija anketnim ispitivanjem ciljnih skupina, okupljenih u zajednicama usmjerenih na očuvanje sjećanja na pustare. Dobiveni rezultati su indikativni, i interpretira ih se u skladu s ograničenim uzorkom ispitanika.*

**Ključne riječi:** *pustare, kolektivna sjećanja, naracija prošlosti, simboli*

### 1. Collective memories - interpretation of content

One of the elements of social integration, which is a reason that past does not remain past, but is an active factor over which people construct their lives, is collective memory. The literature studied points to the following terms: collective remembrance, collective memory and social memory. In the text by authors Brkljačić and Prlenda (2006) (in Gotal, 2010:191) the concepts mentioned are interpreted: collective memory which is "a collection of memories shared by a certain community" and collective remembrance "denoting work on the content and involving active practice of designing, structuring and reorganization of memory". Being realized in the field of human interaction, collective remembrance is always a political process, and collective memory a fragile product of the current consensus. "The term" social memory was used by authors Perasović and Vojak (2012), in accordance with suggestions made by Jeffrey Ollick (1999). Analysis of the material or the general subject memories independent of the individuals in the Croatian field of research was the subject of work of the authors: Markovina (2012) -analysis of symbols, street names and squares in Split; Potkonjak and Pletenac (2011) -the role of monuments in public spaces of cities Sisak, Sinj and Zagreb; Belaj and Urem (2010) -religious artifacts in space; Frangeš(2010)-the role of natural heritage in the collective memory. These examples of collective remembrance "see" embodied memories in the space as well in facilities such as calendars, street names, monuments, museums and similar constructs (Vučković Juroš, 2010). The other approach is based on an analysis of public discourse, educational materials, textbooks, production of documents and official policies (Vučković Juroš, 2010), for the example in the study of museum tendencies

concerning the analysis of exhibition catalogs 1985-1995 of Ethnographic Museum in Zagreb and the Croatian History Museum (Bingula, 2012). The integration of these interpretations of memories is essential for achieving cultural consensus about the past. Part of recent works discusses the theoretical and operational discourse (Vučković Juroš, 2010, 2012; Vinšćak, Vranić, 2013) which supports the development of the observed topics.

Places of identity formed through memories as well as the reasons for memories can often thank their preservation to the very fact that they had been left by the side of the development trends present in the wider society (Frangeš, 2010), and the initial impetus for their protection is often a poor state of space having great importance, formally protected and in that way creating a framework for preventing the decline. The institutional framework of protection represents only a base for further developments, which is only expected, but not certain.

## **2. About the planned agricultural settlements and participants**

"A planned agricultural settlement" or "Pustara" (the Hungarian word "puszta") designates a spacious, level steppe in Hungary. In addition to the above mentioned meanings, settlements are forms of organized, planned collective housing characteristic of Hungary, Slavonia and Baranja, and were built during the 18th and 19th century, in Slavonian plains, owned by wealthy aristocratic families. The reasons for establishing such settlements are hidden in the changes of the social regime (the end of the limited feudal-serf relationship), the emergence of the labor market (human freedom) and the process of urbanization of rural areas. In order to maintain labor force, aristocratic families devised new elements to attract and retain the workforce in these areas. Networks of settlements were being established, and linked with agricultural railway created planned settlements with primary production function, in relation to its scope and character expressing higher industrial development of the administrative unit in which they were located (Merey, 1985). Baranja settlements differed from Baranja villages being methodically built according to the zoning system, adapted to the individual location. The authors Živković and Horvat (1985) conducted a site review of the main settlement Kneževo and twelve settlements (Kneževo, Mirkovac, Jasenovac, Brestovac, Zlatna Greda, Sokolovac, Šebešir, Kozjak, Sudaraš, Širine, Zeleno Polje) which are today worth documents on these sites.

Planned agricultural settlements were methodically built according to different urban matrices, and all the settlements were organized around farmyard, that reassembled residential housing, a park with an administration building, an apartment for the manager and service buildings (Figure 1). Economic yards were organized around the barn for cows (up to 60 cows), buildings for the production of animal feed, dairy, offices and warehouses as the largest buildings in the planned agricultural settlements. Certain settlements consisted, in addition to basic production facilities, of buildings which were specialized for other activities: Kneževo - central administrative settlement - craft production, brick factory, mill; Mirkovac - craft production, mill, sheep barn; Brestovac - hemp production, selection of seeds; Zlatna Greda - hemp production, cane processing, sawmill, breeding of nutrias; Širine - pig stalls, two lodges; Sudaraš - a lodge (Živković, Horvat, 1985).

**Figure 1** Settlement Jasenovac from the air



Source: HAVC, 2013-2014; <http://www.havc.hr>

Housing in planned agricultural settlements in its time was at the peak point of the workers' standard of living in the agricultural sector. In settlements were administrative buildings and barracks for seasonal workers located. More than fifty families lived in larger settlements. Managers lived in large apartments in public buildings. Repairers, locksmiths, blacksmiths and wheelwrights were first or last in a line. Other workers, who performed basic agricultural work, lived with their families in the central residential buildings, while barracks for seasonal workers were built away from the workers' apartments (Figure 2). Row houses contain six apartments, which consisted of a bedroom, kitchen and pantry. Iron stove was used for heating and cooking in the kitchen. Opposite the residential buildings there were pigsties each belonging to one apartment. Improvised summer kitchenettes, patios, sheds and henhouses were built afterwards as service rooms of individual apartments (Stober, Lončar-Vicković, Koški 2011).

**Figure 2** Planned agricultural settlement Zeleno polje



Source: private collection NGO "Pustaraši", 2014

About 80% of building fund has been preserved even today. Some buildings have their origin function, while others are abandoned or have changed their purpose. A good revitalization practice presents the new usage of the administrative building in Zlatna Greda, used by the Eco Centre Zlatna Greda. The building has been properly restored, suitably converted and equipped, so it represents a potential core of future restoration and revitalization of the entire complex (Decision on historic properties, Class: UP-AND-612-08 / 11-06 / 0707, 2011). Problem of settlements revitalization hides in ownership transformation. Municipalities were

given territory of planned agricultural settlements that remained a property of privatized former social companies (Croatian Forests, Belje, Croatian Waters, etc.). Municipality investments do not refer to settlements, but to the needs of the territory of villages, because there are more urgent problems there (reconstruction of schools, road construction ...). The settlements thus become no one's interest (Stober, Lončar-Vicković, Koški, 2011).

### **3. Methodology and research of memory about the settlements**

The initial research idea claims that for complete collective memory it is necessary to include collective memory of individuals that appears in interactions within social groups to the semiotic and institutional approaches. The main question of the study was about shaping and transformation of the collective memory through identification of main concepts. The attitudes were gathered by a structured questionnaire. The framework for structuring the survey and the analysis of the document were established according to the Law on Protection and Preservation of Cultural Heritage, Official Gazette No. 69/99, in which the types of cultural heritage are noted - Article 7, 8, and 9. The study involved two non-governmental groups "Korijeni pustare" and "Pustaraši", established in 2012 and 2013. The purpose of establishing these organizations is preservation of the memory on previous activities, life and work in the settlements of the Croatian and Danube region. The questionnaire was carried out using a network link that was available at the social network of non-governmental groups during March 2015.

### **4. Results and discussion**

#### **4.1. Institutional level of protection of planned agricultural settlements**

According to the Law of Protection and Preservation of Cultural Heritage (Official Gazette of the Republic of Croatia, NN 69/99) cultural-historical areas are unique locations of urban or rural buildings having a distinct historical, archaeological, artistic, scientific, social or technical importance, mutually sufficiently connected to denote associated spatially recognizable features. These are historic settlements and parts of settlements: urban and semi-urban units, urban centres, village units, healthcare and hospital complexes, historical subdivision, parts of settlements (historical city districts, squares, ambiances, streets, blocks). The status of protected cultural and historical unit of planned agricultural settlement Zlatna Greda was acquired by Decision UP / II-612-08 / 12-02 / 011, 2012. The text on protection emphasizes the upper objectives of procedures and it also states: "The protection of the settlement Zlatna Greda preserves its visual identity, regulates the adaptation and represents new future constructions in order to preserve material evidence about lifestyle and work in working units, established in the estate Belje at the time of the Austro-Hungarian rule ... .. The protection and revitalization of this settlement will preserve the historical complex that would, besides the museum documentary function, greatly contribute to the tourist offer and promotion of cultural heritage "(Solution UP/II-612-08/12-02/011). The document explains reasons and values in the settlement analyses, while reasons for protection are divided according to the type of cultural goods (Official Gazette of the Republic of Croatia, NN 69/99).

**Table 1** Analysis of the text of the Resolution on the settlement Zlatna Greda as cultural asset

TYPES OF CULTURAL PROPERTY			
	IMMOVABLE CULTURAL HERITAGE	MOVABLE CULTURAL HERITAGE	INTANGIBLE CULTURAL HERITAGE
WHOLE	<i>was planned according to the grid of streets a green belt divides the settlement into administrative, housing and manufacturing part attractiveness and ambience incorporation of settlements in the Danube-Drava swamp forests</i>		<i>sustainability of community work way of life and work</i>
PART	<i>origin buildings were built in the second half of the 19th century , industrial architecture, administration building, icehouse, a large workshop, barn for calves, building warehouses, a watchtower, workers' apartments, a blacksmith shop, school, bakery, shops, water tower cobblestone paving, paving bricks</i>	<i>bell above the entrance of cattle slaughterhouse hunting wagon, carriages</i>	<i>making of a watchtower making feeding sites making carriages and hunting rounds</i>
DETAIL	<i>fired bricked masonry buildings, covered with flat clay tiles, pilasters, decorative bricks</i>		<i>making clamps for animals making harnesses for horses, making seats for carriages</i>

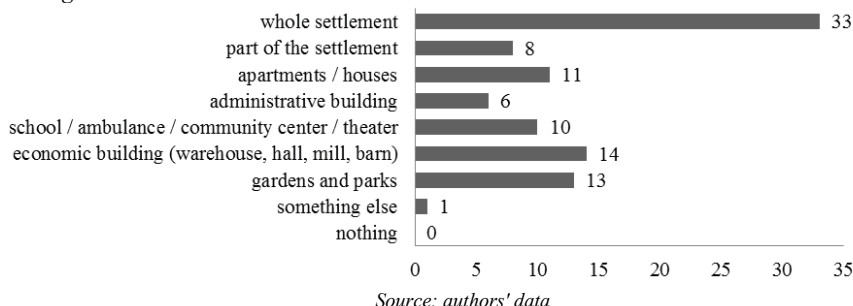
Source: authors' data

## 5. A collective memory of social protection level of planned agricultural settlements

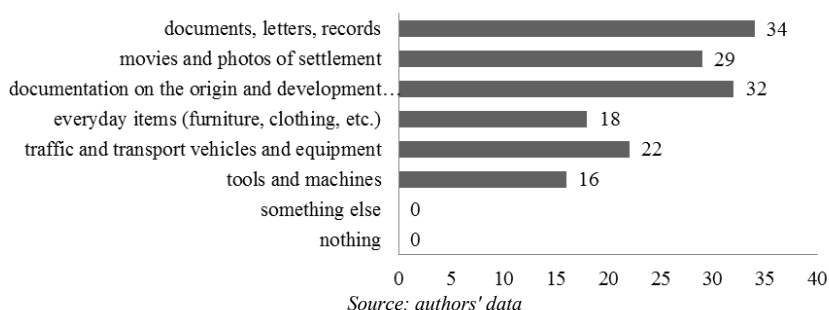
In the survey participated 45 people, 24 women (53.3%) and 21 men (46.7%). Age structure indicates the limitations of the on-line survey research as the survey was not answered by people above 65 years old. The stakeholder group had following age structure: 15.6% under 35, 22.2% from 35 to 44 years, 28.9% from 45 to 54 years, 24.4% of 55-65 years. According to the research, 88.9% of respondents have lived in settlements, while 53.3% of them have worked there as well.

One third of respondents has spent more than 15 years living in the settlement and the same share of respondents were born there. There is 17.8% respondents specify a planned agricultural settlement as the present place of residence, while other respondents stated places in different location in Croatia or other countries (Austria, Slovenia, Germany). The survey consisted of questions about preferences for the protection of planned agricultural settlements and their elements, divided up in types of cultural heritage (tangible – immovable/movable; and intangible). Results showed strong protective attitudes of respondents in all categories of heritage (Figure 3, 4 and 5).

**Figure 3** According to your opinion, what should be preserved as immovable cultural heritage?



**Figure 4** According to your opinion, what should be preserved as movable cultural heritage?



**Figure 5** According to your opinion, what should be preserved as intangible cultural heritage?



The analysis showed that 33 respondents expressed the need for protection of the entire settlement. Respondents stressed the importance of protection of farm buildings, gardens and parks. Results of the survey highlight the need for research of documents, letters, records, documents on the development of planned agricultural settlements and similar. All respondents considered the need to establish a museum related to settlements, 82.2% of them chose the location for the museum in one the settlements, while 11.1% think that the City of Osijek represents the best location. The respondents pointed out the need for preservation rituals and ceremonies, stories as well as knowledge and skills within the category of



intangible cultural heritage. Within non-governmental organization, the need to preserve all the elements of a planned agricultural settlements was recognized, and publishing of books on testimonies has been highlighted as the desirable medium for the protection.

## 6. Conclusion

Memories, identity, and heritage are linked concepts whose sequence is not always linear. The term 'collective memories' was in reviewed literature interpreted as active participant in political and social transitions. By establishing a relationship with the ideas from the past toward vision of the desired future, we create an opportunity to realize the potential in the present. The purpose of the research was not to prove some approaches to 'memory studies', but rather an attempt to define dominant narratives when it comes to phenomenon of a settlement. We were interested in the interaction and the formation of the discourse on memory that is modelled within non-governmental groups gathered around their interaction and communication about life on planned agricultural settlement.

The formal document that nominates Zlatna Greda for the cultural and historical heritage complex within Croatian regulatory legal framework, was analysed. Common points as well as gaps have been recognized by comparing the analysis results from conducted survey. Target group responses have shown that the value of industrial heritage buildings has been recognized as well as values of parks and gardens within these settlements.

The research results indicate the need for establishing comprehensive protection of cultural-historical areas that will include movable and intangible heritage. This approach should include tourism, cultural and economic development in the aim of protection to take advantage of their large spatial potentials. In a society in which the actions of civil organizations are not equated with institutional instruments, there is a need for the exchange of intentions. The example of Zlatna Greda could be declared as a model of revitalization of that type of settlement in case that a cooperation between the protection and development interests occurs.

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## **OCCUPATIONAL STRUCTURE OF THE CATHOLIC POPULATION OF SOUTH BARANJA IN THE SECOND HALF OF THE 18<sup>TH</sup> CENTURY**

### **STRUKTURA ZANIMANJA KATOLIČKOG STANOVIŠTVA U JUŽNOJ BARANJI U DRUGOJ POLOVICI 18. STOLJEĆA**

#### **ABSTRACT**

*The occupational structure in the territory of South Baranja in the second half of the 18th century will be analysed on the basis of the data from population and settlement censuses conducted by the secular authorities and on the basis of entries made in records. The analysis will be limited to the Catholic population, which in the 18<sup>th</sup> century in South Baranja made up the majority. In the 18<sup>th</sup> century, South Baranja was divided between the Belje manor and the Darda manor and thus it is expected that the primary occupation of the most inhabitants was farming and those trade activities that were necessary in rural communities as well. The paper will identify the position of the farming population in terms of the right of free movement. Furthermore, the names of individual trades will be determined, as well as the manners in which they were recorded in historical sources, their distribution and frequency in individual settlements in view of the size and type of the settlement, and in view of the ethnic affiliation of the population. Moreover, attention will be brought to the occupations related to the administration and management of late feudal holdings.*

**Key words:** *South Baranja, 18<sup>th</sup> century, occupational structure, Catholics, records, population and settlement censuses*

#### **SAŽETAK**

*Struktura zanimanja na području južne Baranje u drugoj polovici 18. stoljeću analizirat će se na temelju podataka u popisima stanovnika i naselja koje su provodile svjetovne vlasti te na temelju zapisa u matičnim knjigama. Analiza će se ograničiti na katoličko stanovništvo koje je u južnoj Baranji u 18. stoljeću činilo većinu. Južna Baranja u 18. stoljeću bila je podijeljena između Belskog i Dardanskog vlastelinstva pa se očekuje da je primarna djelatnost većine stanovnika bila poljodjelstvo te one obrtničke djelatnosti koje su nužne i u ruralnim zajednicama. U radu će se identificirati položaj poljodjelskog stanovništva u smislu prava na slobodu kretanja. Nadalje će se utvrditi nazivi pojedinih obrta, načini na koje su bilježeni u povijesnim izvorima, njihova rasprostranjenost i učestalost u pojedinim naseljima s obzirom na veličinu i tip naselja te s obzirom na etničku pripadnost stanovnika. Pozornost će se, također, usmjeriti i na ona zanimanja koja su vezana uz upravljanje i gospodarenje kasnofeudalnim posjedima.*

**Ključne riječi:** južna Baranja, 18. stoljeće, struktura zanimanja, katolici, matične knjige, popisi stanovnika i naselja

## 1. Introduction

From the end of the 17<sup>th</sup> century, i.e. the time immediately following the liberation from the Ottoman rule, South Baranja, or so called Baranja “Triangle”, i.e. part of Baranja which is nowadays in the Republic of Croatia, was divided between the BeljeManor and the DardaManor. Namely, immediately after the liberation, the Austrian authorities started regulating the newly conquered territories, which the Vienna Court Chamber considered its acquisition. To that end, a Commission for New Acquisitions (*Neocqistica Commissio*) was established with the purpose to, among other things, determine the borders of the Counties of Toln, Šomod, and Baranja. One of the important tasks of the Commission was to regulate property relationships. Since the old manorial families, which prior to the Ottoman conquest had owned estates in the County of Baranja, had died out, while other estate owners were not able to present valid documents proving their property rights, the land had become state ownership and the whole County of Baranjawas divided into manors. This provided for the shaping of an ownership structure arising from the policy conducted by the Vienna Court, which rewardedthose who deserved it in the war against the Ottomans.

By virtue of a deed of gift of the Emperor, the BeljeManor went to EugenSavojski for his numerous credits with regard to the war for the liberation from the Ottoman rule. The literature mentions different dates of the foundation of thisManor, and the EugenSavojski’s mandate status entered into force on 12 March 1716.<sup>1</sup> Although a part of the historiographic literature mentions the BeljeManor as a gift to EugenSavojski, PéterRajczi emphasises that in the case of both Belje and DardaManors the deeds of gifts were conditioned upon advancing a considerable amount of money to the state fisc, where the estates were a compensation for those funds. After the death of EugenSavojski in 1736, the BeljeManor was taken over by the chamber authorities and kept it under their administration by 1780, when Maria Theresa gave it as a present to her daughter Maria Christina and her husband Albert, and after their death, since they did not have any children, it went to Archduke Karl Ludwig. The BeljeManor included BranjinVrh, Luč, Kamenac, Podolje, Bilje, Kopačevo, Vardarac, Lug, KneževiVinogradi, Suza, Kotlina, Zmajevac, Draž, Gajić, Topolje, Duboševica, Mays, Lipova, Branjina, Popovac, andVillány (Taslidžić, 1999, 60; Sršan, 1992, 208; Sršan, 1993, 88, 89; Rajczi, 1986, 170; Karaman, 1986, 86).

Johann and Friedrich Veteraniare indicated as the first owners of Darda and its surroundings. Darda was given as a present to Friedrich Veterani and his male descendants by Charles VI. Since Friedrich Veterani died in 1695, his widow, i.e. son Julije applied for the registration of the property and the mandate status entered into force on 7 October 1717. In 1749, by virtue of a deed of gift of Maria Theresa, the ownership of the Darda estate was transferred to the Esterhazy family until 1843, when it was purchased by the family of Schaumburg-Lippe princes. The DardaManor included the following settlements: Hatty, Haraszti, Gordisa, Ajtó, Kasad, Šumarina, BaranjskoPetrovoSelo, Karanac, Beremend, Darda, Jagodnjak, Bolman, andMais (Karaman, 1986, 86; Sršan, 1993, 86, 88, 89; Rajczi, 1983, 170).

## 2. Historical Sources and Methodology

The analysis of the occupational structure of the Catholic population of South Baranja in the 18<sup>th</sup> century is based on the data from population and settlement censuses conducted by the

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<sup>1</sup>DavorinTaslidžić indicates 24 December 1698, and StjepanSršan 30 January 1699.

secular authorities in the 18<sup>th</sup> century and on the entries made in records. The analysis is focused on the Catholic population, which in South Baranja of the 18<sup>th</sup> century made up the majority. Since the territory concerned was divided between the Belje Manor and the Darda Manor in the 18<sup>th</sup> century, it is expected that the primary occupation of the majority of inhabitants was farming, while other represented occupations were craft activities that were necessary in rural communities as well, and occupations related to manor construction activities and manor administration. Although, along with the predominant historical and descriptive methods, the quantitative and statistical methods are also used in the paper, the results of their application do not represent absolutely accurate numbers, but rather representative samples of characteristic indicators showing certain trends. The cause of this can be found in the historical resources, which are pre-statistical population and settlement censuses and records in which data were recorded neither systematically nor for statistical purposes.

The paper uses two censuses describing settlements of South Baranja. The first one is the Chamber Census of Settlements of the Belje Manor from 1766, which was written in the Latin language and translated and published in Croatian (Sršan, 2002). This census is kept in the State Archives in Budapest. It was signed by the manor prefect Stjepan Marffy and was completed on 20 July 1766 in Bilje (Sršan, 2002, 10). It covers twenty-nine settlements of the Belje Manor, out of which twenty-three are located in the part of Baranja which nowadays belongs to Croatia. These are: Batina, Beli Manastir, Bilje, Branjin Vrh, Branjina, Draž, Duboševica, Gajić, Kamenac, Kneževi Vinogradi, Kopačevo, Kotlina, Kozarac, Luč, Lug, Petlovac, Podolje, Podravlje, Popovac, Suza, Topolje, Vardarac, and Zmajevac. This census brings most data on the population itself, because it enumerates inhabitants (men or widows) by name, followed by inhabitants with a fee for craftsmen and traders, including occupations indicated next to names, and, in sum, the number of married and unmarried brothers and sons. Also in sum, it indicates the number of estates according to categories, plough fields, meadows, and vineyards, the number of head of livestock, and, eventually, the total annual tax of the village. The census also brings general comments concerning the place itself, which are given before the census of each settlement and which contain, among other things, notifications of waters, embankments, channels, mills, fisheries, etc.

The second document is the census of the County of Baranja created in 1785 on the basis of a regulation by the Count Ferenc Széchényi, King's Regent in the District of Pécs. The manuscript is kept in the County Archives in Pécs, it was written in the Latin language and translated and published in Croatian (Sršan, 1999). This census covers twenty-two settlements of the Belje Manor, which correspond completely to the settlements referred to in the previous census, with the exception that the 1785 census lists Kozarac as part of the Darda Manor, and the nine settlements of the Darda Manor. The data from this truly detailed census should have been used as a basis for and help in the implementation of Josephinian reform efforts in the spirit of enlightened absolutism. Since the census was intended to collect as detailed data as possible with a view to gaining insight into the status of the area, it is rich with a variety of information (the questionnaire consisted of almost 400 questions). The questions were intended to collect general data on the district,<sup>2</sup> individual data on settlements, the situation of the church, prelates and noblemen, privileged cities, craftsmen, trade, freemen, soldiers, farmers, foreigners, Jews, Roma, and beggars.

The records of baptism, marriages, and deaths in South Baranja were mostly kept regularly since 1715. Standardised and, in terms of content, spare entries in the records did not regularly contain data on occupation of the population, such data were entered only

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<sup>2</sup> The settlements of South Baranja belonged to the District of Branjin Vrh.

occasionally, either as the occupation of the bridegroom, deceased person, best man or godfather, father of the bride, and father of the baptised or deceased child.

Since the determination of the occupational structure is limited to the Catholic population, the analysis based on the data from population and settlement censuses includes in total fourteen settlements, nine being a part of the Belje Manor (BranjinVrh, Draž, Duboševica, Gajić, Luč, Petlovac, Podolje, Podravlje, Topolje) and six of the Darda Manor (BaranjskoPetrovoSelo, Čeminac, Kozarac,<sup>3</sup>Šumarina, Tvrdavica). In the recording of most data relevant for the determination of the occupational structure, population and settlement census did not specifically record religious affiliation and therefore it cannot be established with certainty of which religious affiliation a certain individual, who was enumerated in the census, was. However, religious affiliation is clear for persons for whom we find data in the records; in such a case, the analysis includes all settlements of South Baranja entered in the records.<sup>4</sup>

### 3. Occupational Structure in the Records from 1715 to 1800

The records only rarely and sporadically mention occupations of inhabitants of South Baranja, either by indicating the occupation of the bridegroom, deceased person, best man or godfather, father of the bride, and father of the baptised or deceased child. Since the records were written in the Latin language, it was also the language in which occupations were recorded. There are no records of occupations of women, except if the woman was a maid servant (*ancilla*), which clearly indicates the position of women in the area of work and in the society of that period in general, which was reduced to household chores and care for the family and home. For the whole 18<sup>th</sup> century, the records contain entries of only five maid servants. Furthermore, one of the rare occupations which at that time was also mostly held by women (along with midwives, of which there are no data in records) was herbalist (*herbarius*). The records include an entry of a herbalist, *Catharina Balint*, who died at the age of seventy-three in Zmajevac(HR-Zmajevac-ŽU-RVM, 1755-1832). Of course, along with their husbands and fathers, women were also engaged in farming activities, but no special entries were made of the farming occupation in the records anyway, although it was held by the majority of inhabitants of South Baranja in the 18<sup>th</sup> century. Namely, priests made entries in the records only of craftsmen, different occupations related to work and service on a large estate, and state administration officials.

The following craftsmen were entered in the records: cooper (*viator*), locksmith (*fabraserarius*), barber (*tonsor*), sailor (*nauta*), surgeon (*chirurgus*), bootmaker (*cothurnarius*), blacksmith (*fabriferarius*), leather-worker (*pellio*), innkeeper (*caupo*), tailor (*sartor*), cook (*cocus*), butcher (*lanius*), miller (*molitor*), brickmaker (*tegularius*), baker (*pistor*), cellarer (*cellarius*), shoemaker (*sutor*), girdler (*lorarius*), fisherman (*piscator*), cabinetmaker (*arcularius*), carpenter (*faberlignarius*), weaver (*textor*), driver (*aurigarius*), and mason (*murarius*). Due to unsystematic recording, the exact number of craftsmen and the share of individual crafts cannot be determined. Still, on the basis of the above mentioned it can be noticed that these are the crafts which are necessary in each community, including the rural one, while certain crafts recorded in urban environments do not appear here (for example jewellers, watchmakers, hatmakers, lace-makers, glove-makers, painters, etc.). This structure

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<sup>3</sup> In 1766, Kozarac was entered in the census as a settlement belonging to the Belje Manor, and in 1785, as a settlement belonging to the Darda Manor.

<sup>4</sup> Religious and ethnic affiliation of the population of South Baranja in the 18<sup>th</sup> century has been established on the basis of the data from the population and settlement censuses referred to in this work and the data recorded in canonical visitations. In these historical resources, ethnic and religious affiliation is not defined for individuals, but only collectively for the whole population or for a specific part of the population of a certain settlement.

of crafts in South Baranja of the 18<sup>th</sup> century is confirmed by other sources as well, i.e. settlement and populations censuses, which will be discussed in the text below.

Except craftsmen, the records also contain entries of other occupations, such as servant (*famulus, servus*), labourer (*operarius*), and trader (*materijalista*), occupations related to the care of livestock and farming activities on large estates such as herdsman (*pastor*), shepherd (*opilio*), oxherd (*bubulus*), swineherd (*pastor porcorum*), and grape-grower (*vinicola*), as well as to other tasks on a large estate, such as hunter (*venator*) and forester (*sylvanus*). Entries on soldiers (*miles, hajdone*) are relatively frequent, but there are only rare entries of which military formation they belonged to or of their military rank. The records also contain occasional entries of certain church services, such as chaplain (*capellanus*), bell-ringer (*campanator*), presbyter (*prabiter*), and pastor (*parochus*).

The records also contain entries on different district and manorial officials, among them: teacher (*magister ludi*), post officer (*posta magister*), customs officer (*teloniator*), judge (*judex* and *vice-judex*), inspector (*inspector*), bailiff (*spanus*), administrator (*praefectus*), treasurer (*rationista*), land-surveyor (*geometra*), provider (*provisor*), and grain-collector (*frumentarius*).

As to national affiliation, it can be observed that the greatest number of manorial officials was of the German origin, but also that within this occupational group there is a larger number of the members of the Hungarian national group than, for example, among craftsmen.<sup>5</sup> Moreover, the majority of craftsmen entered in the records were Germans. In total, most of them were recorded in Darda, which is understandable taking into consideration that in the 18<sup>th</sup> century, Darda was the largest settlement in South Baranja with the status of a market town. A somewhat larger number of Germans is present also among various other, specifically indicated occupations, but further researches, which would also include other historical resources, need to be conducted in order to draw more reliable conclusions.

#### 4. Occupational Structure in the Population and Settlement Censuses of 1766 and 1785

The data contained in the censuses of population and settlements of South Baranja show that the large majority of the population was engaged in farming in the 18<sup>th</sup> century. This rural, farming population did not have the same legal status on the late feudal holdings which they inhabited. Thus, the 1785 census indicates that the inhabitants of six settlements had the right to free resettlement, while in eight settlements they were tied to the land.<sup>6</sup> The right of free migration meant that its holders had the status of freemen, had the freedom of resettlement, and were free of the obligation to perform statue labour. In the 18<sup>th</sup> century, in East Croatia, in the cases of organised settlement (as is predominantly the case with the Germans in South Baranja), lords of manors brought free farmers warranting their personal freedom, although over time those farmers became serfs as well, which could have happened for a number of reasons. However, precisely the Germans were the ones to successfully resist the process of being transformed into unfree serfs, which is explained by the fact that they were capable farmers bringing benefit to the lords of manors, who, for that reason, maintained good relationships with them. (Skenderović, 2005, 144, 146, 148, 149.) The data for South Baranja confirm these facts, since only in one German settlement (Petlovac) the inhabitants were tied to the land, while the inhabitants of only one Croatian settlement (Šumarina) were free to resettle (Sršan,

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<sup>5</sup> Settlement and last name were taken as the basis to determine origin, but since it is not possible to determine national affiliation with complete certainty, the presented assumptions are to be taken with caution and accepted only as a reference to potential trends.

<sup>6</sup> The fact that the legal status was connected with ethnic affiliation is demonstrated also by the diameters of Beli Manastir and Popovac, where only the German inhabitants had the right to free resettlement, while the Croatian and Serbian population was tied to the land.

1999, 97, 211). The farming population was not specially identified as such in the censuses, except that the 1766 census contains entries, next to individual names, if the person concerned was *aninquilinus*, while the 1785 census contains records on the number of *inquilini*, *subinquilini*, i.e. seasonal farmers and non-seasonal farmers.

**Table 1** *Craftsmen in the Catholic settlements of South Baranja in 1766*

<b>Craft</b>	<b>Number</b>
cooper	2
bootmaker	1
innkeeper	1
wainwright	2
blacksmith	3
tailor	5
furrier	4
miller	5
shoemaker	3
girdler	1
fisherman	1
mason	1
<b>TOTAL</b>	<b>29</b>

*Source: Sršan, 2002*

The 1766 census mentions in total twelve different crafts (see Table 1), while the 1785 census mentions nine of them (cooper, bootmaker, wainwright, blacksmith, tailor, shoemaker, surgeon, cabinetmaker, weaver),<sup>7</sup> out of which the last three ones are not mentioned in the previous census. In total, in 1766, twenty-eight craftsmen were individually enumerated in the census, while the next census enumerated forty-six craftsmen. In 1766, thirteen other trade related occupations related to trade were recorded, as well as to different services, care of livestock, farming and other activities on large estates, or church services (see Table 2). It can be noted that among those occupations, labourers, i.e. unqualified workers who probably mostly worked the field or did other physical jobs which did not require any special knowledge and skills, accounted for the largest number. As to midwives, they were not paid a salary for their work, but rather received 17 kreutzer from each child-bearing women, while in Draž they were also given a loaf of bread. (Sršan, 1999, 122). Although the census mentions surgeons, in all such cases we are actually talking about healers, since they were not examined in the stipulated way. For all of them, the records indicate that they were not examined, but also that they were untrained, while for the healer in Kozarac it is mentioned that he was old and that he had served a long time as a soldier. The experience of war was precisely one of the most frequent ways to become a healer. Healers were paid a salary to the amount ranging from 35 to 60 forint, while only the healers in Topolje and Duboševica, which were the most densely populated settlements of South Baranja, received somewhat more than 100 forints. (Sršan, 1999, 81, 173, 178, 186).

As to district and manorial officials, in 1766, the majority of settlements had a junior and a senior judge, while in 1785, all settlements had their own local judge and several jurors. Inhabitants of settlements were subordinated to the local judge with regard to all tasks related to the municipality. Neither judge nor jurors received any kind of salary for their service,

<sup>7</sup> The 1785 census indicates that there were in total twelve craftsmen in Čeminac and the crafts in question, but not the number of craftsmen for each of the mentioned crafts. Consequently, the number of craftsmen per craft cannot be determined for the year concerned.



except that the judge, with the approval of the lord of the manor, was exempted from stipulated levies. As to other officials, both censuses contain only entries of teachers, one in 1766 and six in 1785.

**Table 2** *Other occupations in the Catholic settlements of South Baranja in 1766 and 1785*

<b>Occupation</b>	<b>Number in 1766</b>	<b>Number in 1785</b>
trader	6	3
notary	3	7
midwife	0	13
musician	0	6
labourer	19	19
worker	1	0
herdsman	7	0
field-guard	3	0
forester	1	0
grape-grower	1	0
soldier	1	0
parish clerk	2	0
bell-ringer	2	0
<b>TOTAL</b>	<b>46</b>	<b>48</b>

*Source: Sršan, 1999; Sršan, 2002*

From the point of view of individual settlements, in accordance with the 1766 census, most craftsmen lived in Petlovac (8), BranjinVrh (6), and Topolje (5), other settlements had one, two, or three craftsmen at the most, where in four settlements no craftsmen were enumerated in the census (BaranjskoPetrovoSelo, Čeminac, Kozarac, Šumarina). In 1785, craftsmen were enumerated only in BaranjskoPetrovoSelo, Čeminac, Duboševica, and Gajić, most of them, i.e. twelve, in Čeminac. In 1766, BranjinVrh, Duboševica, Gajić, and Luč had one trader each, Draž had two, and in 1785, Draž, Duboševica, and Luč had one each.

The status of craftsmen in terms of their means was assessed in the 1785 census in most cases as middle-income or low-income. Namely, although a general conclusion was made that the majority of craftsmen had a suitable living standard, in individual cases, such as the case of part of craftsmen in Čeminac, it was concluded that they were very poor. (Sršan, 1999, 183). Most craftsmen lived in their own houses, supplementing their rather small income from craft activities by field work. Their activity was assessed as sufficient with regard to the place in which they lived and to which, in most cases, they limited themselves with only very rare visits to a fair; there are no records of any cases where craftsmen from a manor sold their produce regularly in nearby Osijek, where they mainly purchased the necessary tools and accessories. Namely, since the needs of the manor inhabitants for craft products were very much limited, craftsmen mainly produced on commission and did not create a stock of products which they could have tried to place on the market. Limited demand and income were the reason why craftsmen did not have apprentices and journeymen. Most of them learned their craft in the place or in one of the neighbouring settlements, and none of the craftsmen was registered with one of the guilds. A particularity to be pointed out is the fact that most blacksmiths in the settlements covered by the analysis were Rome, some of whom were members of the Eastern Orthodox religious community and some of the Catholic religious community.

The data from the 1785 census bear witness to expressly poorly developed trade in South Baranja in the 18<sup>th</sup> century. This is also borne out by a complete lack of wholesale trade or

trade in specialised merchandise, but also by the involvement of farmers in the sale of farming and livestock products, as well as their involvement in local trade by supplying their co-inhabitants with “small” products. A lesser part of farmers also used to sell local produce, such as flour, butter, or greens, to the neighbouring Slavonian areas. The inhabitants of the Drava basin purchased from their neighbouring villages wheat, which they ground to flour and transported to the Kingdom of Croatia. In general, only a smaller number of different products was traded, mostly different “small” merchandise, such as cheap types of linen, plates, cooking pots, tobacco, ironware, oil, and glass, in line with the market demand and the buying power of the majority of the population. For example, the trader from Draž traded in small merchandise in the place itself, but also visited other places in the county, where he traded in other merchandise as well, which obviously depended on somewhat higher buying power of potential buyers. This trader also visited fairs in Osijek, Mohács, and Pécs. On the other hand, the trader from Luč did not visit major fairs, but only local parish feasts in the neighbouring villages, where he displayed his merchandise. This trader improved its material circumstances by cultivating vineyards, making brandy, and by fattening and selling livestock; he also had a mill in a different, non-specified area. (Sršan, 1999, 51, 122-123, 79, 80, 93). None of the traders was registered with any of the trade associations, while part of them was also dealing in crafts to supplement their rather small income. A particularity to be mentioned is that the traders enumerated in the censuses were either Jews or members of the Eastern Orthodox religious community.

## 5. Conclusion

The analysis of the data on occupations from the records of the Catholic parishes and the censuses of settlements and population in South Baranja in the 18<sup>th</sup> century, conducted by the secular authorities, confirmed the assumption that the primary activity of the majority of the population was farming. Other represented occupations were primarily the craft activities which were necessary also in rural communities and occupations related to the economic activity of manors and to their administration. In general, there were very few craftsmen and traders on the manorial holdings in South Baranja of the 18<sup>th</sup> century, and craft and trade activities were only side activities limited almost exclusively to satisfying the modest needs of the local population. Other occupations also occurred sporadically, while some demonstrated that no particularly high standards of the profession were required with regard to satisfying the needs in the rural province on the eastern borders of the Habsburg Monarchy. Trade was even less developed than crafts, the type and scope of trade indicating low buying power of the population, which in itself could not enable or stimulate livelier trade. Trade was also hindered by an underdeveloped network of roads, which, apart from the imperial road, were very poorly maintained and, as a result of floods, frequently impassable. With regard to all occupations, it is evident that there was a tendency to clustering around ethnic groups, for example German tailor and such are expressly mentioned among craftsmen. Moreover, affiliation to a certain occupation was also connected with social position, and at the bottom of the social scale were farmers tied to the land, *subinquilini* who were without house and land, and labourers. On the other hand, the group of officials constituted the privileged social class of the society of South Baranja. In the records, priests entered, as a rule, the title *Dominus* only next to manorial or district officials, thus emphasising their highly regarded status, and only rarely next to a certain more prominent craftsman, such as the beer-brewer *Josephus Spolnar* from Kneževi Vinogradi or the surgeon *Simon Parblif* from Karanac (DAOS, HR-DAOS-500, 124R; HR-Zmajevac-ŽU-RVM, 1755-1832).

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## **CHANGES IN THE OWNERSHIP OF ECONOMIC ENTITIES IN OSIJEK DURING THE FIRST HALF OF 20<sup>TH</sup> CENTURY**

### **PROMJENE U VLASNIČKOJ STRUKTURI GOSPODARSKIH SUBJEKATA U OSIJEKU U PRVOJ POLOVINI 20. STOLJEĆA**

#### **ABSTRACT**

*The first half of the 20th century was marked by major changes in the Croatian political image, and this had, of course, reflections in the economic field. In the period of fifty years several political systems and the states has changed, and each of them had a specific approach to economy.*

*From capitalist Austro-Hungarian Empire, through the Kingdom of Yugoslavia and the NDH, to Socialist Yugoslavia. Political system of each of these countries had a crucial impact on the ownership structure of companies. All this caused significant changes in the ownership structure of economic entities in Osijek. In this paper I will try to show how these changes affected the ownership and operation of several prominent economic entities in Osijek in the first half of the 20th century.*

*As in the reporting period the ownership structure of Osijek commercial facilities actually made a shift from the private, across the state or the social and again to private ownership, I'll try to point out the advantages and disadvantages that such a conversion had on the operations of experimental economic entities, in the hope that the experience of previous attempts could indicate the positive directions in the future and avoid the mistakes made in the past.*

*The work will be mainly based on the source material of experimental economic entities stored in Osijek National Archives.*

**Keywords:** *economy, property, businesses, confiscation*

#### **SAŽETAK**

*Prva polovina 20. st. obilježena je velikim promjenama u političkoj slici Hrvatske, a to se naravno odrazilo i na gospodarskom planu. U pedesetak godina promijenilo se nekoliko političkih sustava i država, a svaka od njih je gospodarstvu pristupala na specifičan način.*

*Od kapitalističke Austro-Ugarske, preko Kraljevine Jugoslavije i NDH, pa do Socijalističke Jugoslavije. Političko uređenje svake od ovih država imalo je presudan utjecaj na vlasničku strukturu gospodarskih subjekata. Sve to se odrazilo i na znatne promjene u vlasničkoj strukturi gospodarskih subjekata u Osijeku. U radu ću pokušati prikazati kako su se te promjene odrazilile na vlasništvo i poslovanje nekoliko osječkih istaknutih gospodarskih subjekata u prvoj polovini 20. stoljeća.*

*Kako je u razmatranom periodu vlasnička struktura osječkih gospodarskih objekata zapravo napravila povrat, od privatnog, preko državnog, odnosno društvenog pa opet do privatnog, pokušat ću naglasiti prednosti i nedostatke koje su takve pretvorbe imale na poslovanje oglednih*

*gospodarskih subjekata, u nadi da bi iskustva iz prethodnih pokušaja mogla ukazati na pozitivne smjerove u budućnosti i izbjegavanje već počinjenih grešaka. Rad će u najvećoj mjeri biti temeljen na izvornoj arhivskoj građi ogleđnih gospodarskih subjekata pohranjenoj u osječkom Državnom arhivu.*

*Ključne riječi: gospodarstvo, vlasništvo, gospodarski subjekti, konfiskacija*

## **1. Economic situation in Osijek before the Second World War**

In the first half of the 20<sup>th</sup> century in the city of Osijek there was a series of highly successful economic entities, such as industrial giants like Osijek iron foundry joint stock company (hereinafter: JSC) and machine factory JSC, or Drava JSC for the manufacture of matches, as well as small craft workshops. Thanks to these operators at that time Osijek occupied a leading position in the Croatian economy.

In the first half of the 20<sup>th</sup> century political map of Europe, and especially of this region, have been changed many times, and all this have left indelible mark on the business, and in particular on the ownership structure of companies.

After the collapse of the Austro-Hungarian monarchy the economic operators in Osijek, and in Croatia in general, suffered a lot of damage caused by unfavorable conversion of the Austro-Hungarian Crown into Dinar of the Kingdom of Serbs Croats and Slovenians (hereinafter: Kingdom of SHS). It enabled "some new people" to become a part of the ownership structure of business entities.

During the Independent State of Croatia (hereinafter: NDH) numerous Osijek economic entities were nationalized or expropriated in favor of NDH, and then again sold or given for management to new owners or managers.

After World War II, the newly established Communist government carried out a ruthless confiscation and nationalization of almost all economic operators in Osijek and transferred them into state or social property.

After the Homeland War there were attempts to correct the injustice done by the actions of the communist government and part of the property was returned to the former owners, and to re-introduce private ownership of economic entities. In doing so, the majority of them were again transformed into joint stock companies.

There was not much success in that, so today, and after these attempts, most economic entities in Osijek are in bankruptcy, waiting for the bankruptcy settlement or simply no longer exist.

On the example of five major companies in Osijek we will try to present the meanderings in the management of business entities taken by the authorities in Osijek, starting from the Austro-Hungarian Empire until today. At some moments of its business these companies were important European companies, which now languish or no longer exist: 1. Osijek iron foundry and machine factory JSC in Osijek, 2. Osijek leather factory JSC in Osijek, 3. Drava - JSC for the manufacture of matches in Osijek, 4. Soap factory Georg Schicht JSC Zagreb, 5. first Croatian-Slavonian JSC for the sugar industry in Osijek.

Upon completion of the World War I, the territory of the hitherto unique Austro-Hungarian Empire fell apart in seven states. The newly formed countries were exhausted by the long war and their economy was in bad shape.

Thus, the difficult economic situation was complicated by the huge amount of Austro-Hungarian crown banknotes that were emitted during the war, especially in 1918.

In such a constellation of unfavorable circumstances enormous, if not even the uncontrolled printing of money continued, so it was already in December 1918 that the amount of the Austro-Hungarian crowns in circulation increased to 35.5 billion, and soon afterwards to 52 billion.<sup>1</sup>

What follows accordingly is the order of 25 November 1918 of the Minister of Finance of the State of SHS to stamp crown banknotes.<sup>2</sup> The main objective of this move was to prevent the influx of large amounts of crown banknotes in the country, and thus prevent the destabilization of the economy.

One of the reasons for the relatively long duration of stamping of Austro-Hungarian crowns was also the problem of the exchange rate at which they would be changed to the new dinar. There were two opposing points of view while accessing this problem.

The first one, promoted by the representatives from those parts of newly independent states which were previously incorporated into the Austro-Hungarian monarchy, is that the crown is to be changed for new dinar at a ratio of 1:1. The second one is the view promoted by those representatives from those areas that were not previously the part of the Monarchy (Serbia and Montenegro), according to which the crown is to be changed for new dinar at a ratio of 1: 6 or even 1:10.

It was easy to understand the first standpoint, namely, the Austro-Hungarian crown was for many years a means of payment in Croatia, Slavonia, Bosnia and Herzegovina and Vojvodina. The population had all their income expressed in crowns, and people had all their savings in crowns as well. These countries had already been exhausted by many years of war, so that a replacement at such a high rate would mean an extra shot for the tormented population. After long deliberations and follow-up of the exchange rate, which after many oscillations got stabilized at a ratio of 4 crowns for 1 dinar, this exchange rate was adopted, which represented some sort of middle ground between the demands of both sides.

But such a "mitigated" exchange rate was a heavy burden for the population affected by the war hardships.

Surely, this transformation of crown into dinar affected the value of the share capital of business entities, which enabled many possible machinations.

Having established the NDH in the structure of economic entities, it came to substantial changes in Osijek because significant number of these entities in Osijek and Slavonia was owned by Jews. NDH authorities followed a policy of the Third Reich against the Jews, which they found useful to seize valuable assets which they would sell, thus obtain means of resources and reward particular members of their own.

Very soon after the establishment of NDH several legal provisions were adopted in order to carry out the execution of the above mentioned. For the seizure (nationalization) of Jewish property the most important ones were: The provision on the nationalization of Jewish property<sup>3</sup>, legal regulation on expropriation of economic enterprises<sup>4</sup> and legal regulation on expropriation on the territory of NDH.<sup>5</sup>

Based on these legal provisions NDH knitted an effective network that has engulfed the entire property of the Jews, while the non-Jewish property could have been expropriated whenever it was thought necessary.

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<sup>1</sup> See in: Gardaš, Mušić, Čokolić: "Novac u raspadu Austro-Ugarske Monarhije [*Money during the collapse of Austro-Hungarian Monarchy*]" Legal news 1-2, 2005, Osijek, 2006.

<sup>2</sup> O. c., p. 117

<sup>3</sup> Official gazette No. 246. of 30 October 1942

<sup>4</sup> Official gazette No. 118. of 3 September 1941

<sup>5</sup> Official gazette No. 30. of 17 May 1941

So far I have not been able to trace the Decisions on the nationalization of Jewish property, or on expropriation of non-Jewish, however in a number of court decisions on confiscation after World War II, it is stated that the individual firm or company was nationalized and sold to new owners by the NDH.

When it comes to experimental enterprise situation is somewhat different. Almost all were exclusively or predominantly owned by foreign, non-Jewish capital from the areas of the Third Reich; Osijek iron foundry and machine factory JSC, Drava – JSC for the manufacture of matches, soap factory Georg Schicht JSC, first Croatian-Slavonian JSC for the sugar industry, and only Osijek leather factory JSC was in the predominantly Jewish property.

In the case of Osijek leather factory the authorities of NDH carried out the procedure of nationalization, while other entities continued with their work. What was expropriated were only stocks which were found with some Osijek's Jews in the proceedings against them.

### **1.1. Osijek Iron Foundry and Machine Factory JSC**

The main impetus to the founding of the company was a great need for agricultural machines in Croatia, Slavonia and Bosnia. Home initiative for the establishment of this company was headed by Croatian land bank in Osijek in 1911. During the foundation the share capital of the joint-stock company amounted to 400,000 crowns, and as the time was passing with numerous investments and expansion of the company the share capital was increased to 1.25 million dinars.

Immediately it was started with the construction and equipping of the factory, so for this time it was built with the use of modern machines and equipped with the most modern technology.

The main production programme of this company was supposed to be the production of agricultural machines. Within this framework the special attention was paid to the foundry, which, in the very beginning, had a capacity of 50-60 wagons of casting per year.

Osijek iron foundry and machine factory JSC became operational in 1912 and operated smoothly until the beginning of World War II. During the World War I, the factory was producing a variety of products within the war program of work, and only in 1917 switched to the normal operations.

In 1918, the company was being expanded, hence new and automated foundry was introduced, and its capacity grew to about 250 wagons a year of casting.

The factory employed 250 workers and 36 clerks.<sup>6</sup>

The company was nationalized by the decision of the Court for protection of national honor of Croats and Serbs in Croatia, No. Kz-139/45.<sup>7</sup>

Confiscation of enterprises was conducted by the verdict R III 842/1945, and the whole case of confiscation of Osijek iron foundry and machine factory today is kept in the court case of the District People's Court under the number Konf.-123/1945.<sup>8</sup>

From the judgment No. R III 842/1945 we learn that M. Č. from Osijek and E. M. from Osijek as members of the directorate of Osijek foundry and machine factory JSC were sentenced to various time penalties, confiscation of personal property and confiscation of all property of Osijek foundry and machine factory JSC

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<sup>6</sup> Lakatoš, Joso, *Industrija Hrvatske i Slavonije [Industry of Croatia and Slavonia]*, Zagreb 1924, p. 200.

<sup>7</sup> For confiscation of this company, as well as for others, see in: Miro Gardaš, Josip Vrbošić: „Konfiskation Von Firmen In Osijek Nach Dem Zweiten Weltkrieg“ *Institutions of Legal History with special regard to the legal culture and history*, Bratislava – Pecs, 2011.

<sup>8</sup> DAO, fund District people's court Osijek, case No. Conf. - 123/1945.

From the reports which are annexed to the case of confiscation we learn that the fundamental principal of Osijek foundry and machine factory was 5.0001 million dinars in total, and that it was divided into 33 334 bearer shares. Each share had a nominal value of 150 dinars.

In 1940, the major shareholders of this company were: L. E. from Osijek who owned 8010 shares, the Czech-Moravian strojirny a.s. from Prague with 8752 shares and Croatian land bank JSC Zagreb with 10,966 shares. We see therefore that out of the total number of issued shares of Osijek foundry and machine factory (33,334 pcs.) these three shareholders owned 27 728 shares or 84%, and the remaining 5,606 shares was owned by other, smaller shareholders.

## **1.2. Osijek Leather Factory JSC**

Osijek leather factory Ltd was established with 2 million crowns share capital, and its main purpose was the production of a variety of leather goods. The capital of this company is mixed, mostly domestic, and 20% of foreign share.

Osijek leather factory JSC had a steam-power for 150 hp machines. The company employed 70 workers and 10 clerks.<sup>9</sup>

The company "Osijek leather factory JSC" was Jewish property, and since after the World War II, no one have reported in terms of the Law on handling the abandoned or seized property the procedure for confiscation was initiated.

The company was confiscated by the judgment of the Court for protection of national honor of Croats and Serbs in Croatia number Kz-193/45, according to which V. F. from Osijek and J. H. from Osijek were found guilty, the first one as a director and member of the administrative committee and the second one as a member of the administrative committee for putting voluntarily the overall industrial enterprises of Osijek leather factory JSC at the disposal of the German forces. Both were sentenced to various time penalties, the penalty of confiscation of personal property and the penalty of confiscation of all property of Osijek leather factory JSC Confiscation was carried out by the judgment of the District People's Court in Osijek, R-806/46.<sup>10</sup>

According to the enclosed court case on confiscation of Osijek leather factory JSC the paid up capital of the Company was divided into 10,000 shares of nominal value of 300 dinars. So the entire share capital would be amounted to 3,000,000 dinars. Out of the total number of shares 200 were the property of a convicted Director V. F., 1300 shares were in the hands of different shareholders, and the rest to the total number of 10,000 was in the property of a Jew Ž. D. from Osijek.<sup>11</sup>

## **1.3. Drava JSC for The Production of Matches**

Drava – a factory for the production of matches in Osijek was founded in 1856 by Mirko Reisner and Joseph Fösmayer, but not in the form of a joint stock company, but as a private factory. By the turn of the ownership to his son Adam Reisner in 1885 the factory was intensively developed and became one of the most important companies in Europe in the manufacture of matches.

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<sup>9</sup> Lakatoš, Joso, o.c., p. 283-289

<sup>10</sup> DAO, fund OJT, box 47, file 1/50, report of 3 December 1946, also DAO, fund Court for protection of national honour of Croats and Serbs in Croatia, file Kz-193/1945

<sup>11</sup> DAO, fund Court for protection of national honour..., file Kz-193/1945, Declaration of 11 October 1940, annexed to the file on confiscation.



In 1909 the factory was converted into a joint stock company with a share capital of 1.5 million crowns. The capital was still growing, so in 1920 it was raised to three million crowns, in 1921 at 3.75 million dinars, and in 1923 to 7.5 million dinars.

As the factory proved to be a cost-effective, the construction of new plants began. In 1890 the factory main building was built (today on the south side of the street Reisner), in 1896 the connecting bridge between the old and the new factory was built, which was in use until recently.

Much was being invested in the most modern machines, so that the factory was equipped with machines from Germany, Austria and Sweden. Steam engine of 450 hp and 14 electric motors of 10-45 hp were used to drive the machines. In 1923 a new generator of 370 hp was built in, which was in use until 1974. The factory was more or less completed in 1935. A number of new machines were installed: pneumatic tree conveyer, machine for the production of labels, logging gater, electric hoists, etc. A number of amenities were also built up to make the worker's job easier: indoor heating equipment, wardrobe etc. After this reconstruction an annual production capacity was doubled and amounted to 26,000 crates. With a huge capital and the most modern machinery the factory rapidly grew into the largest in Europe, a substantial part of its production was exported to Egypt, Syria, Albania and Turkey. The factory employed 280 workers and 18 clerks.<sup>12</sup>

Match factory "Drava" was the only company with foreign capital (Sweden). The company was confiscated by the judgement of the Court to protect national honor of Croats and Serbs in Croatia number Kz-148/45, according to which the plant manager J. Š. from Osijek, V. H. from Osijek, M. B. from Osijek and M. P. from Osijek, as members of the managing directorship of the company were found guilty for "making decisions and adopting them without any objection" that Drava JSC for production of matches would put their facilities at the disposal of the enemy. They were sentenced to various time penalties, confiscation of personal property as well as confiscation of all property of Drava JSC for the manufacture of matches.<sup>13</sup> The confiscation itself was conducted by District Court judgment Osijek R-539/45.

The appendix to this file reveals that on 31 December 1945 the total value of factory buildings, land, machinery and equipment amounted to 21,241,511.45 dinars.

With their act Kr-406/46 the Public Prosecutor's Office of Yugoslavia asked that the entire case file against Drava JSC factory for production of matches be urgently submitted, hence the entire case file was sent to the Public Prosecutor of FPRY in Belgrade.<sup>14</sup>

#### **1.4. Soap Factory George Schicht JSC**

The forerunner of today's factory Saponia is a private craft workshop for making soap of Samuel Reinitz. He combined his and bank capital in 1919 and the craft workshop became the first soap factory in Osijek - a joint stock company, Osijek.

In 1921 Schicht's concern for soap production, based in the Czech Republic takes over the Osijek soap factory, first in the lease, and then in the property, and since then it operates under the name Yugoslav soap factory Georg Schicht dd Zagreb. However, all its plants and factories were located in Osijek.

In 1921 the share capital of the company at its founding amounted to 6,000,000 dinars. The same year in Osijek's Lower Town a new factory was built. The company had 180 employees and clerks.

In 1930 Schicht's concern is connected with one of the largest concerns of soap industries worldwide - Lever Brothers Limited, based in Rotterdam, the Netherlands and since then Osijek

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<sup>12</sup> Lakatoš, Joso, o.c., p. 37, and the Monograph of the Match company "Drava", Osijek, 1978, p. 14-60

<sup>13</sup> DAO, fund Court for protection of national honour..., file No. Kz-148/1945

<sup>14</sup> DAO, fund OJT, box 47, file 1/50, report of 3December 1946

factory operates under the name Yugoslav joint stock company Schicht - Lever, Zagreb - Osijek factory.

In the years preceding the Second World War it came to modernization and reconstruction of the plant: building of new factory buildings, renovation of plants and refurbishing of plant for the production of soap powders.

During World War II concern Schicht – Lever fell apart and Osijek factory continued to operate under the name "Georg Schicht JSC Zagreb - Osijek factory".<sup>15</sup>

Due to economic cooperation with the enemy the company was confiscated by a judgment of the Court to protect national honor of Croats and Serbs in Croatia for Osijek-Virovitica County, No. Kz-147/45.

Because of irregularities in the procedure and because of the supervisory appeal of the Croatian plaintiff, the Croatian Supreme Court completely invalidated the judgment of the Court for protection of national honor, provided that the procedure was executed again. Since most members of the directorate company were located in Zagreb, the case was referred to the procedure of the Public Prosecutor for the City of Zagreb, and the confiscation measures were still to be maintained as sequestration.<sup>16</sup>

By the Decision of the District People's Court in Osijek No. R-92/46 and No. Z-2055/46, receivership (sequestration) was logged over the enterprise.<sup>17</sup>

Since 1946, the factory operated under the name First Osijek soap factory, and since 1953 Saponia - factory of soap, cosmetic and chemical products - Osijek.<sup>18</sup>

### **1.5. The First Croatian-Slavonian JSC for Sugar Production**

The first Croatian-Slavonian JSC for sugar production was established in 1905 as a joint stock company with an initial capital of 4 million crowns. During the founding of the company the capital was partly domestic and partly Czech. With subsequent investments the factory considerably increased, so that in the second and third decade of the 20<sup>th</sup> century it represented the biggest and most modern sugar refinery in this area. In 1942 its capital increased to 14 million dinars.

Due to continuous investments and expansion of production modern machines were purchased, so that the refinery could rework 85 wagons of sugar beet a day. The refinery produced sugar of the best quality and had a high level of utilization of raw materials. For its needs the factory used electric drive of 1395 hp, and had its own narrow gauge industrial railway (with a track of 760 mm) of 22 km length for delivery of sugar beet from nearby locations. The factory had 150 permanent employees and 550 during the campaign of sugar beet.<sup>19</sup>

It was confiscated by the judgment of the Court for protection of national honour of Croats and Serbs in Croatia, No. Kz-153/45 of 21 July 1945. According to this judgement L. L. from Zagreb, and A. M. from Zagreb as members of the directorate, and A. H. from Osijek as a member of the supervisory board of the First Croatian-Slavonian JSC for the sugar industry were found guilty "for trying to increase the production of sugar during the occupation and for handing over a large part of its production to the occupier and their collaborators."<sup>20</sup> With this judgement the defendants were sentenced to confiscation of personal property, various time penalties, and also the confiscation of all assets of the First Croatian-Slavonian JSC for the sugar industry. However, as the majority of the directorates were located in Zagreb, the judgement of

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<sup>15</sup> Lakatoš, Joso, o.c., p. 399

<sup>16</sup> DAO, fund OJT, box 47, file 1/50, report of 30 December 1945

<sup>17</sup> Ibidem, report of 3 December 1946

<sup>18</sup> Monograph of Saponia-Osijek factory, Meet us, Osijek 1969, p. 2-3

<sup>19</sup> Lakatoš, Joso, o.c., p. 483-486, and Monograph of the sugar and sweets factory in Osijek, Osijek, 1980, p.42-49

<sup>20</sup> Excerpt from the judgement No.Kz-153/1945, of the Osijek court for the protection of national honour

the Osijek Court for protection of the national honour was cancelled and submitted to the Public Prosecutor for the City of Zagreb, for further processing.<sup>21</sup>

By the new judgment of the District People's Court in Osijek, number Kz-254/45, A. M. from Zagreb and L. L. from Zagreb were sentenced in absentia to imprisonment with the hard labour, and also to the confiscation of all assets of the First Croatian-Slavonian JSC for the sugar industry in Osijek.<sup>22</sup>

Confiscation of the property belonging to the factory was conducted by the verdict of the District People's Court in Osijek R-493/45, and was transferred to FPRY by the decision of the same court under the number Z-2500/46.<sup>23</sup>

There is an interesting annex to this judicial case of confiscation of this company which was created by the District People's Committee in Osijek - Department of National assets, No. 17757/1946-XI / 2, of 31 May 1946, which in the case of confiscation of shares of the First Croatian-Slavonian JSC for the sugar industry provides information on the structure of the share capital of the joint-stock company. According to this report the fundamental principal amounted to 38,500,000 dinars, and was divided into 44 000 pieces of shares, and 176,000 shares for the bearer.<sup>24</sup>

In the process of confiscation of assets of this company "An assessment of real estate and land of the Sugar refinery JSC in Osijek on January 15, 1946" was also carried out. "According to this estimate, the total construction value of buildings and land of the first Croatian-Slavonian JSC for the sugar industry amounted to 73,721.218 dinars."<sup>25</sup>

## 2. Confiscation of experimental companies after World War II<sup>26</sup>

Despite changes of the owner during the NDH, the largest number of companies in Osijek resumed normal operation and performance of its economic activities during the World War II.

It is such a continuous performance of the activity that led to the confiscation by the communist authorities after World War II. After the withdrawal of Germans and entering of partisan armies in the city, the newly established communist government recognized the value of the existing property and industrial plants. As the newly established government had to raise money for war-impooverished country, seizing of private property of rich individuals appeared to be the simplest source of filling the state treasury and solving the economic problems of the country.

Ironically, the confiscated property was Jewish, which had already once been confiscated by the government of NDH.

The greatest absurdity was that the new government filed against former Jewish owners because of the economic cooperation with the enemy, regularly condemn them and confiscate their businesses. The irony is particularly supported by the fact that almost all of these former Jewish owners were taken to German concentration camps during World War II, where every single trace of them had been lost.

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<sup>21</sup> DAO, fund OJT, box 47, file 1/50, report of 30 December 1945

<sup>22</sup> Ibidem, report of 15 December 1945

<sup>23</sup> Ibidem, report of 30 December 1945

<sup>24</sup> A copy of this report and other documents regarding the confiscation of the First Croatian-Slavonian JSC. sugar production are now in the National Archives in Osijek in the fund District Court in Osijek, item Kz-71/1945

<sup>25</sup> Evaluation was carried out by the "authorized constructor" F. D. from Osijek and it was annexed to the file of the District Court Osijek No. Kz-71/1945

<sup>26</sup> See in Miro Gardaš, Josip Salapic, Tunjica Petrašević: "Court proceedings before the courts for protection of national honour with special attention to the Court for the protection of honour of Serbs and Croats in Croatia for Osijek-Virovitica district", The study was published in a scientific monograph "Istražne radnje i pomoćna sredstva u sudskim postupcima kroz povijest [*The investigative actions and aids in court proceedings through history*]", Osijek, 2010

A sad example of the confiscation is Osijek knitwear factory "Dubravka" owned by the Jews B. R. and K. R. from Osijek who were, in 1942, dispatched to Germany, where they disappeared without a trace. With the public announcement (on the notice board of the court) District People's Court in Osijek called them to report to the court within three days, and condemned them for economic cooperation with the enemy and confiscated their property- the knitwear factory Dubravka. The factory was, in fact, nationalized by the NDH, and sold to a new owner and continued to operate.<sup>27</sup>

Moreover, confiscation of Osijek card board factory "Farmacija", owned by Jews A. N. and D. R. from Osijek, which was in 1941 nationalized by the NDH. In 1942 the former owners were taken to Germany and it had never been heard from them ever since. The factory was sold to a new owner. District People's Court in Osijek indicted former owners, called for them with the public notice to report within three days, and sentenced them to confiscation of all assets of the card board company "Farmacija" because of economic cooperation with the enemy.<sup>28</sup>

Since the then "Anti-Fascist Council of National Liberation of Yugoslavia" was headed by a lawyer Ivan Ribar, confiscation of property was legally masked by the Law on confiscation and execution of confiscation which was passed on 9 May 1945.<sup>29</sup>

In addition to this law, there were still some legal provisions that allowed for a wide range of persons to be found guilty, and their property to be confiscated. These are primarily the law on crimes against the people and the State of August 25, 1945,<sup>30</sup> Decision on the protection of national honor of Croats and Serbs in Croatia of 24 April 1945,<sup>31</sup> the Law on the transition of enemy property into the state ownership and Sequestration of assets of absent persons of 31 July 1946<sup>32</sup>, and the law on the treatment of assets that were to be abandoned by their owners during the occupation as well as the property that was taken away by the occupiers and their collaborators of 2 August 1946.<sup>33</sup>

In 1948, the Law was brought on Amendments to the Law on nationalization of private economic enterprises by which were nationalized all those firms of different types, which by their meaning or capacity had general significance for federal or republican economy.<sup>34</sup> Interesting are the words of B. Kidrič, which show us that with this law the purpose that the new communist government had in mind was fully accomplished - "that from now on there will practically be no industrial enterprises in Yugoslavia which would not fall under the socialist sector of our economy"<sup>35</sup>

Apart from these main regulations, there was still a whole range of regulations that served for confiscating any valuable assets. Here are listed only the most significant regulations which were the basis for confiscation of property. Apart from them, there were many other laws and decrees which served as the basis for confiscation of the property. Article 2 of the Law on Compensation for the property confiscated during the Yugoslav communist rule lists 32 such regulations, and a few authors allege even fifty.<sup>36</sup>

Previously mentioned companies belonged among the largest in their professions in this part of Europe and as such attracted special attention of the newly established communist government.

<sup>27</sup> DAO, arhivski fund: District People's Court Osijek, file Kz-235/1945

<sup>28</sup> DAO, arhivski fund: District People's Court Osijek, file Kz-236/1945

<sup>29</sup> Official journal DFJ, No. 40/1945

<sup>30</sup> Official journal DFJ, No. 618/1945

<sup>31</sup> "Vjesnik"- newsletter of JNOF of Croatia, of 28 June 1945

<sup>32</sup> Official journal of PNRJ, No. 63/1946

<sup>33</sup> Official journal of FNRJ, No. 64/1946

<sup>34</sup> Official journal of FNRJ, No. 35/1948

<sup>35</sup> B. Kidrič speech at National Assembly; Borba No. 103, 1948, cited according to Rastovčan P., "Zadružno pravo [Cooperative right]", Zagreb 1949, p. 6

<sup>36</sup> Crnić, Jadranko, How to regain property rights deprived by nationalization, confiscation and agricultural reform, Official Gazette, Zagreb, 1991

As these companies were performing their job during the NDH, the new government, in accordance with the aforementioned laws, had an excuse to seize them.

However, concerning joint stock companies another aggravating circumstance was that there were more owners, often unknown. Namely, as the capital was divided into shares, which could have been issued on the name of the holder, and as a security they could have been a subject to legal matters, it was often unknown who of the owners was in a possession of the stocks.

Therefore, the charges were regularly brought against the head of the joint stock company or against one or more members of the board, usually the president, hence, in addition to the prison sentence, deprivation of national honour, expulsion, confiscation of personal assets, forced labour, etc. judgement to confiscation of the entire enterprise was regularly rendered.

It is quite absurd, because that person might not have been either the majority owner or even the holder of any shares of that particular joint stock company, nevertheless, it was a concrete name and a person that could have been pursued and judged by the court. Clear example is a court proceeding of confiscation of the property of Osijek leather company JSC where the proceeding was conducted against the head of the company, who was, of course, found guilty for entrusting the company to German forces, hence in addition to other penalties he was sentenced to confiscation of the entire property of Osijek leather company JSC. Out of 10,000 issued shares of Osijek leather company JSC he owned only 200.<sup>37</sup>

### **3. The current situation in experimental companies**

In 1992 the Law on Transformation of Social Enterprises was passed, which provides that the companies should carry out the conversion done in a due time. Under these provisions companies that are the subject of this study had also undergone transformation from public properties into the companies owned by a concrete person. Almost all of the above mentioned companies were transformed into joint-stock companies and as such were entered in the Trade Register.

After examining the statutes of all joint stock companies, as well as Elaborates on the estimated value of social enterprises, where it was possible, I present data on the amounts of the share capital of joint stock companies and individual issue of shares of individual joint stock companies which incurred by the conversion.

#### **3.1. Osijek Iron Foundry and Machine Factory JSC**

At its meeting held on 7 July 1995 the Shareholders Assembly of OLT Osijek adopted the Statute of the Joint Stock Company OLT.

According to Article 2 of the Statute, Joint Stock Company emerged from the public capital.

Article 12 of the Statute stipulates that the share capital of the joint stock company is 141.160.196.88 HRK, and that corresponds to the equivalent of 38,977,900 DEM. Article 13 of the Statute stipulates that the share capital of the joint stock company is divided into 389,779 shares, each in nominal value of 100 DEM.<sup>38</sup>

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<sup>37</sup> See in Miro Gardaš, Tunjica Petrašević, Atila Čokolić: "Confiscation procedure of economic entities in Osijek after the World War II", The study was published in scientific monograph „Istražne radnje i pomoćna sredstva u sudskim postupcima kroz povijes[*The investigative actions and aids in court proceedings through history*]“, Osijek, 2010

<sup>38</sup> Statute of the Joint stock company OLT of 7 July 1995

### **3.2. Osijek Leather Factory - JSC Osijek**

According to Article 10 of the Statute of the Joint Stock Company Osijek leather factory the share capital of this joint-stock company is 8.7 million DEM, and is divided into 87,000 shares of par value of 100 DEM each.<sup>39</sup>

### **3.3. IPK – Sugar Factory Osijek JSC**

IPK Osijek JSC from Osijek and Privredna Banka JSC Zagreb from Zagreb concluded on 6 October 1995 g. a Public contract on convergence of general acts with the Law on commercial companies of IPK Sugar Factory Osijek.

In Article 1 of this Public contract it is determined that basing on the decision of the Administrative Board of IPK Osijek on 18 July 1994 IPK Osijek JSC owns 88.37% of stake, and Privredna Banka Zagreb JSC 11.63% of stake in the IPK sugar mill Osijek JSC

Article 4 also determined the amount of share capital in the amount of 201,111,246.44 HRK. In the company's equity share stake of IPK Osijek JSC is 88.37% or 177,722,389.08 HRK, and a fundamental stake of Privredna Banka Zagreb JSC is 11.63% or 23,388,857.40 HRK.<sup>40</sup>

### **3.4. "Saponia" Chemical, Food and Pharmaceutical Industries JSC Osijek**

On 28 June 1995 General Assembly of Saponija JSC adopted the Statute of Saponija chemical, food and pharmaceutical industries JSC from Osijek.

The share capital of the joint-stock company is defined in Article 14 of the Statute and is 197,214,000.00 HRK.

Article 29 of the Statute stipulates that the Company's share capital is divided into 657,380 ordinary shares, and each share is to have a nominal amount of 300 HRK.<sup>41</sup>

### **3.5. "Drava" – Match Factory JSC Osijek**

The General Assembly of "Drava" match factory JSC in Osijek at the session held on 24 June 1995 adopted the Statute of "Drava" JSC from Osijek.

Article 7 of the Statute determines the amount of the principal of the Company in the amount of 45,141,000.00 HRK and 12,541,617 DEM.

Company's share capital is divided into 119,416 shares of the first issue and 6,000 shares of the second issue. Nominal value per share is 100 DEM in equivalent local currency at the mean current rate.<sup>42</sup>

Today (spring 2015) the situation in the experimental enterprises has largely changed. After twenty years of existence on the Croatian economic scene, after a whole series of opening and closing of bankruptcies and bankrupt settlements, changes in the value of the share capital, changes in activities, sales of property and equipment of our five economic giants whose fate we followed for almost a century, a few no longer exist, a few exist only on paper, a few completely changed the scope of their activity, and a few still manage to survive on the Croatian market economy.<sup>43</sup>

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<sup>39</sup> Statute of the Joint stock leather company Osijek

<sup>40</sup> Public contract on convergence of general acts with the law on commercial companies of IPK factory Osijek of 6 October 1995

<sup>41</sup> Statute of "Saponija" chemical, food and pharmaceutical industries JSC from Osijek of 28 June 1995

<sup>42</sup> Statute of "Drava" Match factory JSC in Osijek

<sup>43</sup> For the provided assistance I thank the judges from Osijek Commercial court, Nada Roso and Boris Vukovic the president of the registry department.

#### 4. Conclusion

From the above mentioned we see that the fate of the economical entities in Osijek was tightly linked to political circumstances that had affected these areas. After the collapse of the Austro-Hungarian monarchy great damage was done by unfair replacing of the Crown with Dinar, and thus a long-standing trend of successful business was terminated, and the ownership structure of the company was enter by new people who knew how to utilize unfavourable financial moment. In The Independent State of Croatia (NDH), economic entities were confiscated, expropriated and sold or assigned to persons that were considered eligible by the authorities.

After World War II economic entities were passed into the state or social property and their business often had nothing to do with economic principles, but were often used for the propagation of political ideas.

After independence, as a constitutional principle, among others, the Republic of Croatia proclaimed protection of the rights of ownership and entrepreneurial and market freedom. Most Croatian authorities were repeatedly promising to access the denationalization i.e. restitution or providing compensation for property confiscated by the communist authorities after World War II. Driven by ideas in the economy based on market economy and ownership of companies, it was started with the conversion of socially owned enterprises in the companies whose owner was determined, followed by the restitution of property confiscated by the communist authorities.

In almost all of these procedures, during various political organizations, great damage was done to economic entities in Osijek. And perhaps today's poor economic situation in Osijek, especially the one of economic entities whose fate we followed, is just the result of such actions throughout history.

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Udruga inovatora Osječko-baranjske županije

## **HISTORY OF CULTIVATION AND PROCESSING OF INDUSTRIAL HEMP IN SLAVONIA AND BARANJA**

### **POVIJEST UZGOJA I PRERADE INDUSTRIJSKE KONOPLJE U SLAVONIJI I BARANJI**

#### **ABSTRACT**

*Industrial hemp is a very useful cash crop which is in the area of Slavonia, Baranja and Srijem bred for centuries, and was used in the diet of humans and domestic animals as well as raw materials in the artisan trades, and later in the industry. In the second half of the XX century products from hemp replaced by synthetic materials so that the production of hemp decreased and the 90s almost stopped. In recent years interest in industrial hemp and its processing increases significantly and is the world's growing at a substantial rate. According to a series of articles in recent literature of hemp processing produces thousands of products. This paper provides an overview of growing hemp and its' industrial processing in Slavonia and Baranja region in the XIX and XX century.*

*Keywords: Industrial hemp, Hemp processing, Agricultural production, Slavonia and Baranja*

#### **SAŽETAK**

*Industrijska konoplja je vrlo korisna ratarska kultura koja je na području Slavonije, Baranje i Srijma uzgajana stoljećima, a služila je u prehrani ljudi i domaćih životinja te kao sirovina u obrtničkim dje-latnostima i kasnije u industriji. U drugoj polovici XX. stoljeća proizvode od kudelje zamjenjuju sin-tetički materijali tako da se proizvodnja konoplje smanjivala te je u 90-tim godinama gotovo i pre-stala. Posljednjih nekoliko godina interes za industrijsku konoplju i njenu preradu značajno raste te je u svijetu njen uzgoj u značajnom porastu. Prema nizu napisa u recentnoj literaturi od konoplje se danas proizvodi više tisuća proizvoda. U ovom radu se daje pregled uzgoja konoplje te prikaz in-dustrijske prerade konoplje na području Slavonije i Baranje u XIX i XX. stoljeću.*

**Ključne riječi:** *Industrijska konoplja, Prerada konoplje, Ratarska proizvodnja, Slavonia i Baranja*

#### **1. Introduction**

Industrial hemp is a very useful cash crop which is in the area of Slavonia and Baranja bred for centuries, and was used in the diet of humans and domestic animals as well as raw materials at

home, artisan trades and, later, in the industry. Growing hemp does not require large financial investments and should not be treated with pesticides nor herbicides. As oil crop hemp is extremely useful in crop rotation and cleaning arable soil. The need for human work in this culture is large (about 150 hours per ha) compared to grains (about 30 hours); so at harvest time employ seasonal workers. Climatological and soil management conditions in the area of Slavonia, Baranja and Srijem are most suitable for the cultivation of hemp; other regions in Croatia not grown hemp - so that the development of production of hemp in the Slavonia region is also development of the cultivation of this crop in the country.

At the end of the eighteenth, the nineteenth and early twentieth century in Slavonia, Baranja and Srijem built from a dozen processing plants so-called „kudeljara“ - who used hemp from regional areas. In the second half of the XX. Century products from hemp significantly replaced by synthetic materials and cheaper raw materials (sisal, manila, etc.) So that the production of cannabis decreased and the 90s in our area stopped.

Although the tradition of growing and processing of hemp in Slavonia and Baranja region no more than significant papers about the past of this sector of the economy in the Republic of Croatia and Slavonia. Statistical sources - due to frequent changes in the state system and the administrative authorities - do not allow the creation of a consistent time series, and few scientific and professional papers and other sources only sporadically and marginally talk about production of hemp and its industrial processing.

At the beginning of XXI. century, interest on industrial hemp and its processing plant in the world is growing significantly and its growing at a substantial rate. According to a series of articles in recent literature of hemp is now produces more than thousands products.

The aim of this study is, therefore, the search of data and processing determination of the essential elements in the history of hemp cultivation through the mosaic from the existing literature.

## **2. Growing of industrial hemp in the Republic of Croatia**

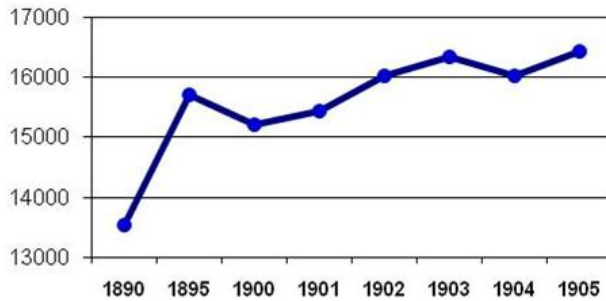
The first written evidence of the cultivation of hemp in the area of Slavonia and Baranja region dates back to the mid-sixteenth century; Book „List of Sandžak Požega 1579“ provides an overview of tax revenues among which states "one tenth of flax, hemp, garlic and onions, cabbage and beets". [23] It should also specify the sources of the cultivation of hemp in the estate of the 1868<sup>th</sup> year; the construction of the so-called. Albrechtovogembankment\* (from village Zmajevac to village Kopačevo) opened a new possibility of using the land for agricultural production and - as in the neighboring province of Vojvodina - in the field of sputtering, and here it is, production of hemp.[4] According to data from the Statistical Yearbook of the Kingdom of Croatian and Slavonia [19] seeding surface hemp ranged from 13,500 to over 16,000 acres (approximately 0.55% of the total area under arable crops); Fig. 1.

In the period between the two world wars (1918th to 1941st) areas under hemp have increased; The Kingdom of Yugoslavia was the third producer and exporter hemp in the world (after the USSR and Italy), and Slavonia was the second region in the country for producing hemp (behind Vojvodina). In 1933, the Sava Banovina under hemp was 6124 ha (20% of the area in the Kingdom of Yugoslavia) Production of hemp fibers increased from 4475 tonnes of 1921/23. to 9175 tonnes in 1935/39. year.[19] Also - surface and the nature of growth in the period after II World War; Fig. 2.

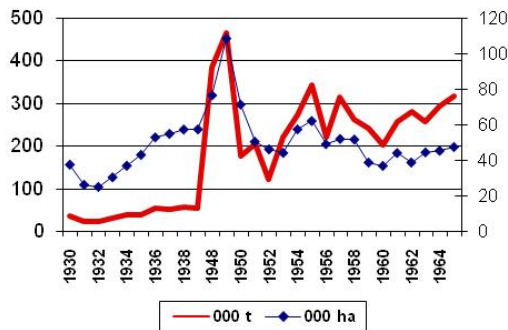
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\* Albrecht Friedrich Herzog von Teschen (1847.- 1895.)

**Figure 1** Sown areas hemp in the Kingdom of Croatia and Slavonia in the period from 1890<sup>th</sup> to 1905<sup>th</sup> year - acres [19]

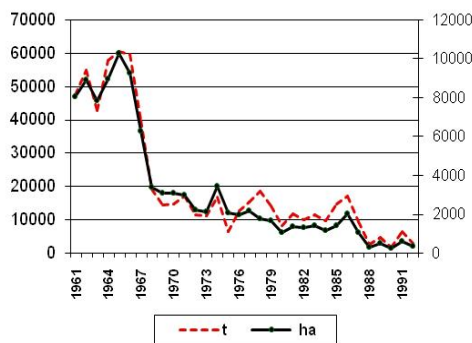


**Figure 2** Sown areas and yields hemp in Yugoslavia in 1930-1964; ha [21]

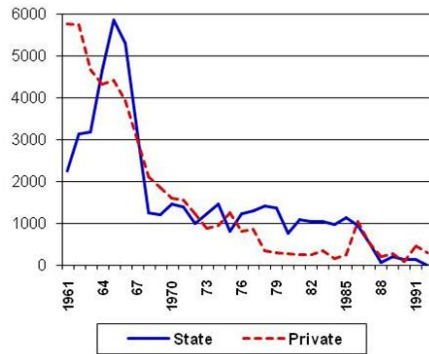


As already mentioned - in the second half of the XX. Century hemp fibers replace synthetic materials and cheaper raw materials (sisal and manila) and the cultivation hemp decreases and early 90s in the area of Croatian stops: Fig. 3 – 4.

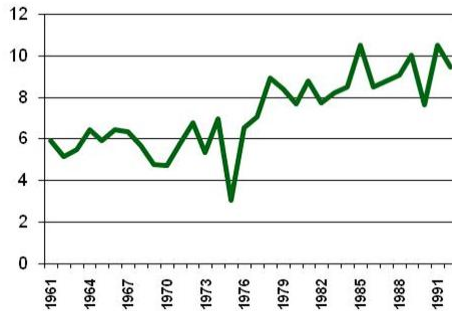
**Figure 3** Sown areas and yields hemp in Croatia 1961-1992 year; ha = left, t = right side of graph [20]]



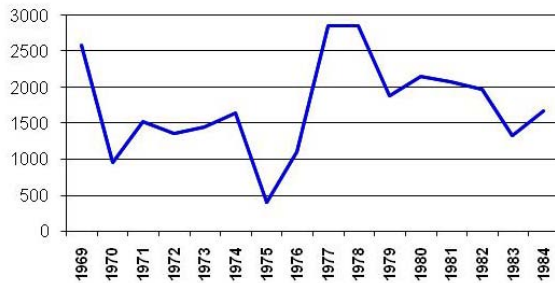
**Figure 4** Area sown hemp in Croatia 1961st-1992nd - state and private sector – ha; [20]  
 Average yield hemp in Croatia were increasing from 6 t/ha in 1961 to over 10 t/ha in 1989; Fig. 5.



**Figure 5** Average yield hemp in Croatia in period 1961 -1992 - t/ha [20]



**Figure 6** Purchase hemp IPK Osijek cooperation from private producers in the area of Slavonia and Baranja in the period 1969<sup>th</sup>-1984<sup>th</sup> - t [9]



### 3. Processing of hemp in the Republic of Croatia

The first weaving flax and hemp in the area of today's Croatia was founded by Count Batthyay in Ozalj 1720 - which worked until the end of the century. The first manufactories ropes of hemp was established in 1763 in the city of Rijeka to the utilization of hemp from Croatia and Slavonia. Later is established a large manufactories ropes by nobleman Adamovich in Cepin (Osijek) - which has exported its products to Western Europe all the way to Amsterdam [2]

According to reports of Chamber of trade and Crafts in Osijek from different years [2] [10] collected these data of hemp processing capacity in the area of the Pozega and Virovitica County:

1881 - 1 hemp plant (Osijek) and one factory of ropes goods (Osijek)

1888 - 2 hemp plants

1913 - 10 textile factories including plant for processing flax and hemp in Osijeku (1901) and Vukovar (1905)

1925 - 5 plant for processing flax and hemp

Zdenka Šimončić-Bobetko study [14] states that the Banovina of Croatia in 1938 was 13 hemp plant with 575 employees and a capital of 29.5 million. dinars and gives the following data (tab. 1) about the beginnings of the industrial processing hemp in Croatia:

**Table 1** Enterprises for the production of hemp fibers on the Croatian territory

Company	Headquarters	Year of establishment	Number of Workers	Drive power (HP)	annual production (in wagons)
Vukovar hemp Inc..	Vukovar	1905	191	350	80 - 120
Slavonia hemp Inc.	Vladislavci	1903	150	105	40
Hemp and flax ind Inc.	Vladislavci	1903	87	135	30 - 40
Hemp K. Pfeiffer	Tenjski Antunovac	1910	106	50	15 - 20
Hemp Ovčara,	Čepin	1913	70	60	15 - 20
Hemp G. Reisner	(Vrbik) Osijek	1918	39	12	-
Hemp Agro society	Viškovci	-	93	40	-
Total			736	752	180 - 200

Source: *AJ Fond MTI 65, 1934, box 569, 571; 1937, box 568, 571, 1938, box 471. Lakatos industrija Hrvatske i Slavonije, Zagreb 1924, pp 313–314; Privredni almanah Jugoslovenskog Lloyd, Zagreb 1929, pp 54; M. Kolar-Dimitirijević, Položaj tekstilnih radnika Slavonije poslije velike svjetske krize, Zbornik 10, Historijskog Instituta Slavonije, Slavonski Brod 1973, pp 82, 85–87.*

Petar Anic in the book [4] regarding hemp brief states: "The primary processing dealt with the" First Slavonia mechanical weaving cloth" Ivan Friedler, founded in 1901, and at this factory in Vladislavci. Both plants are processed flax and hemp. Apart from these two weaving in Osijek was founded weaving in 1921 by Alfred Kuch. Post in Osijek there were a number of smaller hemp-spinning mill. These are largely due to poor interest of producers for the cultivation hemp after World War II liquidated or working with smaller capacity.

In the monograph "Three centuries of Belje" Janos Foldvari indicates that in 1983 the farm Belje in the area of Brestovac in the Baranja 400 acres of arable land was under hemp "which is processed in Brestovac hemp plant". [4] Zdenka Šimončić-Bobetko points out: "Slavonian hemp-spinning mill, between the two world wars, had worked for a few months during the year, at the time of processing of hemp, but had no permanent workers." [14] Ivo Wine [14] states that in the period 1920 - 1940.

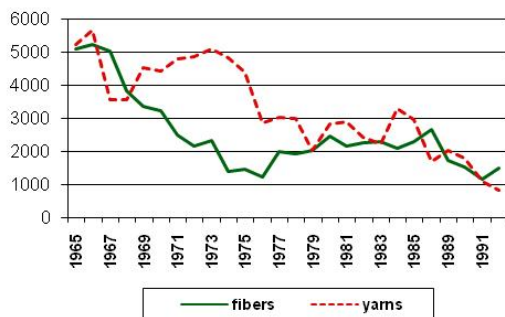
In new fixed investments processing-manufacturing industry for flax and hemp in Croatia invested 50 million dinars (in 1938 prices), which made up 27% from total investment in textile industry.

In several sources stated that the "Paper Mill Rijeka" in 1962 founded hemp plants in Vukovar, Odzaci, Otok and Koška, ensuring a regular supply of raw material so".[3] In the Monograph "Slavonia 64" states the fact that the IPK Našice produced 200 wagons of hemp fibers as cooperation with the „Paper mill Rijeka. [7] In the monograph "Slavonia 1964" in the list of companies referred to Kudeljara by municipality: B.Manastir (Darda), Donji Miholjac (Črnkovci), Đakovo (Viškovci and Tomašanci) and Osijek (Kudeljara Seles). But in the same book - review by type of production is mentioned and Kudeljara Vladislavci. [7] In the monograph "Slavonia 1965" points out that the production of Slavonian Kudeljara significant contributory force-export industry in the region, particularly exported hemp and tow. [8] Community sports fishing associations Đakovo (founded 1977) on its official website under the heading "Fishing waters" - as one of the places for fishing - describes pond former Kudeljara "Kešinci". [22]

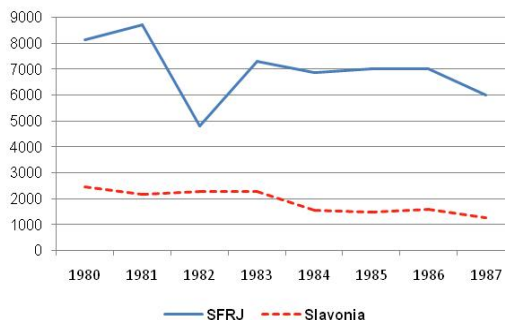
### 3.1. Industrial processing of hemp in Croatia

Unlike hemp production (crop farming activity) as well as the production of hemp fibers (industry) that took place only in the region of Slavonia - further industrial processing of hemp in Croatia took place in the spinning and weaving and garment manufacturing plants in several factories in the area all Croatian. Figures 7 - 10 shows the industrial production of goods from hemp on Croatian territory.

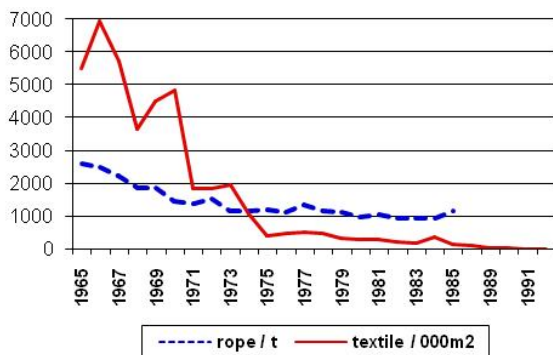
**Figure 7** Production of hemp fibers and yarns \* (\* mixed with sisal and manila) in Yugoslavia from 1980 to 1987 - t [5]



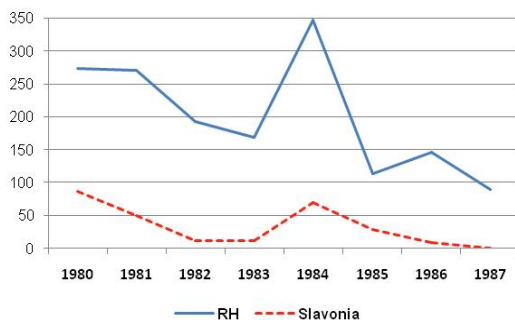
**Figure 8** Production of hemp and semihemp\* textile (\*+sisal and manila) in Croatia 1980 -1987 /000 m<sup>2</sup> [5]



**Figure 9** Production of hemp fibers and yarns \* (\*+ sisal and manila) in Croatia 1965 -1992 / t [5]



**Figure 10** Production of rope and semihemp textile \* (\*+sisal and manilla) in Croatia 1965 -1992 / t; 000 m<sup>2</sup> [5]



As can be seen from the graph 7-10, the industrial production of goods from hemp (hemp fiber and yarn, hemp and semi hemp textile and rope products) on the Croatian territory in constant decline since the mid-60s of XX century - how this happened and on the world market. The reasons have already been mentioned: the increasing presence of synthetic fibers and natural plant overseas raw material (sisal and manila) in the textile and rope products.

### 3.2. Return of cultivation of hemp in Croatia

At the beginning of XXI century, interest on industrial hemp and its processing plant in the world is growing significantly and its growing at a substantial rate. Multi-decadal practice has shown that the ropes of hemp in shipping better and longer in use of synthetic ropes sisal or manila hemp raw materials and re-used for this purpose. It should be noted that according to recent scientific literature - today hemp processing produces thousands of different products in the textile, chemical, food and car industry and building material industry.

At the beginning of the second decade of the XXI centuries, and the renewed interest in the cultivation of hemp, the truth just because hemp oil and use in healthy eating. Repeated cultivation of industrial hemp in Croatia legalized at the beginning of 2012 in a manner that is permitted sowing varieties of hemp with the EU variety list. The condition for breeding is getting permits to grow hemp from the Ministry of Agriculture (the Rules), and prerequisites are: registered farm, the

land in the clean-owned or leased at least 1 ha, registered in ARKOD and impunity for the crime of abuse of narcotic drugs

Thus, according to reports in the press (official statistics it is not recorded) in 2012 began to grow hemp on ten acres; first breeder of industrial hemp in Croatia originated from the Vukovar area, particularly a company Cannabio Ltd. from Sotin. According to the Ministry of Agriculture in the Republic of Croatia in 2013 was planted 176 ha hemp, and 2014 658 ha.

#### 4. Conclusion

Industrial hemp is - a very useful cash crop - cultivated for centuries in the area of Slavonia, Baranja and Srijem. Hemp has been used for human consumption and domestic animals, and as a raw material at home, artisan trades and, later, as a raw material in industry. Written sources dating back to the cultivation of hemp in the area of Slavonia, Baranja and Srijem from the middle of the XIX century. Climatological and soil management conditions in the area of Slavonia, Baranja and Srijem are most suitable for the cultivation of hemp; other regions in Croatia are not grown hemp - so that the development of production of hemp in the area of Slavonia region is also the development of the use of this culture across the country.

Growing hemp in Slavonia area statistically monitored since 1890; seeding the surface of hemp by the early XX century ranged from 7.425 ha to over 8,800 hectares (approximately 0.55% of the total for the full land under agricultural crops). Between the two world wars in the Sava Banovina (Croatia) hemp was seeding about 6,000 ha. After II. World War hemp production is increasing and reaches an area of about 10,000 ha (maximum 1967). From that year on the surface hemp is constantly decreasing and the production is abandoned in the early 90-ies of XX century.

In hemp industrial in the region of Slavonia and Baranja first capacity to build the mid-nineteenth century and the first half of the XX century built a dozen hemp processing plants - the so-called. „kudeljara“ - who used hemp to regional areas.

Although the long tradition of hemp growing and processing hemp in the Slavonia region more than significant no complete works about the past of this sector of the economy in the Republic of Croatia, and Slavonia and Baranja; production and processing of hemp is occasionally mentioned, and several papers by local authors in the past 50 years.

This research was started pieces of the mosaic from the existing literature, followed by searches for documents from public and private archives.

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## **FACTORIES FOR PROCESSING INDUSTRIAL HEMP IN SLAVONIA AND BARANJA**

### **TVORNICE ZA PRERADU INDUSTRIJSKE KONOPLJE NA PODRUČJU REGIJE SLAVONIJE I BARANJE**

#### **ABSTRACT**

*Industrial hemp is in Slavonia, Baranja and Srijem cultivated for centuries, and was used in human's nutrition and domestic animals as well as raw homemade, artisan trades, and (later) in the industry. First processing factories of industrial hemp were built in the second half of the XIX century. This paper provides an overview of the establishment and operations hemp processing factories in the region of Slavonia and Baranja since the mid-XIX by the end of the XX century - when the industrial production ceases, and factory are disappearing. At the beginning of the second decade of the XXI century in the world is renewed cultivation and processing of hemp and this interest occurs in the Republic of Croatia. No specific initiatives for the industrial processing of hemp and briefly describe the project idea of renewal one hemp plant in the region Slavonia and Baranja.*

**Keywords:** *Agricultural production, Hemp factory, Hemp processing, Industrial hemp*

#### **SAŽETAK**

*Prve tvornice za preradu industrijske konoplje – kudeljare, kako je u narodu prihvaćen naziv – izgrađene su u drugoj polovici XIX. stoljeća. U radu se daje pregled osnivanja i poslovanja kudeljara na području regije Slavonije i Baranje od sredine XIX. do kraja XX. stoljeća – kada ova industrijska proizvodnja prestaje, a tvornice nestaju. Početkom drugog desetljeća XXI. stoljeća u svijetu se obnavlja uzgoj i prerada konoplje te se ovaj interes javlja i u Republici Hrvatskoj. Još nema konkretnih inicijativa za industrijsku preradu konoplje te se ukratko opisuju projektna ideja obnove jedne tvornice kudelje na području regije Slavonije i Baranje.*

**Ključne riječi:** *Industrijska konoplja, Kudeljare, Prerada konoplje, Ratarska proizvodnja*

#### **1. Introductory notes**

At the end of the nineteenth and early twentieth century in the Slavonia and Baranja region was built ten hemp processing plants so-called „Kudeljara“ who used hemp from regional areas. As a

curiosity it should be noted that the first weaving flax and hemp in the today's Croatian area was founded by Count Batthyay in Ozalj 1720 - that worked until the end of the century. The first manufactories ropes of hemp was founded 1763 in Rijeka to utilization of hemp from Croatia and Slavonia. Later established a large rope-makers nobleman Adamovich in Cebin which has exported its products to Western Europe all the way to Amsterdam.[2]

Although the tradition of growing and processing of hemp in Slavonia and Baranja region no more than significant papers about the past of this economy sector. There is little data on production, technology and employment in hemp processing plants such and little-numerous literature on this industry in the region and is even difficult to find photos of these factories.

The aim of this paper is, therefore, finding, data processing and assessment (determination) essential elements of the history of hemp processing in Slavonia and Baranja region. Due to climatic and agro-technical conditions slavonian region is suitable for the hemp cultivation. In other Croatian regions is not a hemp grown. It should be noted that hemp - due to transport costs - processed in nearby of breeding which means that this research has a national framework. This paper, therefore, composed a mosaic of history of hemp plant (kudeljara) in the region of Slavonia and Baranja ie in Croatia.

## **2. Factories to hemp processing in the Republic of Croatia**

The first written record of hemp in the area of Slavonia and Baranja region dates back to the second half of the nineteenth century; the estate of the Archduke Carl von Österreich-Teschen (1822-1847) initiated regulation of Karašica, Drava and Danube rivers (canals, embankments and tunnels) and it has continued Albrecht Friedrich Herzog von Teschen (1847-1895) on the regulation of flows the Danube and Drava and the coarsening of land and construction of water-protective facilities. After the construction of the Albrecht embankment (from village Zmajevac to village Kopačevo) in year 1868 opened up a new possibility to using new land for agricultural production. As in neighboring Vojvodina and here was launched production of hemp.[1][3][12][18]

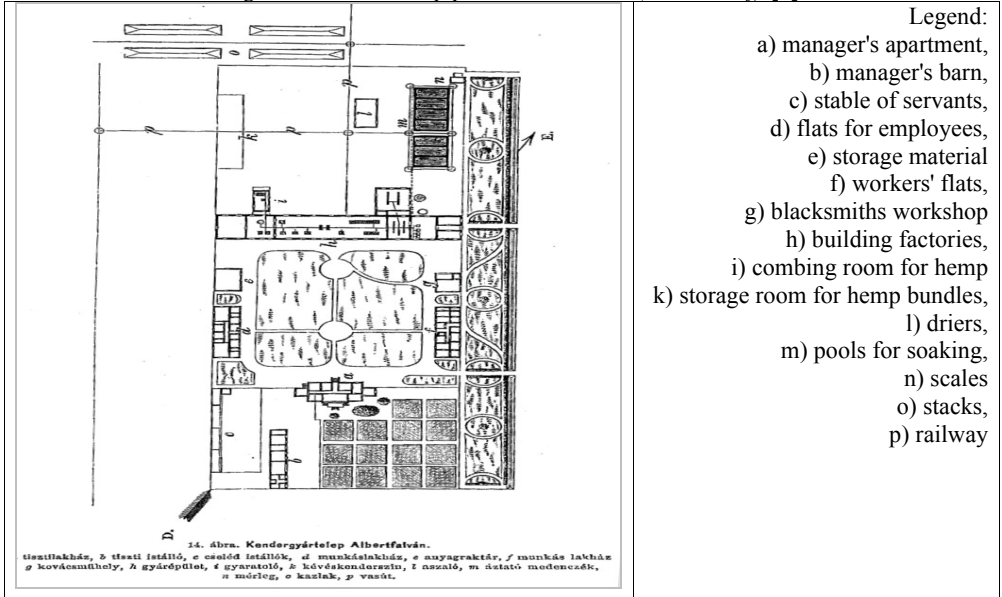
At that time already widely cultivated hemp in Hungary Danube and neighboring Vojvodina (Apatin and Bačka district) and are exported to Germany and England. Dr. Heinrich Ditz wrote in 1867 on the cultivation of hemp on the Belje estate; in addition to tobacco, in Pannonia is suitable production of hemp, and thus allows for the mitigation of excessive production of grain and allows changes in crop rotation. Can be pleased considered increasing production of hemp that is typical of Bačka. There are also factories for processing raw materials.[3]

### **2.1. Albrecht's hemp plant in Grabovac (Albertsdorf)**

Ditz, had never met with production and processing of hemp in Backa, but provides data on Archducal estate „Belje“. Ditz writes: "The Belje archducal manor and after two years with great satisfaction is producing hemp. They strive to be main product, and on the estate in 1867 want to start work on hemp processing plant. It will not start production on a large scale before will examine the possibility to sell and find business partners abroad. This can be achieved only large estate and smaller manufacturers to be more difficult to achieve and find new markets." In this Ditz see the importance of large estates and points out that already in the previous chapters of the book on it warned. In the production of hemp, among estates, emphasizes to protect highlights Futog (Futok) in South Bačka. " [3]

A good yields of hemp in Bačka writes and Baron Arthur Hohenbruck 1864 in the Report of the First Dalmatian-Croatian-Slavonic exhibition in Zagreb in 1864: "Hemp thrives in all places, especially thrives in Slavonia and would have to be and should produce in Slavonia wholesale, because it is an important product that can be exported. As a raw material brings a lot of money, as it is in the Apatin in Bačka." In the Apatin and the surrounding area has expanded production of hemp, so that the manufacturers sell their goods and the estate in Baranja, across the Danube, and provides a description of Albrecht hemp plant in Grabovac (Albertsdorf) [1]

**Image 1 Albrecht's hemp plant in Grabovac (Albertsdorf) [1]**

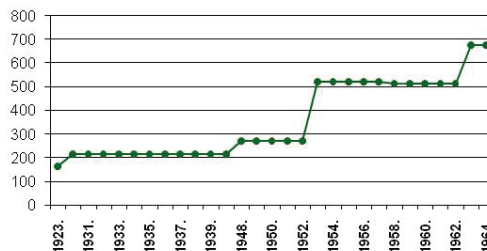


"In 1867 was built hemp plant near to Grabovac on the edge of the reeds, and since it was not near water mill, as a fuel for steam boilers used pozder (remains of crushed hemp). The factory is 1880 years were 70 workers, and the tow was exported to Belgium, England, Germany and Switzerland. Transportation was very expensive; port in the Bezdán (Danube) to London transport costs were 4 forint (for half ton). In 1880 the value of hemp-spinning mill was 326,000 forints.[1] Except to hemp processing from the Belje manor hemp plant in Grabovac also processed raw material that is being transported from Bačka. Figure 1 shows a plan view of Albrecht's hemp plant in Grabovac.

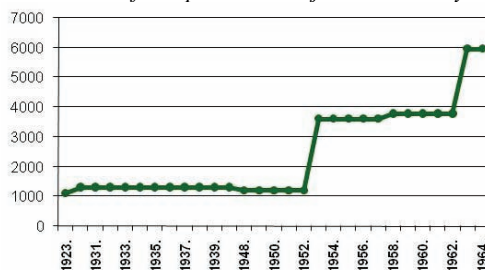
**2.2. Factory of hemp and flax - Darda**

For now they set no date of establishment Factory of hemp in Darda; according [14] "after World War II, „Belje“ is devastated and destroyed. The old hemp-spinning mill was nationalized and destroyed, and a new hemp-spinning mill by-raised in 1953 and then was employed about two hundred people." In the monograph "Three centuries of the Belje" contains data on hemp production in „Belje“ since 1923 [13] and may be assumed to be processed in Factory of hemp and flax in Darda. Figure 1 and 2 show average area of cultivation of hemp to "Belje" and production of hemp in factory - Darda.

**Figure 1 The average area of hemp on the "Belje" in selected years – ha [13]**



**Figure 2** Production of hemp on the "Belje" in selected years - t [13]



In the monograph "Slavonia '64" states that the director of Factories hemp and flax Darda was Vaso Eraković. [4] Decision to liquidate the hemp-spinning mill was made flood, in 1965, time to complete the processing of existing stocks of the company. [13] Belje hemp-spinning mill ceased its operations 8.1.1968. year. Since that time the plant hemp and hemp-spinning mill no longer found in the area of the „Belje“ manor.[14]

**Image 2** The building of hemp factory in Darda [14]



### 2.3. Factories of hemp in Vukovar

In the town of Vukovar in 1905 established Vukovar hemp factory Inc. which employed 191 workers, with capacity of 80 to 120 wagons hemp annually.[14] At that time this was the largest hemp factory in this part of Europe. The main shareholder is the Hungaria-Han-ffabrik Inc. from Vrbas offered the cities of Vukovar and Vinkovci electrification. Hemp factory enters into regular operation in 1907 and "Hungaria" gets from the City Council of Vukovar concession for 50 years for electricity supply. Thus, in Vukovar, December 19, 1909 years it work first power system on the territory of Slavonia and Baranja region. [25]

*Image 3 Hemp plant Hungaria under construction (1905.)*



Shareholder's equity Vukovar hemp factory Inc. amounted to 1.6 mil. Crowns, of which 30% belonged to the Vukovar estate, and the rest factory Hungaria Inc. from Novi Vrbas. Vukovar estate has committed itself to the 31 years of delivering hemp with an area of 1,000 acres per year for the needs of the company; after the expiry of 30 years should have factory free pass into the ownership of landed estate. But already in 1910 estate was taken over another 40% of the shares and thus gets the lead in the factory, and in 1912 takes Countess Maria Eltz and other equity of hemp factory Hungaria. "By the end of 1918 Hemp factory operates with a nice success, but the years of war have left traces, especially the post-war, in the first place due to lack of raw materials." For example - in 1913. Was in stock 106,000 quintals. hemp stem, and in 1916 only 39,000 quintals. "Because of the unfavorable economic conditions 3 February, 1919 was adopted by the General Assembly of hemp factory conclusion that factory annul and placed in liquidation. That year established new company - Vukovar hemp-spinning mill Inc. by Dragutin Count Eltz and the first Croatian Savings Bank. But, problem of raw material was still present, especially because of the agrarian reforms, so that the factory soon had to stop working. As hemp factory also delivered electricity to Vukovar municipality, it fell into increasing liabilities and 1925 estate sold their shares to Geza Grosso from Veliki Bečkerek (Vojvodina).[15]

*Image 4 Hemp factory Hungaria, Vukovar (1909)*



Factory hemp Vukovar in 1958 merged with the Holding „Borovo“. In the "Borovo" hemp (mixed with paper pulp) used to create the return-transport packaging for footwear. In Vukovar, there was another hemp plant - in Dubrava - which in 1956 merged with the Agricultural Combine Vukovar at that time, the company employed fifty workers. [28]

*Image 5 Hemp factory at Dubrava, Vukovar (1956)*



For far there is no information on cessation of the hemp plants in Vukovar. The reports of the Cooperative Association of Slavonia and Baranja on the organization of farmers, villages capacities and results of their use in Slavonia and Baranja, on the 1981 - 1983 year [20][21] contains data on surfaces and nature of hemp in the private sector that are not mentioned the cultivation of of hemp in the Vukovar area; table 1.

**Table 1** *Sown areas and yields of hemp in the private sector in the region of Slavonia and Baranja*

Općina	Sown areas (ha)			Yields of hemp (t)		
	1981	1982	1983	1981	1982	1983
D.						
Miholjac	238	283	270	1,963	2,285	2,170
Đakovo	0	0	15	0	0	125
P.Slatina	0	0	6	0	0	26
Valpovo	70	100	35	790	1,020	140
	308	383	326	2,753	3,305	2,461

*Source: [20][21]*

This points to the possibility that hemp may produce only the surfaces of PIK Vukovar or - if this is not the case, that the two hemp plants in Vukovar already stopped work to that period.

#### **2.4. Factory of hemp - Viškovci**

Several authors mentioned business of hemp plant Viškovci (near Đakovo) but nobody said a year of its foundation and construction. Zdenka Šimončić writes that hemp plant established by the Agricultural Society and had 93 employees.[16] By II. World War in area of Đakovo was 10 hemp plants in Vuka, (two), Široko Polje, Tomašanci, Gorjani, Forkuševci, Kešinci, Mrzović, Krndija and Viškovci. They produced more than 1,500 tons hemp and 550 tons flax fibers. At the time, capacity of Viškovci plant was 300 tonnes per year. After II. World War, only two plant continued to operate; in Tomašanci, which was in operation until 1967, and Factory in Viškovci which burnt 1942 and restored 1947. From 1947 to 1951 Factory Viškovci worked as part of the General Directorate of People's Republic of Croatia for flax and hemp in Zagreb, then - until 1953, as part of the hemp factory in Osijek, and then operate independently until 1964. \* [9]

\*1962 in Factory Viškovci produced 527 tons of wet hemp fiber, 234 tons of green fiber and 146 tonnes wet flax; a total of 907 tons. Other is a large amount puzder, the inner part of hemp or flax stalks.

*Image 6 Products of hemp factory Viškovci*



Since 1964 hemp plant Viškovci is composed of PIK Đakovo that within hemp plant Viškovci builds plant for production kolanit plates, and in 1967 completed construction of the lake to wet stems, hand-wetting is mechanized and increases productivity and economics. At that time in PIK Đakovo arable farming produces about 3600 t of hemp for Viškovci and in Tomašanci which process 1000 wagons hemp stalks and these products cca 6000 m<sup>3</sup> pozder plate.

As with other hemp plants - manufacture of synthetic fibers is reduced in order Viškovci and subcontractors (private farmers) leave production of hemp to be retained only in state sector within the PIK Đakovo. In fact, until 1964 private farmers have given a 90% raw material for Viškovci plant that already in 1966 the entire production of the stem was in the state sector. It should be noted that 80% of production plant Viškovci and Tomašanci from period 1946 - 1965 was sold on the German market. [9] In the monographs "Slavonia" (from 1964 to 1985.) just mentioned plant Viškovci and Tomašanci [6] and Factory hemp and kolanit plate - Viškovci in which the director Šimo Jurisic. [8]

In 1975 PIK Đakovo invest to Viškovci in hemp processing; for construction of the hall and imported machines spent three million dinars, and resulting double daily processing of fibers, ie instead of 3-4 tons, even 6-8 tons in three shifts. New mechanization gives more of splint, so that daily production kolanit plate significantly increased; from 17 to 19 cubic meters. All this is achieved with better hygienic conditions, while the injured workers reduced to a minimum. Plant Viškovci in the mid-80s, produced two main products: hemp fiber and kolanit plate and in 1983 and 1984 used the seeds of hemp as a raw material for production technical oils and bird food. [9]

*Image 7 Factory od hemp Viškovci - late 1980s*



In the mid 80's PIK Đakovo has grown hemp in about 400 ha per year, which resulted in derivative with between 900 and 1,000 tons and tow 2500-3500 m<sup>3</sup> kolanit plate. Hemp factory in Viškovci worked to 1994<sup>th</sup>-95<sup>th</sup> when in process of privatization of public property PIK Đakovo disbanded. "Based on the conclusions of the Company Board since 11 March 1994 composed operational plan for cessation of work, in March 1995, ceased its operations business plant Viškovci, whose main



activity was production of fibers and kolanit plate of raw material basis greater hemp. Operational Plan identified the main reasons for the termination of operations aware business units and low prices of basic products and fiber plate, permanently reducing production due to reduced demand and permanent negative financial result in the period from 1989 to 1994. All employment, 70 of them, arranged in other business units within the company. Estimated value of the property listed in the Study is 869,943 DEM. [26]

## **2.5. Factory of hemp - Vladislavci**

Petar Anić in the book [1] regarding hemp brief noted: "The primary processing dealt with "First Slavonia mechanical weaving cloth" by Ivan Friedler founded in 1901, at Osijek and factory in Vladislavci. Both factories are processed flax and hemp. In addition to these two weaving in Osijek was founded weaving in 1921 by Alfred Kuch. For processing of hemp in the region Osijek there were a number of smaller hemp-spinning mill. These are largely due to poor interest of producers to plant hemp, after World War II liquidated or working with smaller capacity.[1] Zdenka Šimončić noted that in 1903 established Slavonian industry of hemp and flax Inc. Vladislavci and employed 150 workers. Also the author of newly diagnosed patients that in 1903. In Vladislavci was founded second Hemp-spinning flax industry Inc. Vladislavci with 87 workers.[16] In the monograph "Slavonia '64" noted that a part of IPK Osijek there hemp plant, which has two facilities in Vladislavci and Seles. Average annual processing capacity was around 7,500 tons we can and green stems of which produces about 1,200 tons of hemp fibers and a rest product of t Factory is pozder. As director of the factory says Ljuban Vojnović.[14] Hemp-spinning and flax Vladislavci allocated to 3.1.1973 from the IPK Osijek and integrate into the furniture factories Mobilia Osijek.[10] In the monograph "Slavonia '70" mentioned Factory hemp Vladislavci and hemp plant Seles and emphasizes that two operations exported hemp product to Western markets, and in the monograph "Slavonia '85" mentioned Factory sliver plate Vladislavci and states that director of the company is Ljubo Prica.

## **2.6. Factory of hemp - Črakovci**

### **Establishment and organizational changes**

Factory of hemp and flax Črakovci was built as a completely new facility 1947/48, as an independent company and began to work as part of the General Directorate of industry flax and hemp People's Republic of Croatia at Zagreb. This Department was disbanded in 1950, and is based on-vices "Factory hemp", based in Osijek, consisting of up to the beginning of 1953 were all hemp-spinning mill in Croatia. Factory of hemp as a standalone company began operations on 1 January 1953, and was established by the decision of the People's Committee in Donji Miholjac 21 February 1953. From 1 January 1965 to 31 March 1969. factory went hemp-wave part of the PIK Donji Miholjac and from 1 April 1969, is part of IPK Osijek as a working organization. Constituting Factory hemp and flax Črakovci - as part of IPK Osijek sector "Agriculture" Donji Miholjac was made June 10, 1981.[10]

### **Production and technology**

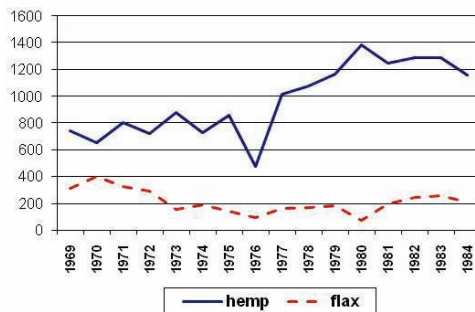
Factory of hemp and flax Črakovci in its production program a production hemp and flax fibers as primary production and briquettes and mehabita as a secondary activity. Annual production was around 1,100 tons of hemp-fiber legs and 400 tons of flax, which was 76% of installed capacity. Products Kapacity were about 500 tons mehabita (floor coverings; bitumi-nous pozder) and about 2,000 tons of briquettes splint which is sold as fuel for ovens. Figure 3 shows the pro-duction of hemp and flax fiber in the period from 1969<sup>th</sup> to 1084<sup>th</sup> year

*Image 8 Production complex of hemp and flax factory Črnkovi [24]*



By the production of fiber hemp and flax Factory in Črnkovi was in first place in Yugoslavia, and that is the only producer of flax fibers in the country and a major exporter of hemp and tow. Factory is in better years employed about 400 workers. In late 1984, the Factory began the construction of spinning flax in Črnkovi capacity of 1,000 tons of yarn per year, which is the next phase in finalization of the fibers in the yarn to the finest numbering. The production is mainly intended for export and import substitution. During 1987 investment is completed, the plant was put into operation, and employ about 50 new workers. In the monograph "Slavonia '85" mentioned Hemp and flax factory Črnkovi and states that the director of the company is Zdravko Stanić. [12]

*Figure 3 Production of hemp and flax fiber in the factory Črnkovi 1969<sup>th</sup> to 1984<sup>th</sup> - tons [10]*



After four decades of successful work Hemp factory Črnkovi was 1996 declared bankrupt and the company is in liquidation; machines were sold in 2006, and part of the property (halls and land) are given in the lease. [27]

### **3. Visions of hemp processing and development in Slavonia and Baranja**

So far known activity on hemp in recent years are based on hemp (its grain) for food and produce hemp oil. The only publicly known initiatives for processing of hemp stalks (ie production of hemp) in Osijek is by bussines asociation "Ownership" Osijek. Based on the accepted patent for catamaran vessel (boat with grating and inflated barrel solar powered) company develops a prototype of the boat and perform experiments with hemp material for making flooring of the vessel; Figure 10. Namely, the material of the hemp is very sturdy and low specific weight and organic, technologically and financially (relative to aluminum) acceptable for the preparation of this part of the vessel. But for the mass production of this boat is required processing plant hemp stalks.[17]

"Ownership" Osijek has set up a development model conglomerates which will be constituted and was hemp plant. It is a broader macroeconomic concept that is based on the association of field

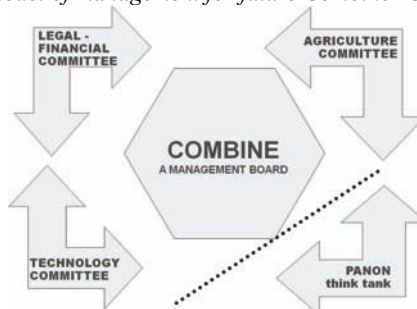
capacity (production of hemp) capacity for processing industrial hemp and small businesses (product line of hemp). Objective function of this association is not only purely profit but also social development within the ecological paradigm (sustainable production of quality of human life). Efforts are under way to find the future location of hemp plant and project documentation. This project - which is not based solely on capital-based but also includes new relationships participation of small businesses in cooperation with the profession and science - will be managed by Managerial Board; image 10.

**Image 9** *The building blocks of catamaran vessels solar powered [17]*

Creating flooring and base of solar generator from hemp



**Image 10** *Proposed model of management for future Combine "Ownership" Osijek [17]*



#### 4. Conclusion

Evident is a long tradition of growing and processing hemp in Croatia, especially in the region of Slavonia and Baranja in the last two centuries. In this paper is first time collected data on the existence and operations of six hemp plants in Slavonia and Baranja, and it was noted the existence of a dozen plants for the hemp processing in the region that operated a hundred years ago. Further research on hemp plants is needed on the basis of documents from public and private archives.

Evident is the return of industrial hemp in the world and in Europe with a full range of thousands of products. On the Croatian territory again, after 20 years, grown hemp and homemade processed hemp for food (flour and oil), and run the projects for processing hemp stalks.

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**A GIFT OF THE PAST TO THE FUTURE: A KEEPSAKE OF HOME  
COOKBOOKS AND SOME FRAGMENTS OF HISTORY OF NUŠTAR**

**POKLON IZ PROŠLOSTI ZA BUDUĆNOST: OČUVANJE PRIVATNIH  
KUCHARICA I NEKIH FRAGMENTA POVIJESTI NUŠTRA**

**ABSTRACT**

*This topic offers an excellent window onto the notion of everyday life that anthropologists wish to understand theoretically and examine ethnographically in the last two decades not only all over the world, but also in Croatia. When it comes to our country, it is all about grandmothers' cooking. Grandmothers are recognized as the highest authority when it comes to cooking. They have lived through hard times and devoted their lives to feeding their husbands and children. When they are gone, valuable links with the past will vanish with them unless their children or grandchildren take time to learn from them. Therefore, their recipes represent a time capsule of generations gone by, but not only from kitchens. A very precious source of information, private collections of handwritten recipes passed down from generation to generation, deserve serious study. There is, namely, a strong connection between the home cookbooks and their historical and social framework. This paper presents the first part of the private collection of recipes collected and written by two or more female family members who according to some sources served at Nuštar nobility mansion (Khuen-Belasi) at the end of the 19th and in the beginning of the 20th century. Personal recipe collections may be considered not only as texts, but also as artifacts, which leads to a material culture approach. This methodology calls for inductive research, including a three-step process of description, induction and speculation. Establishment of a historical, geographical and cultural context for each collection allows the scholar to formulate an appropriate hypothesis and test for conclusions. To demonstrate this process, this paper describes the step-by-step implementation of this methodology with a specific example. This*

*is a study of a private late 19th/early 20th manuscript collection, which examines the impact of the Habsburg Monarchy and the serving at Nuštar nobility mansion.*

**Key words:** *handwritten recipes, private manuscript collection, culinary tradition, German, Nuštar*

## SAŽETAK

*Ova tema pruža izvrstan uvid u pojam svakodnevnog života, koji antropolozi žele teoretski protumačiti i etnografski ispitati u posljednja dva desetljeća, kako širom svijeta, tako i u Hrvatskoj. Što se tiče naše zemlje, naglasak je na bakinoj kuhinji. Bake predstavljaju najviši autoritet kad je riječ o kuhanju. Živjele su u teškim uvjetima i posvetile svoje živote hranjenju svojih suprug a djece. Kada one umru, s njima nestaju i bitne veze s prošlosti, ukoliko njihova djeca ili unuci ne pronađu vremena da uče od njih. Stoga njihovi recepti predstavljaju svojevrsnu vremensku kapsulu prošlih generacija, ali ne samo iz kuhinja. Vrlo vrijedan izvor informacija, a radi se o privatnim zbirka ma rukom pisanih receptata koji se prenose u nasljeđe, zaslužuju pomno istraživanje. Postoji, naime, vrlo uska veza između privatnih kuharica te njihovog povijesnog i društvenog okvira. U radu je predstavljen prvi dio privatne zbirke receptata koju su prikupile dvije članice jedne obitelji, a prema nekim izvorima služile su kod obitelji Khuen-Belasi u dvorcu u Nuštru krajem 19. i početkom 20. stoljeća. Privatne zbirke receptata mogu se gledati ne samo kao tekstovi već i uporabni predmeti, što je zapravo na pristup materijalnoj kulturi. Ova metodologija zahtijeva induktivni pristup istraživanju, a uključuje proces koji se sastoji od tri faze: opisa, dedukcije i razmatranja. Utvrđivanje povijesnog, geografskog i kulturnog konteksta za svaku zbirku omogućuje istraživaču da postavi odgovarajuću hipotezu i provjeru zaključka. Spomenuti postupak opisuje se u radu implementacijom metodologije po fazama na specifičnom primjeru. U radu se istražuje privatna zbirka rukom pisanih receptata s kraja 19. stoljeća/početka 20. stoljeća u kontekstu Habsburške monarhije i služenja u dvorcu u Nuštru.*

**Ključne riječi:** *ruk om pisani recepti, privatna zbirka pisanih receptata, kulinarska tradicija, njemačk , Nuštar*

## 1. Introduction

Not long ago, according to Nives Rittig-Beljak, the examination of food preparation and recipes would not be appropriate. But today, the historical, ethnological, cultural, communicational and sociological impacts of food is not only comprehensive, but it has also brought about great interest in the field of linguistics.

With regard to culinary skills, a long tradition in both oral and written knowledge transfer has been present for a long time in the cultural context. For over a decade, two of the authors of this paper are in possession of the collection of three valuable handwritten recipe books: they inherited it from their (great) grand mother Marija Palčić (born Nagy), who was born and lived for some time in Nuštar. This paper is dedicated to the first and oldest manuscript collection: it will serve as an example for analyzing personal recipe collections as historical and cultural artifacts. One may ask himself, why study personal recipe collections if they are so difficult to read? When it comes to the study of personal recipe collections, Julia Child thought they were a good source: "Cookbooks are the history of an epoch. They show how people prepared and ate the ingredients available to them. Cookbooks provide answers to social, political, and economic questions about the society for which they were written. They are an essential ingredient to preserving our past and enhancing our future." (Rotger, 2013, 2)

A key concept in developing a methodology to work with personal recipe collections is the idea of looking at such collections as artifacts, rather than documents or texts. This approach does not call for looking for narrative elements, since recipe collections may have a story to tell but they are not stories. J. D. Prown defines material culture as a “the study through artifacts of the beliefs -- values, ideas, attitudes and assumptions--of a particular community or society at a given time.” Therefore, he proposes a scholarly approach to the study of artifacts that is broken down into three steps: description, deduction, and speculation.

## **2. Description**

Description includes an account of the physical dimensions of an artifact, a description of the materials, an inventory, notation of content (such as motifs and inscriptions) and an analysis of the form of the artifact. Applied to the study of a personal recipe collection, description would include measurements of the object at hand (the recipe box, manuscript book or scrapbook), notation of its overall condition, a description of the materials of construction (wood, paper, metal, magazine clippings, product labels) and a notation of the form of the collection (Prown, 1982, 7).

2.1 The first part of our collection can be described as a manuscript recipe book according to B. Rotger's definition, since it is exclusively filled with handwritten recipes. The proposed methodology for studying personal recipe collections begins with the physical description of the object.

Our manuscript recipe book dimensions are 10 cm wide by 16 cm tall and approximately 0.25 cm thick. There are neither front or back covers, just sheets of paper bound with a piece of natural linen thread. It is the most common type of sewn bookbinding that falls into the category of longstitch binding. The collection is in an extremely fragile state. Since there are no covers, it is unclear whether it was set apart from a (note)book or these were separate sheets of paper bound together. The pages of the book are horizontally lined in blue, and divided vertically into 3 columns with red ink. The pages are browned and crumbling. All recipes were written in fountain pen (dip pen?), except for the last page: there are traces of a recipe written in pencil, but it is absolutely illegible and almost invisible.

There are 47 (+1, see the sentence above) recipes written on 30 pages (Table 1). The formation of capital letters, vowels, and the common consonant combinations look very different from what we are used to, since the old handwriting is used. It took time and a lot of patience to decipher old handwriting techniques and characters.

**Table 1** List of the recipes from the first and the oldest manuscript collection

Kompot - Šljive	Kifle od šećera	Getrokene
Breskve - u tvrdi saft	Beška torta	Mandeltorte
Pradajzl	Bišof brot	Mandel - Bögen
Piškoten torte	Štefani torta	Haselnuss - Brot
Griz torta	Fil od doboš torte	Nuss - Brot
Vanilije kiffeln	Magdalena kiffeln	Napoleon - Schnitten
Muškacondel	Mandel begen	Kaffeecremetorte
Pušl!	Schokoladeschifteln	Schokoladekiffeln
Mak torta	Mandelcrème	Vanilije nokl (kano koh)
Blitz torta	Nußbüsserln	Vanilijen nokl (ili koch)
Pušlice	Čokolad torta	Epflpita
Vanilija torta	Weichesel - Torte	Doboš torta
Šokolad štangeln	Kastanien - Torte	Gesundheits kugluf
Fil od doboš torte	Buscuit - Torte	Carigradska torta
Bischof brot	Chocolade - Eis	
Kiten kess	Weißer Zucker Glasur	
Gebunte mandel torte	Biscuit - Roulade	

Source: authors' private handwritten recipe cookbook

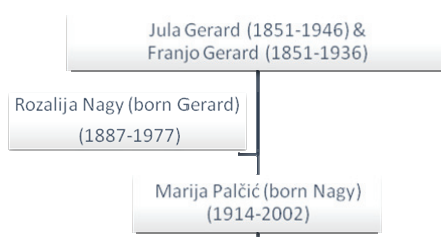
### 3. Deduction

The second stage of analysis moves from the object itself to the relationship between the object and the perceiver and is divided into three steps: sensory and intellectual engagement and emotional response (Prown, 1982, 8), i.e. the perceiver engages with the artifact to assess what the object can or cannot tell. The observer may consider what it would be like to interact with the object, consider its touch, feel and smell (to which the food scholar would add flavor) and consider his or her own emotional response to the object (Prown, 1982, 13).

The oldest manuscript recipe book from our collection contains recipes for 3 preserves and 44 desserts (a combined total for all cakes, pastry, ice creams, frostings, pies). 40 recipes are written in Croatian, 6 in German, whereas in the "Chocolade-Eis" recipe both languages are combined. When it comes to the language used in Croatian kitchens in the 19th and the 20th centuries, the influence of the German can be seen both in published and hand written recipes passed from towns to towns, places to places, especially in the areas where the influence of German language was significant within the frames of cultural and historical context (Rittig-Beljak, 2003, 43). Surprisingly, desserts make up almost the entire collection. But, according to B. Rotger's opinion it is quite common. "The predominance of dessert recipes is characteristic of most recipe collections. Cooks use written recipes for baking and candy making because success in this kind of cooking requires precise measurements, temperatures, and methods; written recipes serve as a memory aid for these procedures." (Rittig-Beljak, 2003, 22). As mentioned previously, the collection was inherited from our (great) grand mother. When taking over our collection of three handwritten recipe books, we were informed by a close relative that the recipes were not only taken down by Marija Palčić (born Nagy) and her mother, Rozalija Nagy (born Gerard), but that there was a probability that a tiny part of manuscript was handwritten by the oldest known female family member, Jula Gerard (Table 2).



**Table 2** A part of family tree (parentage)



Source: Years of birth known to the authors

#### 4. Speculation

Having progressed from the object itself in description to the interaction between object and perceiver in deduction, the analysis now moves completely to the mind of the perceiver, to speculation: development of a hypothesis and testing for conclusions (Rittig-Beljak, 2003, 9).

The history of culture is the history of customs takeover. There are multiple ways in which the recipe illuminates the cultural worlds in which it appears and constitutes a textual form worth of study. The historical range also helps us in uncovering the ancient roots of accepting food, dishes and recipes. In this sense, both Croatian and Austrian culinary traditions are based on the old Germanic dietary habits. The very first cook books were published for noblemen and townsmen, for rich population (or, better to say, their professional cooks and servants). But the exchange of recipes either orally or handwritten, was not discontinued by their appearance. The recipes published in the Habsburg monarchy were copied in the home cookbooks; they were translated, changed or simplified (Rittig-Beljak, 2003, 44). In this sense, Croatian cuisine made a significant contribution to the development of Middle European cuisine.

Unfortunately, we are unable to precisely establish the period, in which the recipes from our first and oldest manuscript collection were taken down, since there are no data regarding year(s). Nevertheless, if we compare them to the example given by N. Rittig-Beljak, we may determine the approximate age of it. In her book "Švapski kulinarij - dodir tradicija u Hrvatskoj" (2003) talks about a manuscript collection from Zagreb. "(...) below the title **Linzer teig**, there is a recipe written in Croatia, but in the same handwritten cookbook one can find **Oranšen Torte** and **Osijeker Torte** written in German. Obviously, these recipes were rewritten. The owner of this cookbook rewrote the text, using the orthography she was skilled in. Such kind of recipe copying can be found in family archives from other Croatian towns." N. Rittig-Beljak's example and our manuscript collection are parallel in the following feature: among other recipes *Haselnuss-Brot*, *Getrockene Mandeltorte*, *Napoleon-Schnitten* were also written in Croatian, whereas *Kaffeecremetorte* or *Schokoladekipfeln* were taken down in poor German, unlike *Schokoladeschifeln*<sup>1</sup> or *Mandelcrème*. According to N. Rittig-Beljak's opinion, the Zagreb manuscript collection dates from the beginning of the 20th century, because the owner was born in 1884. Since our (great) great-grandmother, Rozalija Nagy (born Gerard) was born in 1887, we may assume the same.

<sup>1</sup> Schifeln = an Austrian sort of sweet pastry

#### 4.1 Could Jula Gerard be also be one of authors?

As previously mentioned, an additional option must be taken in account: there are vague possibilities that the oldest recipes were written by Jula Gerard (born in 1851). This is based on several assumptions. First of all, N. Rittig-Beljak claims that several generations of housewives used to take down recipes in a home cookbook. There are more than two different handwritings available in the first manuscript collection. Even calligraphy is used in the titles of a couple of recipes.

Secondly, only the first three recipes are for preserves (*Kompot-šljive*<sup>2</sup>, *Breskve - u tvrdi saft*<sup>3</sup>, *Paradajzl*<sup>4</sup>), the rest are desserts. In her "Kulinarij" N. Rittig-Beljak mentions some open-ended interviews led with persons of German origin, which she used in order to gather information with regard to the fundamental importance of traditional German food culture in Croatia (Rittig-Beljak, 2003, 101). Additionally, she prepared a standard interview for a twenty interviewee group, who were presented with exactly the same questions (22) in the same order. The person (initials R.K.B., male) gave an interesting answer to the question number 4:

"4. *Did you exchange recipes with your neighbours (Croats, Hungarians...Czecks)?*

*Absolutely, starting with winter food preservation such as fermenting sauerkraut, compote*<sup>5</sup>, *kittenkes, pickle*<sup>6</sup>, *cooked tomato sauce/juice etc.*" (Rittig-Beljak, 2003, 112).

At this point we can draw an analogy between the interviewee's recollection and recipes from our manuscript collection. The sentence structure, the lack of punctuation as well as everyday speech, in which the above mentioned recipes are taken down (there is also a recipe for *Kiten kess*, but we prefer to categorize it as a dessert rather than preserved winter food), shows that they were previously heard and memorized, i.e. that they were exchanged. Therefore, we assume that our ancestors were of German origin and learned some new techniques from their neighbours how to preserve food for winter.

According to the available data from the Internet, the family name Gerard originates from France and Germany (Table 3) .

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#### <sup>2</sup> *Kompot Šljive*

*2 kile šljiva tri fritalja kile šećera i litru i pol vode i pol litre polak vinskog sirčeta i krupnog cimeta i kvircnelkn u krpicu zavezati skupa kuvat i 7 dana sas istim saftom prelivat šljive 8 dana da provre - šljive sve na 5-6 mesta probosti-*

#### <sup>3</sup> *Breskve - u tvrdi saft*

*2 ili 3 kile bresaka jedna kila šećera i pol litre vode pa šećer špinovati a breskve se ogule i jedan mali komad kreča nezagašenog metne se u vodu i breske postoje za jedan fritalj sata u vodi sa krečom onda se izvade iz kreča i metne ih se u čistu vodu i dobro se isperu onda se metne i špinovani šećer i lepo polako da kuva onda se breske povade u flašu a saft ako je odviše redak mora se pustiti da malo ... .. da bude kao med onda se taj saft prelije preko breske-*

#### <sup>4</sup> *Paradajzl*

*Metne se u vodu vinskog sirčeta, da je prilično kiselo a paradajzl se izseče na šnitove kao što se dinje reže onda se metne u tu vodu pa se kuva a u drugu rajndliku metne se šećer na 2 kile paradajzla 1 kila šećera i jedan lemun se izseče na okrug i pol litre vode se prelije na taj šećer onda kad je paradajzl kuvan onda se iz te vode povadi i onda se metne u taj šećer i kuva dok paradajzl nije sladak onda se ostavi ... se metne ...paradajz u flaše*

<sup>5</sup> a dessert of fruit cooked in syrup

<sup>6</sup> pickled cucumbers

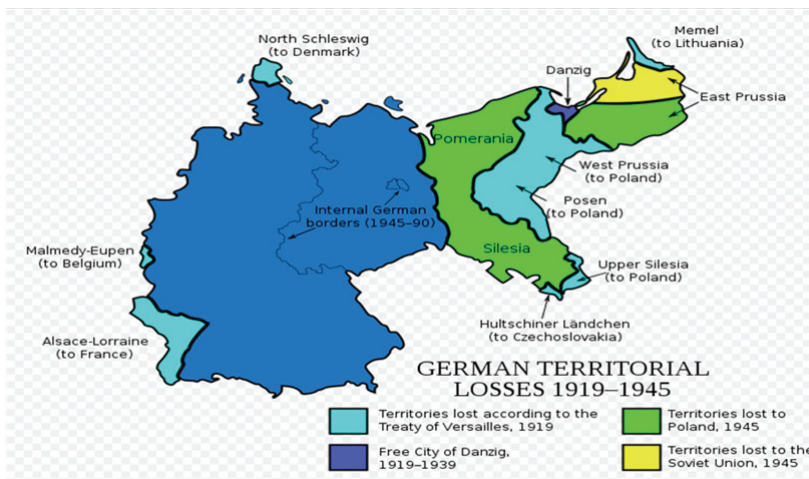
**Table 3** Number of individuals with the family name Gerard in the states that it originates from



Source: <http://www.heraldryinstitute.com/cognomi/Gerard/Germany/idc/781147/lang/en/>

The old, from the historical point of view interesting province of Alsace-Lorraine<sup>7</sup> seems to be the cradle of the family (name). A lot of research was carried out in order to describe and explain the ways and waves of migration of Germans (along with Hungarians, Slovaks and Ruthenians, and to a significantly smaller extend Frenchmen, Italians, Spaniards) over a two century period down the Danube towards the southeast. The largest number of immigrants came from this region in particular.

**Map 1** Alsace-Lorraine in the historical context



Source: [http://en.wikipedia.org/wiki/Territorial\\_evolution\\_of\\_Germany#/media/File:Germanborders.svg](http://en.wikipedia.org/wiki/Territorial_evolution_of_Germany#/media/File:Germanborders.svg) (accessed 11 February 2015)

The German immigration was motivated by economic reasons (Geiger, 1997, 10). The biggest wave of the German immigration to the Hungarian part of the monarchy came to Banat,

<sup>7</sup> Alsace is located on France's eastern border and on the west bank of the upper Rhine adjacent to Germany and Switzerland. The political status of Alsace has been heavily influenced by historical decisions, wars, and strategic politics. The historical language of Alsace is Alsatian, a Germanic (mainly Alemannic) dialect also spoken in part of Lorraine and across the Rhine, but today most Alsatians primarily speak French, the official language of France. 43% of the adult population, and 3% of those 3–17 years old, stated in 2012 that they speak Alsatian.

Bačka and Baranja. They were more sparsely distributed throughout Croatia, Slavonia and Srijem. Most of the German townships were in Slavonia around Osijek, Vinkovci, Vukovar, and smaller townships in the vicinity of Đakovo, Požega, Garešnica, Daruvar i Virovitica (Geiger, 1997: 13). The Germans who inhabited the area of the former South Hungary mostly belonged to the peasantry, living of agriculture, and came to the fertile Danube area motivated by imperial patents and royal proclamations, looking for a way to fulfill their basic existential needs. Interestingly enough, another N. Rittig-Beljak's interviewee (initials Ž.H.Z., female) provided us with a useful information when asked

*"2. Do you know where (when) did your family move to Croatia?"*

*According to some research done (...), the family originates from the French-German border (Alsace). They settled in Vukovar and Sotin." (Rittig-Beljak, 2003, 103).*, which is not far away from Nuštar (15 km). Why Nuštar? In this village in eastern Croatia two of the our ancestors were born and lived, whereas two of them were buried at the Nuštar cemetery.

#### **4.2. Desserts prepared for Khuen- Belassi family at the Nuštar Mansion**

Fertile plain, rich in game and fish, drew the first settlers in ancient time to the Nuštar area. The name Nuštar comes from a monasterium, because a Benedictine monastery of the Holy Spirit existed there in 1263. One of the owners of Nuštar's estate was the Austrian lieutenant colonel, military constructor and Alsaic (sic!) nobleman, Maximilian Eugen count Gosseau d'Henef, who was buried in the mansion's chapel. When he died in 1741, the estate was brought by Franjo baron Trenk. From the end of 18th century (1782) till the first half of 20th century the Nuštar nobility mansion was closely connected with the name Khuen-Belasi. It was an old noble family that originated from Tyrol.

The nobility became established as native and had a close contact with local population. Noblemen hired local talented young girls, who proved to be very good cooks. N.Rittig-Beljak mentions that some information on "high level" cuisine may be gathered from numerous both rural and urban households, which own hand written cookbooks: it was their greatgrandmothers who worked in the nobility mansions. There were no problems in spreading new meals and their acceptance, because the local population was not infrequently trilingual, especially when it comes to spoken language, due to the German settlers. (Rittig-Beljak, 2003, 93). Therefore, we strongly believe that at least one part of the recipes for desserts were not only handwritten by the previously named ancestor(s), but also prepared by her/them for the members of Khuen-Belasi family in the mansion. The content of recipes demonstrates the fanciness and richness of desserts. After all, desserts were the part "high level" cuisine in Middle Europe.

#### **5. Conclusion**

The structures of modern society take as their basic unit the individual rather than, as with agrarian or peasant society, the group or community. Modernity must be understood, in part at least, against the background of what went before. Since almost every single aspect of society has been investigated nowadays, no one should be taken by surprise that there has even been a widespread interest in everything related to food. Fancy desserts were prepared at noble courts, in the kitchens of distinguished clergymen, as well as in monasteries, but when it comes to Croatia, this part has been neglected in investigations. Thanks to handwritten cookbooks, they found their way to the table of upper classes. Today, the inherited

manuscript collections serve as highly valuable sources of information and the basis for further investigation in terms of history, culture, sociology and linguistics.

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## **FORESTRY AND WOOD INDUSTRY IN SLAVONIA FROM THE 19<sup>TH</sup> CENTURY ONWARDS**

### **ŠUMARSTVO I DRVNA INDUSTRIJA SLAVONIJE OD 19. STOLJEĆA DO DANAS**

#### **ABSTRACT**

*Forests covered around 70% of Slavonian surface at the beginning of the 18<sup>th</sup> century. In the mid-19<sup>th</sup> century, they will become the most important natural resource that will affect the growth of industrial plants in Slavonia at the end of the 19<sup>th</sup> and beginning of the 20<sup>th</sup> century. World and European demand for Slavonian oak resulted in the development of wood-processing industry, so that the region would dominate it at the end of the 19<sup>th</sup> century in comparison to other parts of Kingdom of Croatia, Slavonia and Dalmatia. Intensive industrial exploitation of forests led to the decrease of forest surfaces in Slavonia, but also to the increase of arable areas, which gave a push to agricultural development. The S.H.Gutmann Company from Belišće posed itself as the most important wood-processing company to become one of the biggest ones on the territory the Austro-Hungarian Monarchy. Although forest surfaces in Slavonia were decreased due to the sustainable management, their total area and the annual growth increases, so that those forest continue to be a valuable resource potential for the development of Slavonia and Baranja to date. Although the contemporary wood industry in Croatia has good quality raw materials and long tradition, the crucial precondition for its development is in the need for investment in technology and clustering which would lead to higher efficiency and competition of the products.*

**Key words:** woods, Slavonia, wood industry, Gutmann, slavonian oak

#### **SAŽETAK**

*Šume su početkom 18. stoljeća zauzimala oko 70% prostora Slavonije. Polovicom 19. stoljeća pokazat će se kao najvažniji slavonski prirodni resurs koji će utjecati na razvoj drvne industrije u Slavoniji krajem 19. i početkom 20. stoljeća. Europska i svjetska glad za slavonskom hrastovinom rezultirala je razvojem drvoprerađivačke industrije tako da će krajem 19. stoljeća Slavonija prednjačiti u toj industriji u odnosu na ostale dijelove Kraljevine Hrvatske, Slavonije i Dalmacije. Intenzivna industrijska eksploatacija slavonskih šuma rezultirala je smanjenjem ukupnih šumskih površina u Slavoniji ali i povećanjem obradivih područja čime se dao poticaj razvoju poljoprivrede. Kao najvažnije poduzeće za preradu i obradu drveta nametnulo se poduzeće „S. H. Gutmann“ iz Belišća koje je izraslo u jednu od najvećih tvornica tog tipa na području Austro-Ugarske Monarhije. Iako su šumske površine u Slavoniji smanjene zahvaljujući održivom gospodarenju njihova se ukupna površina kao i godišnji prirast povećava tako da šume i danas predstavljaju vrijedan potencijal za razvoj Slavonije i Baranje. Iako danas drvna industrija u hrvatskoj raspolaže s kvalitetnom sirovinom i dugom tradicijom, kao ključan preduvjet za njen daljnji napredak i razvoj nameće se potreba ulaganja u tehnologiju i udruživanje u klastere čime bi se povećala učinkovitost i konkurentnost proizvoda.*

## **1. Introduction**

The economic growth and prosperity of any place is closely related to its natural resources and human potential. For centuries, the main natural resources of Slavonia had been forests and its fertile soil. Until the beginning of the 18<sup>th</sup> century, Slavonia had been predominantly covered in vast forests, encompassing 70% of its total area (Klepac: 1980, 36). Regardless of its vastness, Slavonian forests were known for their age and the quality of their wood, so that their crude materials were widely recognized and thus became the inevitable catalyst of development of the Slavonian area. Still, the intense exploitation of wood resources would not start until the mid-19<sup>th</sup> century. Considering the severe demographic and economic damage of the region that was the result of the Ottoman wars (1683-1699, 1716-1718, and 1738-1740), it was crucial to recover demographic losses and through administrative-political reforms create the preconditions for Slavonian integration into the European economic and political processes. The age of Ottoman rule halted the growth of Slavonian towns, which manifested itself in their undeveloped craftsmanship, namely in the manufacture production capacity. Therefore, there were no economic preconditions for a more intensive exploitation of woods until the aforementioned period (Moačanin: 1999, 142; Lang: 1985, 246)

## **2. Wood industry in slavonia in the second half of the 19<sup>th</sup> century**

With the onset of the industrial revolution at the beginning of the 19th century, and the strengthening of capitalism in Western Europe, areas of Kingdom of Croatia, Slavonia and Dalmatia under the rule of the Habsburg Monarchy were exposed to social changes. The most important of them was the abolishment of feudalism in 1848. That change paved the way to a series of changes of the overall social and economic relations, so that the noble families of Slavonia, who had up to that point been enjoying numerous social privileges, were forced to find new ways to fund their estates.

As the agricultural production on the big holdings proved insufficient for the sustainable functioning of the estate in the context of new economic relations, a substantial number of landowners found their way out of financial hardships either by selling the woods on their properties or in their exploitation. Mass and industrial exploitation of wood called for the building of factory facilities, roads, as well as the acquisition of necessary equipment, etc. As the nobility and local industrialists held insufficient capital for such endeavors, foreign capital took advantage of the situation, which led to the establishment of the first modern machinery for wood processing in the province of Slavonia (Lang: 85, 262). Forest areas were mostly preserved in comparison to the beginning of the 18th century, which facilitated their exploitation. It was estimated that in 1850 approximately 60% of Slavonia was still covered in forests (Klepac: 1980, 36.). The development of the wood industry in Slavonia was somewhat predetermined due to the position of the Croatian lands in the given period. As the Check sugar was the main capital asset of the Habsburg Monarchy, while Hungary's was dominated by the mill industry, there was no profitability in investing in equivalent industries in Slavonia. The trends of turning to wood industry are also obvious from the reports of Petar Posner, the secretary of the Chambers of Crafts and Trade in Osijek, where he documents the most successful development of the wood products in the 1850s (mostly barrels and railway sleepers). That suggests that Slavonian craftsmen and manufacturers had recognized the potential and the prospect of capitalizing the wood industry, but they did not own enough capital for any serious attempts (Karaman: 1996, 147).

In the area of the Slavonian Podravina, dominated by the private estates, private capital found the most suitable business conditions. Dukes Pejačević, Hilleprand von Prandau (later Norman), Shaumburg – Lippe, Majlath, Drašković i Janković sold their forests to foreign industrialists due to difficulties in running businesses (Benić: 1980, 128; Salaić: 2012, 29, 34; Frajtag: 2013, 19;

Volner: 2012(b), 181). The Chamber of Crafts and Trade's data from 1890 show that there were 50 enterprises of various services, which employed 4419 workers. 14 out of 50 were from the wood industry, and those employed 1594 workers. The prominent entrepreneurs were S. Gutmann, J. Jäger, Marchetti, C. Heaven, Kraft, Tükory and co., Neuschloss, who established modern facilities with steam-powered sawmills (Lang: 1980, 263; Volner: 2014(b), 181). But the most prominent figures of the Slavonian woodwork and lumber industry were Salomon Heinrich Gutmann and his heirs, whose company will grow into one of the biggest woodwork systems of Austro-Hungarian Monarchy.

### **2.1. S. H. Gutmann's Wood Company in Belišće**

The Gutmann family's entrepreneurial progress in Velika Kaniža in Hungary (Western Hungary, on the Kaniža River, adjacent to the confluence of the Sava and Drava rivers). The key person in the family's economic rise was Salamun Heinrich Gutmann (b. 1806), who became the most influential businessmen in town due to trade and successful business relations. In his business affirmation, he made use of the decision to deposit 2000 forints of the state loan after the failed revolution in Hungary in 1849, which gave him the sympathy of the court in Vienna (Kerecsény: 1980, 195). In addition trading, Salamun Heinrich Gutmann established a plant for barrel and stave production where he manufactured a 1000hl barrel that would become a sensation at the World Fair in Paris, in 1878. That success earned Gutmann a Grand Cross of the Legion of Honors.<sup>1</sup> Still, he was engaged in financial endeavors which ensured additional income. As the family was large, his sons would help him out with the work progressively, each in his own affiliation.<sup>2</sup>

In 1884, expanding his business endeavors, Salamun Heinrich Gutmann rented a forest lot west of Valpovo from baron Gustav von Hillebrand von Prandau, and started building mills on it together with his sons. In a contract made on the 19th of February that year, it was specifically stated that for the price of 4.011,752 Austrian gulden, he bought off the right to exploit 5.39887 acres of forest in the span of 10 years (Salaić: 2012, 13). As Gutmann was an older man when the company was founded and production started in Belišće, his eldest son, Edmund Gutmann (1841-1918; V. Kaniža-Belišće), took over running the newly established Belišće based company. Immediately after the establishment of the factory in Belišće, 500 workers were employed and their sawmill would soon become one of the biggest in Slavonia, with the production capacity of about 50,000 m<sup>3</sup> of wood per year. According to some sources, in 1893, the sawmill was the biggest European producer of processed oak (Bađun 1980, 133-134).

Having in mind the long-term development of their company, the Gutmanns would buy forests, ponds and mines in Slavonia, thus enabling the company to grow in the following decades. Increasing their estates, the Gutmanns became the owners of the biggest estate in the area of Pakrac and Virovitica in the West, all the way to Zemun and Petrovaradin in the East. The total area of their estate in 1901 was 54,364 acres. Forests of great importance were acquired in Voćin (121,081.52988 acres) and Orahovica (56,834.18749 acres) (Salaić:2012, 34; Frajtag: 2001, 28).

At the beginning of the 20th century, Gutmann's company employed approximately 500 workers, whereas in the summer, the number would rise up to 3000. The company owned a total of 180 wood-processing steam-machines, maximum of 1600hp, run by 20 steam boilers. It also operated with nine locomotives, 800 wagons and 200 km (124 miles) of industrial railways (Salaić: 2012, 36; Frajtag: 2001, 27-28). The plant put in operation the factory of tannin and barrels in 1899. Four years later, Bela von Lukcs, the Hungarian-Croatia Minister of Agriculture, Trade and

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<sup>1</sup> In 1869 S. H. Gutmann was together with his heirs and spouse honored with the noble title of 'De Gellse', after a family property in Hungary

<sup>2</sup> He and his wife Anna Strasser had five sons and four daughters: Edmunda (b. 1841) Isidora (b. 1845), Wilim (b. 1846), Ladislav (b. 1855), Alfred (b. 1857), Hedwig, Emma (b. 1848), Berta and Ida. (Frajtag: 2001, 29; Volner 2012(a), 464; Volner-Yewish lexicon – in print).



Commerce, paid a visit to the plant and was impressed by what he saw. The industrial railway, stretching from the company to the woods of Harkanovci and Koška, was extended all the way to Pandauovac (the railway station between Korška and Normanac). The railway was redesigned for public transportation when it was connected to the newly built broad gauge railway between Osijek and Virovitica. A year later a dry wood distillery was put into operation, while a parquet factory followed in 1902. The company expanded its business, and alongside the established practice of wood processing, in 1906 it started an intensive exploitation of the acquired quarries in Radlovac, near Orahovica (Salaić: 2009, 31-38). According to the *Pallas Lexicon*, the company was the biggest producer of cut materials in the country, while by 1901 it became the biggest supplier of railway sleepers in Slavonia. Conclusively, the company had a very all-encompassing production and wood processing system, so it operated a sawmill, a corresponding burning chamber, repair shop, tannin factory, dry wood distillation factory, parquet factory, cooper's workshop, laboratory, water pump station on Drava, water-tower, warehouses, factory railway station, cargo station, train sleeping room, passengers' railway station with a warehouse, paneling workshop, sentry box and a canteen (Štok: 1980, 268; Volner 2012(a), 470).

Belišće owed its success to a combination of factors. Firstly, it was the constant investment in the development of the company and the improvement of production. Therefore, in time the productivity of wood processing had increased several times, and the percentage of usability multiplied. Secondly, investing in crude materials in terms of acquisition of forest lots and investing in the expansion of production. In that manner, the Gutmanns enabled a stable and permanent source of raw materials for their production, which helped them ensure a balanced quality of the product and stable prices, which their competition could not offer. Finally, thanks to their business connections and reputation, which the Gutmann family had been cultivation for generations, the company had a guaranteed market for their products in European and transatlantic countries, which gave them security in further development (Volner: 2012(a), 470).

## **2. 2. Wood industry in Slavonia from the turn of the 19<sup>th</sup> century onwards**

Gutmann's company in Belišće became the leading name in the Slavonian wood processing industry rather quickly, but its development and growth were not steady. The trends that were surfacing in mid-19th century reached their peak at the end of the century. If we take into account the area of Kingdom of Croatia, Slavonia and Dalmatia, the number of Slavonian companies in 1890 made up 53.6% of their total number and they employed 60.9% of the total number of industrial workers. The indicators are even more pronounced should we take a closer look at the wood industry. 66.7% of the total number of Croatian companies was situated in Slavonia as they would employ 78.3% of the total number of workers in the wood industry. Until 1910 those trends had changed, so that the ratio of the Slavonian wood industry in the overall industry of Kingdom of Croatia, Slavonia and Dalmatia was reduced to 62.4%, and the number of workers went down to 72.9%. But the absolute numbers of 1890 show that there were 40 wood-producing companies in Slavonia, while those from 1910 show an increased number of 63 total. If we consider the ratio of the wood industry in the overall industrial production of Kingdom of Croatia, Slavonia and Dalmatia in the period in question, we see visible stagnation and reduction. Namely, in 1890 the wood industry made up 54.5% of the whole industrial production, and only 37.3% in 1910. The number of workers was reduced from 60% to 36.5%. Those trends imply, on the one hand, the growth of other industries in other parts of Kingdom of Croatia, Slavonia and Dalmatia, but also the effect of a global economic crisis at the beginning of the 20th century, had on the growth of the wood industry in the observed time period (Karaman: 1980, 83-84; Volner 2012(a), 460-462). Immediately before the wood processing industry lost steam, the 1898 data show that the total gain of the Hungarian lands from the wood industry was 69.270,289 crores, while the Kingdom of Croatia, Slavonia and Dalmatia participated in that with 17.757.801 crores or, rather, 25.7%. Thanks to the top-quality oak, which was in high demand in Europe and which made the main export product of the Croatian lands, the average value of a sawmill in Kingdom of Croatia,

Slavonia and Dalmatia was 650.000 crones, while the Hungarian equivalent was just 250.000 crones (Karaman: 1980, 91-92; Volner: 2012(a), 463).

Slavonian wood industry had a significant growth during the Austro-Hungarian rule. Yet, the exploitation of forest affected the total surface covered in forests. In 1914, 35% of the surface was covered in forests, which means that over 41% had been cut down in 65 year (Klepac 1980, 36). Evidently, they were not adequately treated, and the demand for top quality wood actually affected the dynamics of it. Alongside private interests of the plant owners from the wood industry, the demand for new arable areas and surfaces was in favor of cutting down forests. Yet, there will not be such radical decreases in forest surfaces in Slavonia, so the data from 1953 show that 28% of Slavonian area was covered in forests, while in 1961 that number insignificantly decreased to 27.5% (Klepac 1980, 36.). Less intensive exploitation would not negatively affect the wood industry in the period of the Second Yugoslavia, but they would continue to develop on sustainable foundations. In 1964 the wood industry will thus employ 9873 people, 11950 in 1973, and 13507 in 1983. 1449 milion dinars was invested in the wood and paper industries, together with the forestry on the area of teh ZOO in 1980 (Lang 1985; 258, 269). The most prominent company was the Belišće complex, which ranked 121st on the list of 140 biggest ones in the sector of mining, agriculture, forestry and agriculture in Yugoslavia, according to the total gain 4433 workers were employed in the same year (Ivanović, 2015; 12). The wood industry has continued to be a substantial factor of the economical development of Slavonia and Croatia. Yet, there is the constant need for new investments in technology and clustering, in order to achieve a higher degree of competitiveness of the whole sector (Lovrinčević 2014; 552, 560).

**Table 1** Those employed in the Croatian wood industry – January 2015

Name of the sector	Employed in 2014	
	Total	Women
A02 Forestry and Felling	7 798	1 413
C16 Wood processing and cork products, except furniture	11 093	3 117
C17 Paper production and paper products	3 066	892
C31 Furniture production	8 291	2 492

Source: [http://www.dzs.hr/Hrv\\_Eng/publication/2014/09-02-01\\_01\\_2014.htm](http://www.dzs.hr/Hrv_Eng/publication/2014/09-02-01_01_2014.htm) (accessed 15 April 2015)

### 3. Slavonian forests – values and potentials

The 1983 data refer to the former ZOO (The Osijek Municipalities' Association) existing in the period of the Socialist Federative Republic of Yugoslavia (SFRY). There are deviations in statistics of Slavonia and Baranja in comparison to other territories, but considering that the area of the ZOO covered 2,740,396.25784 acres and that the area of Slavonia and Baranja was 3,386,082.0488 acres, the total deviation is rather small, that of 8% (Lang: 1985, 252).<sup>3</sup> Due to different manners of present collecting data, there are varieties of them in terms of the Slavonian forests' conditions, so that some of them actually represent five Slavonian counties (Vukovar-Srijem County, Osijek-Baranja County, Požega-Slavonija County, Brod-Posavina County and Virovitica-Podravina County), while other data refer to the Forestry Administrations which cover five centers of Slavonia and Baranja (Vinkovci, Osijek, Našice, Požega and Nova Gradiška). As it was the case with the ZOO, they deviate from the present borders of the region, but as they cover the major part of it, they can be used as the relevant data source.

<sup>3</sup> [https://www.google.hr/?gws\\_rd=ssl#q=kolika+je+povr%C5%A1ina+slavonije+](https://www.google.hr/?gws_rd=ssl#q=kolika+je+povr%C5%A1ina+slavonije+)

**Figure 1** Map of the Osijek Municipalities' Association



Source: [www.wikipedia.org](http://www.wikipedia.org)

**Figure 2** Map of the Forestry Administrations in Slavonia



Source: Kuric, Danko (2014.) *Godišnje izvješće 2013. (Annual report of 2014)* Zagreb: Croaian Forests Ltd. (Hrvatske šume d.o.o.)

Forests covered 816.909 acres of the ZOO, or rather 29.81% of its entire surface. On the state level, it comprised 17% of all forested areas. According to the current Forest management plan, for the period 2006-2015, forest cover 925.51015 acres of the five Slavonian counties, which makes a little over 27% of the territory of Slavonia and Baranja. On the state level, that makes 14%. It is seen from these numbers that, although the area of Slavonia and Baranja covered in forests has increased within the observed period, it happened as well on the national level. Therefore, the reason for the general reduction of the area in Slavonia and Baranja covered in forests is the overall increase in the area of national forests (Lang: 1985, 252).

The data about the forest coverage provide approximate information about forested areas, but wood stock data are more revealing, as they illustrate their economic value and potential, gain and annual yield. In 1983, the annual wood stock of the ZOO area was 59 748 803 m<sup>3</sup>, which was 30.5% of the total wood stock of the Socialist Republic of Croatia. The forest expansion or the overall annual increase in wood stock were calculated on the area of 2.137, 495 m<sup>3</sup>, which was 49.8% of the state statistics, and the yield, or the predicted wood stock for felling in 1983 was 1 540 459 m<sup>3</sup> (72% of the annual gain). Although the ZOO contributed with 17% of the state area covered in forests, the annual wood stock made up almost half of the Croatian capacity within the given period. As the stocks would be increased for 450 000 m<sup>3</sup> annually, the equivalent was anticipated for the future annual yield. The increase of wood mass increases the economic usability of forests without decreases in forest areas.

**Table 2** Growing stock, increase and yield on the territory of the Osijek Municipalities' Association in 1983

Category	In m <sup>3</sup>	Percentage in the SR Croatia
Wood stock	59 748 803	30.5%
Forest gain	2 137 495	49.8%
Yield	1 540 459	

Source: Lang, Antun, ed. (1985.) *Slavonija '85. Osijek: Privredna komora Slavonije i Baranje, IC „Revija“ Radničkog sveučilišta „Božidar Maslarić“ Osijek*

The current data for the five observed counties confirm the indices from 1983. According to them, the wood stock amounts to 95 915 615 m<sup>3</sup> or a little over 24% of the overall stock of the Republic of Croatia. The annual gain was calculated on the basis of 2.846,574 m<sup>3</sup>, which entails a little over

27% of the whole country. The annual yield is 2 237 809 m<sup>3</sup>, which is around 78% of annual gain in Slavonia forests. In average, the wood stock increases for 608 000 m<sup>3</sup> annually. The stated shows that the sustainable treatment of forests boosts the ratio of wood mass in forests and ensures then stability in development of this valuable Slavonian resource.

*Table 3 Growing stock, increment and yield on the territory of five Slavonian Counties today*

Five Slavonian Counties		
Category	In m <sup>3</sup>	Percentage in the Republic of Croatia
Wood stock	95 915 615	24%
Forest gain	2 846 574	27%
Yield	2 237 809	40%

*Source: Forest management plan 2006-2015*

On the state level, there are five wood sorts that make up 75% of the wood stock: beech (36%), Slavonian oak (12%), sessile oak (10%), common hornbeam (9%) and silver fir (9%). All of the most common sorts, the latter is to be found in smaller amounts than the other four in Slavonian forests. The oak tree has not significantly lost the popularity it had in the 19th and 20th centuries. Slavonian forests are still famous for the most valuable samples of the sorts, and to illustrate this claim, one can observe the prices of a particular wood material from the year 2013. For example, oak timber cost 1044 HRK per cubic meter, sessile cost 604 HRK and beech cost 327 HRK. Croatian forests Ltd. (Hrvatske šume d.o.o.) earned 479.274,300 HRK for oak timbers, 115.214,812 HRK for sessile oak timbers, and 270.610, 812 HRK for beech timbers (Kuric: 2014, 32).

#### 4. Conclusion

Since mid-19<sup>th</sup> century and the beginning of modernization, the wood industry has been the engine of economic growth in Slavonia. Natural resources, particularly the famous Slavonian oak, attracted foreign investment and many businesses were started in the area. In 1910, there were 63 such business, but the most prominent one in terms of the number of workers and the woods in its possession was the H. Gutmann Company from Belišće. The company held a major share in the wood industry of Slavonia and managed to survive the social and economic turmoil of the 20<sup>th</sup> century thanks to the vision of its owners.

The period between 1850 and 1914 represented the peak of exploitation of forests in Slavonia. In that period, the total number of forested areas of Slavonia was reduced from 60 to 35%. At the same time, however, Slavonia experienced both industrial development and a rise in the total number of agricultural areas, so it would be wrong to judge that period solely through the prism of deforestation. In the following decades, forests were sustainably managed, and current data concerning the increase in wood stock, as well as annual gain, compared to 1983, imply that the forests of Slavonia will continue to be a valuable natural resource and play a major part in the future economic development of Slavonia and Baranja.

According to the Croatian Statistical Office, the forestry and wood industry sector employed 30 248 workers. Most of them were employed in wood processing and the production of furniture. Today, economists recommend increased investment in wood processing technology and the creation of clusters as the means for increasing competitiveness and specialization in production. Improving those two conditions would make wood industry one of the chief engines of economic growth in Croatia and Slavonia, as defined by the government's industrial strategy for 2014.

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**Novi trendovi  
u razvoju  
gospodarstva**

**New trends  
in economic  
development**

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**ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN  
LIFELONG LEARNING FOR EMPLOYEES  
IN PUBLIC ADMINISTRATION****ULOGA INFORMACIJSKO KOMUNIKACIJSKIH TEHNOLOGIJA U  
CJELOŽIVOTNOM UČENJU ZA DJELATNIKE U JAVNOJ UPRAVI****ABSTRACT**

*This paper discusses the meaning, role and concepts of lifelong learning and information and communication technology in the context of achieving rapid and effective adaptation of employees in public administration. IT education in business can be represented as a combination of academic and professional knowledge, skills and abilities that allow satisfying business needs and performing tasks in line with business requirements.*

*Lifelong learning is an important step in the life of every individual that is now readily available, and can mean a major breakthrough in professional work or a complete change of business orientation. Lifelong learning refers not only to the time and training on the job, but also includes the time before, during and after the working life of every individual who care about their cultural, social and professional development. Capacity development of Croatian public institutions is supported through a number of important projects in the field of information and communication technologies at the national level. Career development and promotion in the civil service is closely associated with continuing academic education or professional training in the areas related to the workplace but also increasingly popular lifelong learning, especially in the field of ICT.*

*The use of ICT offers the possibility of innovative methods of teaching and learning, using publicly available services, and professional collaboration worldwide. ICT Competency as a form of lifelong learning includes safe and convenient use of ICT in work, leisure and communication. This technology allows the use of the Internet, digital content, electronic media, personal computers, mobile phones, electronic ATM, electronic books, digital television, etc. ICT Competency is associated with logical and critical thinking with highly developed skills of information management and advanced communication skills. Due to the rapid technological development, well-*

*planned and quality training is essential primarily of employees of public institutions, and then the user to be able to understand, apply and use new technological solutions. An example of this is e-Administration, which necessarily involves the use of information technology to increase the availability and facilitate the execution of public services for the benefit of citizens, business owners and employees in these services.*

**Key words:** *lifelong learning, ICT, public institutions*

## SAŽETAK

*U radu se razmatraju značenje, uloga i koncepti cjeloživotnog učenja, ICT-a u kontekstu ostvarivanja sposobnosti brze i učinkovite prilagodbe djelatnika u javnoj upravi. Informatičko obrazovanje u poslovanju se može predstaviti kao kombinacija akademskih i profesionalnih znanja, sposobnosti i vještina koje omogućavaju zadovoljavanje poslovnih potreba i obavljanje zadaća u skladu s poslovnim zahtjevima.*

*Cjeloživotno učenje je važan korak u životu svakog pojedinca koji je danas lako dostupan, a može značiti veliki napredak u profesionalnom radu ili potpunu promjenu poslovne orijentacije. Cjeloživotno učenje se ne odnosi samo na vrijeme i edukacije na poslu, već obuhvaća vrijeme prije, tijekom i poslije radnog vijeka svakog pojedinca koji brine o svom kulturnom, društvenom i profesionalnom razvoju. Kroz nekoliko važnih projekata s područja informacijsko – komunikacijske tehnologije na državnoj razini podupire se razvoj kapaciteta hrvatskih javnih institucija. Razvoj karijere i napredovanje u državnoj službi usko je povezano sa nastavljanjem akademskog obrazovanja ili stručnom izobrazbom u području povezanim s radnim mjestom ali i sve popularnijim cjeloživotnim učenjem, pogotovo s područja ICT-a.*

*Upotreba ICT-a nudi mogućnost za inovacije metoda učenja i poučavanja, korištenja javno dostupnih servisa, te profesionalnu suradnju u cijelom svijetu.*

*ICT kompetencija kao oblik cjeloživotnog učenja uključuje sigurno i praktično korištenje informacijsko komunikacijske tehnologije na poslu, u slobodno vrijeme i u komunikaciji. Ova tehnologija omogućuje korištenje Interneta, digitalnih sadržaja, elektronskih medija, osobnog računala, mobilnog telefona, elektronskog bankomata, elektronske knjige, digitalne televizije, itd.*

*ICT kompetencija povezane je s logičkim i kritičkim razmišljanjem s visoko razvijenim vještinama baratanja informacijama i razvijenim vještinama komuniciranja.*

*Zbog brzog tehnološkog razvoja neophodna je dobro planirana i kvalitetna obuka prije svega djelatnika javnih institucija, a onda i korisnika kako bi mogli razumjeti, primijeniti i koristiti nova tehnološka rješenja.*

*Javne uprava osim državne uprave obuhvaća lokalnu i područnu regionalnu samoupravu te javne službe kojima je osnivač Republika Hrvatska, a kojima je zajednički cilj zadovoljavanje općih interesa i javnih potreba.*

*Primjer za to je e-Uprava (engl. e-administration) koja nužno podrazumijeva upotrebu informatičke tehnologije kako bi se povećala dostupnost i olakšalo izvršenje javnih službi u korist građana, privrednika, kao i zaposlenih u tim službama.*

**Ključne riječi:**  *cjeloživotno učenje, ICT, javne institucije*

## 1. Introduction

Our research study has been structured of six interrelated parts to best present and implement the results.

After the introduction, in the second part of our work titled "ELECTRONIC BUSINESS IN PUBLIC ADMINISTRATION OR E-GOVERNMENT" we discuss development and establish the main target groups that can be distinguished in e-government concepts.



The third part of "COMPUTER LITERACY" discusses the meaning and levels of computer literacy as a function of e-government. We analyzed participation of civil servants of the Ministry of Finance in the total number of civil servants in various training programs of the Centre for Professional Training and Development of Civil Servants to determine the importance and recognition of the computer literacy in the public administration.

In the fourth part, "OBJECTIVES OF THE USE OF ICT IN LIFELONG LEARNING FOR EMPLOYEES IN PUBLIC ADMINISTRATION" we have set objectives aimed at achieving excellence in computer literacy in the development of e-government.

The fifth part titled "E-CITIZEN" describes the e-Citizen project designed to enable communication between the citizens and the public sector. We present effects of lifelong learning and discuss development of e-government concepts.

In part six, "METHODOLOGICAL FRAMEWORK FOR USE OF ICT IN LIFELONG LEARNING FOR EMPLOYEES IN PUBLIC ADMINISTRATION" we discuss the European Qualifications Framework for lifelong learning (EQF) and qualification levels in Information Technology as part of the lifelong learning process, and propose a conceptual model of the use of ICT in lifelong learning on an example of business (user) app development.

"Conclusion" is a synthesis of research findings and goals of research.

## 2. Electronic business in public administration (e-government)

### 2.1. E-Government: Definitions, Development

In parallel with the development of the Internet, different ideas about combining the latest technological developments and their sophisticated application have been suggested in order to use the maximum potential of the Web. Internet-space has become the foundation and basis of organized life. Ideas, plans, administration, operations of various entities, transactions, contacts to databases of the remotest correspondents - all this is unthinkable in the modern world without the Internet and *e-business*.

The question is: what actually does the term *e-government* and *e-business in public administration* mean? This concept can be described in several ways:

- ***E-government*** is the provision of services of public administration to citizens and businesses by using information and communication technologies;
- The term ***E-government*** refers to the method of organizing public management in order to increase efficiency, transparency, ease of access and response capabilities to the demands of citizens and businesses;
- From the perspective of technology ***e-government*** refers to the use of information technology (eg. WAN, Internet, mobile computing) by the public authorities, which have the power to change relations with citizens, businesses and other branches of public administration (ministries, agencies);
- From the perspective of customer communications: ***e-government*** aims to provide an easier, cheaper, more transparent interaction between government and citizens (G2C), government and business (G2B) and between government agencies (G2G).

View of ***e-government*** depends on who is describing.

To economy it means fast electronic company registration, electronically managed, systematized cadastral register, publication of tenders or on-line public procurement.

South Korea was the first country to implement the system of electronic public administration in their practice (on 1st November 2002). The citizens of this country had been given access to 4,000 different categories, and were able to make 393 different activities related to communication with the public administration. Shortly afterwards all developed and economically strong country followed her.

At the end of the last century at various symposia began to emerge ideas of single electronic databases, the application of the Internet in the functioning of public administration, common

strategies and plans were adopted at the level of the European Union, and agreements on cooperation on e-government. In December 1999 the European Commission launched the *eEurope* initiative "Information Society for All" in order to bring the advantages of the information society closer to all Europeans.

- The initiative has set three key objectives:
- Enabling every citizen, home, school, every business and administration to be present on-line;
- Building a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas;
- Ensuring that the whole process is socially inclusive, to build user trust and strengthen social cohesion.

But the first official step in Europe was made in March 2001, in Naples, at the Third Global Forum, entitled "Fostering Democracy and Development Through E-Government" when e-Government project was initiated. Two months later, at the annual meeting of Ministers of the OECD certain conclusions were adopted and it was suggested that the OECD be the coordinator. In November of the same year, the Public Management Committee (PUMA) took over the project management, engaging eminent experts in the field of electronic business, the Internet and public administration. In order to engage in the started process the candidate countries, in June 2001 they launched an initiative for the adoption of the so-called *eEurope+* Action Plan 4, which was adopted by the European Council in Goeteburg.

This action plan elaborates identical three objectives set in the eEurope 2002 Action Plan - of course, from the perspective of the candidate countries, with the addition of another, zero goal: The rapid establishment of the foundation of the information society, which includes the accelerated provision of low-cost communications services for all and the adoption and implementation of EU rules (*acquis communautaire*) relevant in the field of information society.

Already from this target is clear that the main task of the eEurope+ Action Plan was that candidate countries reach levels where Member States were at that moment and after that engage with them at an equal footing in the implementation of further goals. The final report on the implementation of the eEurope + Action Plan was launched in February 2004.

The following action plan *eEurope 2005* was based on two groups of related activities. On the one hand, it is necessary to stimulate services, applications and content - which is particularly applicable to online public services and e-business, with broadband infrastructure and security measure issues on the other side.

At the beginning e-government and services so provided to citizens were limited to information posted on the website. Then, only the larger influence of e-business on public administration caused expansion take place with an increasing number of various transactions carried out on the model of e-business, where citizens were no longer just passive observers. Unexpectedly strong and rapid development of electronic business primarily accelerated introduction of electronic government in its current form. Electronic business has led to an increasing demand and need for this form of public administration, which led to the fact that it is now almost impossible to imagine functioning of public administration without e-government.

## 2.2. Target groups of e-government

The concept of e-government can be singled out four main target groups:

**G - Government** - Public Administration

**E - Employee** - Employees

**B - Business** - Business sector

**C - Citizen** – Citizens

The most common interactions between these groups correspond to the English abbreviations (G2C, G2B, G2G), which should be followed as they have become stabilized in the literature, but also in use.

- **G2G** - Public Administration Service based on an intranet concept. Enables enhanced cooperation between organs of various levels of government and forging partnerships between them, in providing services to citizens and other subjects. From a variety of reasons, the realization of G2G relationships is a key factor in e-government. Most experts agree that governments at all levels must strengthen and enhance their internal systems and procedures before they provide any kind of electronic interaction with the public, ie, citizens and business sector. G2G includes sharing information electronically between employees of the government at national and local level.
- **G2E** - Service used by employees in public administration based on an intranet concept. G2E provides:
  - promptly notifying and the flow of information necessary for daily work (eg. documents stored in the writing- office);
  - better mutual communication among employees (chat services);
  - submission of legal documents pertaining to new business standards, etc.
- **G2B** - Service for communication between public administration offices and businesses based on the concept of the Internet and Extranet. The basic components are the supply, information, and services. These services facilitate the work of businesses, providing them with verified data and redundant data collection, and creating communication and other essentials for the realization of e-business between them. Government initiatives to businesses attract the most attention, primarily due to the desire and pressure coming from business sector to improve the speed of providing services and yield cost reductions. Although not relying directly on information technology, several different methods of transparent public procurement system is already used in relation to the business sector, which contributes to democratization and gradual change of culture in public institutions. In the later stages of e-government, the government is approaching this group by implementing applications for electronic provision of services which are otherwise provided by non-electronic means (company registration, issuing various certificates and certificates, payment of taxes, registration of employees, payment of social contributions, compulsory health insurance application...).
- **G2C** - Service for communication between public administration offices and citizens based on the concept of the Internet. The basic components are the users, information, online services, and digital democracy. These services facilitate transactions such as applications, renewal of licenses, payment of taxes, issuance of documents (citizenship certificates, birth certificates, marriage certificates,...) and are performed a lot easier in much shorter timeframe. G2C initiatives often use resources such as the website and info kiosks to make the information more accessible. In another aspect, G2C initiatives are reflected in the government itself by effecting a change in the business processes of the organization. Many believe that one of the main goals of G2C initiatives should be the creation of "one-stop shops" - unique places from which people can perform a variety of services, especially those that require the cooperation of several agencies and for which they will not need to contact<sup>1</sup>.

### 3. Computer literacy

Computer literacy is essential to modern life. Computer literacy is defined as the knowledge and ability to use computers and related technology. Information literacy is defined as the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand. Sources of information can take many forms: books, magazines, computers, TV, movie or anything else.

Researches conducted in 2014 in EU have revealed a trend of digital competencies required for as much as 90% of jobs. In today's era, computer literacy is an essential component of information

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<sup>1</sup>Vukmirović, S., Čapko, Z., Informacijski sustavi u menadžerskom odlučivanju, Ekonomski fakultet Sveučilišta u Rijeci, Rijeka, 2009.

literacy, especially important as a set of skills needed to find information. Computers have enabled us to have access to information at any time and from any location, and for citizens this is the way to get desired information and documents.

Below is a table showing the interests of employees in public administration for lifelong learning programs through the Centre for Professional Training and Development. In today's market environment a growing part of the business is conducted with the support of information systems. We often find inappropriate and unresponsive methodology for installing information infrastructure that is not adapted to the needs of business. Trained and competent staff is therefore crucial for the functioning of public administration and citizens have the right to insist on professionalism.

**Table 1** Participation of civil servants of the Ministry of Finance in the total number of civil servants in various training programs of the Centre for Professional Training and Development of Civil Servants

Name of training programs	2008		2009		2010	
	GOVERNMENT		GOVERNMENT		GOVERNMENT	
	M	F	M	F	M	F
Introduction and basics of civil servic*	109	394	212	341	1	11
Combating corruption	44	35	30	28	97	121
Introduction to management and strategic staged . human Resources	31	101	7	44	12	43
Computer literacy **	239	603	84	338	97	276
Languages ***	12	27	18	63	33	46
The training program for employees who want to advance	0	0	0	0	4	8
The program for senior civil servants	19	33	51	62	11	32
<b>TOTAL</b>	<b>454</b>	<b>1193</b>	<b>402</b>	<b>876</b>	<b>255</b>	<b>537</b>

Source: Center for Professional Training and Development of civil servants of the Ministry of Public Administration<sup>2</sup>

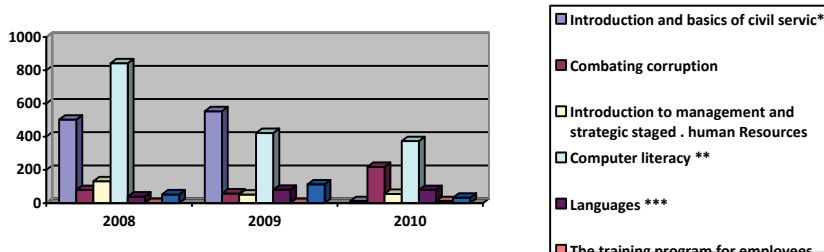
This program is an integral part of the general part of the traineeship program; it is therefore compulsory program for new civil servants; It combines 6 different programs for Basic ECDL classes, 7 different programs for Basic ECDL exams, 4 different programs for Advanced ECDL classes, 4 different programs for Advanced ECDL exams and 11 different programs for IT one-day workshops; Total for English, German and French language for basic and advanced courses.

Table 4.1, "Government bodies" includes 20 ministries (Ministry of Economy, Ministry of Health, Ministry of Environmental and Nature Protection, Ministry of Construction and Physical Planning, Ministry of Foreign and European Affairs, Ministry of the Interior, Ministry of Justice, Ministry of Defence, Ministry of Social Policy and Youth, Ministry of Culture, Ministry of Entrepreneurship and Crafts, Ministry of Finance, Ministry of Agriculture, Ministry of Regional Development and EU Funds, Ministry of Maritime Affairs, Transport and Infrastructure, Ministry of Tourism, Ministry of Public Administration, Ministry of Science, Education and Sports, Ministry of Labour and Pension System and the Ministry of the Family, Veterans' Affairs and Intergenerational Solidarity), 20 state administration office (by counties), 4 state office (State Office for State

<sup>2</sup> <http://www.dzs.hr/>

Property Management, State Office for Trade Policy, Central Procurement Office and Government office for Croats outside of the Republic of Croatia) and 8 state administrative organisations.

*Chart 1 The representation of certain categories of education*



In 2007, an education program was created within the Tempus project for more than 50,000 civil servants aimed at implementing modern technology to develop electronic public administration. EU has awarded 468,620.00 euros to fund the project, and part of the funds in the amount of 25.200,00 euros have been provided by the partners. Studying these data collected four years ago reveal that back then when public administration computerization was initiated to increase its productivity and efficiency, employees realized early the importance of further education considering rapid advancement of technology, and with it the needs of the overall market.

Training programs are typically organized by the National School of Public Administration and a separate organizational unit in a central state body responsible for civil service affairs, in accordance with the Civil Service Training Strategy adopted each year by the Government at the proposal of the central state body responsible for civil service affairs. Special programs can also be organized by relevant central government bodies.

The training of civil servants can be organized and carried out in the country or abroad in the form of lectures, seminars, courses, workshops, studies, roundtables, conferences, exercises and practical work.

#### **4. Objectives of the use of ICT in lifelong learning for employees in public administration**

Each educational program is aimed at achieving certain specific goals which provide an idea as to what should be learnt by the person that completes that program and what that person should be able to perform upon its completion, or how that person should behave. These goals must satisfy the general criteria of "quality" goals, ie. they must be precise, realistic and measurable. The goals of strategically oriented information science education are aimed at increasing knowledge and abilities of persons that partake in forming the strategy of the development of informatization, that is, in the strategic processes of introduction and usage of information technology.

Achieving the goals of strategically oriented information science education is a key factor in mastering the relevant strategic knowledge and skills. In the aim of achieving more qualitative and continuous information science education, it is necessary to define educational goals.

The most important teaching goals in information science education can be defined as the following:

- a clear conception of the possibilities offered by computers and computer applications for a given problem area,
- the ability to accept the information science thinking process and the understanding of computer logic in problem analysis,
- an understanding of the logic and the advantages of this new way of solving tasks by the use of modern information technologies,
- the ability to apply knowledge gained at university to the development and the use of applications in dealing with strategic problems,

- the ability to create, sustain and develop one's own user programs (applications) for performing given work tasks,
- a positive attitude about the introduction of information technologies to solving strategic problems and a positive influence on the work environment (for example, groups, teams, management),
- to master the use of a computer and all of its units,
- to master information technology,
- to gain basic information science literacy to the level of solving complex problems in non-structured situations, with the application of information technology,
- to gain and to develop logic and creative abilities in selecting and writing programs in solving non-structured problems, given for a specific problem situation,
- to get introduced to the goals of the society and the dimensions of informatization and information resource management,
- to get introduced to the possibilities and the advantages of network communication,
- to develop the correct relationship towards the use and the protection of programs and data,
- to observe the role of team work in information science<sup>3</sup>.

## 5. E-citizen

For example, we studied a new project of the Croatian Government launched in 2014 with the purpose to enable communication between the citizens and the public sector in a single place on the Internet, through a portal that will include all information about the work of the Government and ministries, information on public services, and will provide secure access to electronic services using electronic identity through one or more acceptable identification credentials, such as a username and password, token, email authentication and others depending on information complexity.

Available e-services in e-Citizen: Rule of Law and Security, Electoral register, Moj OIB (or My Personal Identification Number), mojID (or eID)...

E-Citizen Project is to enable communication between the citizens and the public sector in a single place on the Internet, through a portal that will include all information about the work of the Government and ministries, information on public services, and will provide secure access to electronic services using electronic identity through one or more acceptable identification credentials (username and password, token, digital certificate, etc.).

## 6. Methodological framework for the use of ict in lifelong learning for employees in the public administration

After analyzing and integrating the concepts of the European Qualifications Framework for lifelong learning and levels (varieties) of knowledge applied to computer education, we propose a conceptual model of the use of ICT in lifelong learning in the case of business (user) application development.

**Table 2** Levels of development of IT education in the context of lifelong learning in the example business (user) application development in public administration

Level	Learning outcome	Variety
1	Understanding the basic functions, format, commands and rules	Factual
2	Connect features and commands in understanding the application of models and programs	Interpolate

<sup>3</sup> Čičin-Šain, M., Vukmirović, S., Čičin-Šain, M., The Strategic Oriented Information Science Education in the Function of Gaining Strategic Knowledge, MIPRO, 2013 Proceedings of the 36th International Convention, Opatija, 201

Level	Learning outcome	Variety
3	Visual modeling and programming of computer applications in the understanding, connecting and interpreting business models and programs	Interpolate, Operating
4	Using the conceptual methods, techniques and tools in the self-styling simple (general) utility models and programs	Operational
5	The development and use of computer applications in business: financial modeling, investment analysis, optimization and control of urban traffic management, investment portfolio and projects in public administration	Operating, extrapolative
6	Innovative design and development of computer applications synergetic connection of inductive and deductive logic	Extrapolative
7	Targeted development and design aplikacija in line with business needs extrapolative, Strategic	Extrapolative, Strategic
8	Encouraging flexible, adaptive and integrated development of applications in line with business needs	Strategic

Source : Authors

The EQF will relate different national qualifications systems and frameworks together around a common European reference and its eight reference levels. The levels span the full range of qualifications; from basic (Level 1, for example, certificates to those who drop out of school) to advanced (Level 8, for example, PhD). As an instrument for the promotion of lifelong learning, the EQF encompasses all levels of qualifications acquired in general, vocational and academic education and training acquired in baseline (initial) and permanent (continuous) education and training.

The eight reference levels are described in terms of outcomes (results) of learning. EQF recognizes the differences between different education and training systems and the need for shift to learning outcomes in order to facilitate comparison and cooperation between countries and institutions<sup>4</sup>.

## 7. Conclusion

The levels of IT education development as part of the lifelong learning process have been proposed in accordance with the descriptors defining levels in the European Qualifications Framework (EQF). Each of the 8 levels is defined by a set of descriptors indicating the learning outcomes relevant to qualifications at that level in any system of qualifications. From the viewpoint of the research presented in this paper especially significant are upper (higher) levels (fifth through eighth) related to strategic management activity support in public administration. IT education of managers in public administration as part of lifelong learning is aimed at encouraging the use of computer applications to maximize the chances of acquiring strategic knowledge. Methods of strategically oriented IT education should focus on making suggestions and clues instead of giving direct answers to questions, and solving real-world problems, or specific practical situations.

This paper analyzes the research on the interest of employees in public administration for lifelong learning programs through the Center for Professional Development conducted in the period from 2008 to 2010. Survey results show a high level of awareness of employees and managers in public administration, on the need for computer literacy and strategic-oriented lifelong learning.

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<sup>4</sup>EuropeanQualificationsFrameworkforLifelongLearning,(EQF).<http://www.asoo.hr/UserDocsImages/dokumenti/eqf.pdf>

In designing a methodological framework of the use of ICT in lifelong learning we consider the European Qualifications Framework for lifelong learning (EQF) and levels of knowledge in IT education as part of lifelong learning.

By analyzing and linking concepts of the European Qualifications Framework for lifelong learning and levels of classifications applied to IT education we propose a conceptual model of the use of ICT in lifelong learning on an example of business (user) app development.

**The goal of the research** is to analyze the role, meaning and concepts of affirmation and development of computer literacy in lifelong learning for employees in public administration and accordingly develop a methodological framework for using ICT in informatics education to gain, develop and retain competencies for performing jobs and tasks in the public administration.

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## **“6 STEPS” FOR DETERMINING OF EFFICIENCY OF SMALL ENTREPRENEURS**

## **“6 KORAKA” ZA IZRAČUN UČINKOVITOSTI MALOG PODUZETNIŠTVA**

### ***ABSTRACT***

*Single-entry accounting is applied by small entrepreneurs with annual revenues under 2 millions HRK. No financial/business reports based on a single-entry accounting system can provide reliable information on business efficiency. The major purpose of a regulated appliance of single-entry accounting is providing information for taxation of small entrepreneurs. This paper illustrates a methodology for calculation of business efficiency of small entrepreneurs applying single-entry accounting. The methodological approach outlined in this paper is based on six steps. In order to precisely determine the relevant business result, a financial analyst needs to calculate accurate data in each of the outlined six steps. The methodology described in this paper is in line with techniques of double-entry accounting. This paper uses a business case of a small family farm to illustrate the difference between (regular) financial reports generated by small entrepreneurs applying single-entry accounting and reports based on the methodology of six steps.*

**Key words:** *single-entry accounting, business efficiency, financial analysis, methodological approach “6 steps”*

### ***ABSTRACT***

*Mali poduzetnici s prihodima manjim od 2 milijuna kuna vode jednostavno knjigovodstvo. Niti jedan poslovni izvještaj ne pruža informaciju o poslovnoj učinkovitosti. Svrha jednostavnog knjigovodstva je oporezivanje dohotka malog poduzetnika. Ovaj rad daje metodologiju izračuna poslovne učinkovitosti malog poduzetnika s jednostavnim knjiugovodstvom. Postupak izračuna ima 6 koraka. Financijski analitičar mora imati točne podatke iz svih 6 aktivnosti kako bi moga sa što većom preciznosti utvrditi relevantan poslovni rezultat. Metodologija koja je opisana u suglasju je s tehnikama dvojnog*

*knjigovodstva. U radu se na primjeru OPG-a dokazuje razlika između završnih izvještaja koje poduzetnici dobivaju kao završne obračune i izvještaja koji se dobije primjenom metodologije u 6 koraka.*

**Ključne riječi:** *jednostavno knjigovodstvo, poslovna učinkovitost, financijska analiza, metodološki postupak 6 koraka*

## **1. Introduction**

This paper applies techniques of a static financial analysis on an example of business operations of a small family farm business (OPG) which uses long-term tangible assets (agricultural machinery and land) and human labour in the process of agricultural production. It is not possible to unambiguously determine the business efficiency/performance without applying the analysis based on accounting techniques of double-entry accounting. The fundamental problem when conducting a financial analysis of a small family farm business is that the only available data are the single-entry-accounting data and as such these data are inadequate for an in-depth financial analysis. The major purpose of regulated single-entry accounting is to determine the income-tax base and the income-tax obligation. The informational basis generated by single-entry accounting is inadequate to conduct any kind of a reliable financial analysis. The major performance measure for any kind of a business is its profitability. The paradox of single-entry accounting is that such an accounting system lacks adequate measures of business efficiency. Small family farm businesses are thus permanently deprived of relevant business information originating from the single-entry accounting system. Small agricultural craft businesses have to deal with the same issue as they also apply single-entry accounting.

## **2. Methodology for creating a pro forma income statement**

Single-entry accounting has established some informal rules over time with a specific aim of paying less tax (e.g. delaying tax payments to future periods by applying the method of accelerated depreciation). On the one side, there is an entrepreneur with a low level of knowledge about business economics who is obliged by the law to keep accounts. On the other side, there are entrepreneurs providing accounting services, the accountants. On the third side, there is the state, namely the financial and the tax control system of the state (i.e. tax administration and inspectorate). In a fundamental point of view, the entrepreneur is the major generator of economic growth and the only one out of the three mentioned stakeholders who is constantly adding new value. From a business perspective, the entrepreneur is, therefore, the main reason, why the other two stakeholders exist, particularly the tax administration whose work would lose much of its magnitude without the mentioned agricultural entrepreneur. We can state with certainty that a successful agricultural entrepreneur is of crucial interest for both mentioned stakeholders: the state and the accountant. The paradox is that the agricultural entrepreneur is obliged to pay for accounting services, but neither the entrepreneur nor the other two stakeholders exactly know the business efficiency/success of the entrepreneur since such data are not provided by single-entry accounting. A survey conducted two years ago (Grebenar, Banović, Bošnjak, 2012.) stated that 86% of agricultural entrepreneurs in Vukovar-Syrmia County, Croatia consider it important to know the exact profitability of their businesses as well as the internal profitability of each of their specific products. On the other side, in the same survey more than 87% of agricultural entrepreneurs did not have any written calculations for the products they produce. Therefore, we can conclude that small agricultural entrepreneurs make crucial strategic decisions without having a proper informational basis. To help small family farm businesses which apply single-entry accounting, financial analysts have to use the

methodology of determining the financial performance according to the rules of double-entry accounting.

### **2.1. The book of incoming and outgoing invoices**

The book of incoming and outgoing invoices contains all incoming/outgoing invoices received/issued by an entrepreneur during the past accounting period. The past accounting period can be the accounting period before the current business year. This book contains a list of receivables and liabilities and it is irrelevant in the process of determining the tax base. From the perspective of double-entry accounting, this book also contains expenditures and revenues. The major purpose is to identify unpaid liabilities and uncollected receivables. All documents from the current financial year have to be separated from documents of previous periods and then a list of revenues and expenditures can be created. Such a list misses at least two specific costs, namely the depreciation/amortization cost and the cost of human capital.

### **2.2. The list of long-term assets**

The list of long-term assets applied in the singly-entry accounting system documents long-term assets in the same way as it is done in the double-entry accounting system. The major purpose of such a list is to determine depreciation of long-term assets. Depreciation costs also directly affect the tax base. The accounting method applied by small family farms and craft businesses is often based on a principle of reducing the tax base, thus helping the business owner to pay less income tax. Some important issues arise when determining the real value of depreciation costs. Croatian tax law allows businesses to apply accelerated depreciation of long-term assets which means that a small family farm business can depreciate its non-current assets over a much shorter period of time than the actual useful life of the asset. Applying accelerated depreciation is a major problem regarding determination of realistic depreciation costs because a direct consequence of applying such a method is reducing of the tax base and delaying of income-tax payments to future periods. Namely, the entrepreneur pays less income tax during the first few (2-3) years, and then pays a higher income tax from the third/fourth year onwards. Considering a time period of 10 years as an assumed useful life of an assumed asset, the annual allocation of depreciation costs will largely depend on the applied depreciation rate. If a financial analyst wants to use the list of long-term assets to conduct an in-depth financial analysis of a small family farm business, he/she will most likely discover that depreciation costs are overinflated. Therefore, more realistic depreciation rates will have to be re-applied. This calculation will also require the exact information on the useful life of assets as well as the age of assets.

### **2.3. Assets not registered on business's list of long-term assets, but used in regular business operations**

A survey conducted in 2012 (Grebenar, Banović, Bošnjak, 2012) proves that more than 40% of small family farm businesses use various assets (agricultural machinery, transport vehicles, buildings and other assets) not registered on business's asset list in their regular business operations. In order to conduct an in-depth financial analysis of a small family farm business, data on all assets not registered on a regular business's asset list but used in daily business operations have to be included in the analysis (i.e. realistic depreciation costs of non-registered assets used in regular business operations have to be calculated and included in the analysis)

#### **2.4. Determining the cost of human capital**

Entrepreneurs applying double-entry accounting (corporate tax payers) are obliged to keep track of the cost of human capital for all employees on specific analytical accounts. The owners of small family farm businesses and crafts applying single-entry accounting (income tax payers) are not obliged to pay personal wages neither to themselves nor to other employed members of their families. Moreover, they can spend the business's money for personal purposes without any specific hindrance and without being obliged to document such spending. However, the law prescribes that such entrepreneurs are only obliged to pay health/pension insurance for themselves and for the employed members of their family as well as to pay the income tax on the business as a whole. Since there is no clear informational basis to determine the real cost of human capital in a small family farm business, a financial analyst is faced with a serious problem. In order to determine the real cost of human capital, the information on the amount of business's money spent for personal purposes can be used. If such an amount of money can be determined, it then has to be increased by the incurred health/pension insurance costs. However, most often, the exact amount of business's money spent for personal purposes is hard to determine and in such a case, the cost of human capital can approximately be estimated by calculating of gross wages based on the amount of paid health/pension insurance. Either of the two ways can be used by a financial analyst to determine the cost of human capital.

#### **2.5. Determining the cost of intermediate goods**

The major issue when conducting a financial analysis of a small family farm business and/or an agricultural craft business is the determination of realistic production costs of products (agricultural cultures) which are expected to generate revenues in the current financial year. In other words, some agricultural cultures such as wheat are planted in one financial year, but the majority of costs as well as all revenues occur in the following financial year. Financial reports usually cover only one financial year. In the whole process of conducting a financial analysis, this is the main problem a financial analyst has to deal with. To resolve such an issue, all incoming invoices related to costs which occurred in one financial year and relate to cultures which generate revenues in the following financial year have to be separated from all other invoices and included in our analysis. Following separation of such invoices (costs), a consolidated financial report including all relevant production costs of cultures which generate revenues in the current year has to be created.

#### **2.6. Determining the real value of inventory (final products)**

Accountants of small family farms and craft businesses usually do not track the inventory of final products in a detailed and up-to-date manner. Moreover, if final products are kept in entrepreneur's own storage-houses, such documentation usually does not exist. This is mainly due to the fact that accountants of small family farms and craft businesses are more or less responsible only for financial accounting, but not for material and inventory accounting. Material and inventory accounting often requires field work and determination of value and quantity of inventory by using various, sometimes complicated and expensive, methods. The fact that detailed material and inventory accounting creates additional costs for small family farm businesses is the main reason why such documentation usually does not exist. As a result, a financial analyst faces a tough task to determine the value of inventory of final products on two specific dates: January, 1<sup>st</sup> and December, 31<sup>st</sup>. The difference between the values of inventory on the two dates is important as it directly affects the financial result (positive difference increases profits, while negative difference decreases profits).

### 3. The profit and loss statement

After applying the previously outlined methodology of determining of business performance of small family farms and craft businesses, a profit and loss statement can be created. Family farms and craft businesses are income tax payers; they are not obliged by law to compose a profit and loss statement since they are not obliged to use double-entry accounting, but only single-entry accounting. In this particular case which we have analysed, total annual revenues of the entrepreneur exceed 2 millions HRK and this entrepreneur will be obliged to use double-entry accounting from the next financial year onward. Table 1 illustrates the results of the applied “six steps” methodology for determining of business performance of a small family farm business.

Total costs of human capital are calculated on a basis of the amount of business’s money spent for personal purposes plus income tax and health/pension insurance costs. Direct and indirect costs (material and services) as well as costs of intermediate goods are determined on a basis of incoming invoices registered in the book of incoming invoices during a period of two financial years as previously described. Depreciation of agricultural machinery was recalculated by using a corrected depreciation rate, thus removing the impact of accelerated depreciation on the financial result. Due to large investments into machinery, the amount of calculated depreciation is large as well. Depreciation costs from Table 1 are more realistic since annual depreciation costs are being allocated in accordance with the expected (planned) useful life of assets. Otherwise, depreciation costs would largely underestimate business performance.

The small family farm business analysed in this paper generates revenues from state grants for agricultural production, revenues from other services and revenues from sales of agricultural products. According to data illustrated in Table 1, generated profits amount to 759.582 HRK.

**Table 1:** Profit and loss statement of a small family farm business

NR	REVENUES AND EXPENSES	Land surface: 259 ha
		Total
	<b>EXPENSES</b>	
1	DIRECT COSTS OF HUMAN CAPITAL	333.909
2	Direct costs of human capital	333.909
3	DIRECT COSTS OF MATERIAL AND SERVICES	1.147.374
4	Direct costs of intermediate goods	997.507
5	Costs of outsourced services	50.050
6	Other costs of material and services	99.817
7	INDIRECT COSTS	74.873
8	Other non-production related services	49.540
9	Costs for personal (own) purposes	15.333
10	Fuel for (own) personal purposes	10.000
11	DEPRECIATION OF MACHINERY; FUEL AND MAINTENANCE COSTS	845.769
12	Fuel for machinery and vehicles	155.647
13	Spare parts	49.430
14	Depreciation of machinery	644.692
15	DEPRECIATION OF BUILDINGS	30.090

NR	REVENUES AND EXPENSES	Land surface: 259 ha
		Total
16	Storage houses	30.090
17	<b>TOTAL EXPENSES</b>	<b>2.432.015</b>
18	Variable costs	1.352.450
19	Fixed costs	1.079.565
<b>REVENUES</b>		
20	Revenues from grants	460.200
21	Revenues from sales	2.575.421
22	Revenues from other services	155.976
23	Other revenues	0
24	<b>TOTAL REVENUES</b>	<b>3.191.597</b>
<b>RESULT</b>		
26	<b>PROFIT</b>	<b>759.582</b>

Source: *Financial documentation of a small family farm business in Vukovar-Syrmia County, Croatia*

#### 4. Comparing of the two statements

According to the rules of single-entry accounting, the final financial report of the respective family farm business includes only paid liabilities and collected receivables, while the difference between the two represents generated income which is subject to income taxation. Such a report and such a methodological approach neglect previously described demands (subchapters 2.1.-2.6.) which need to be considered when determining a realistic business result. According to the final report based on single-entry accounting, the analysed family farm business's generated income (difference between financial inflows and outflows) is ½ of the generated profits from the profit and loss statement illustrated in Table 1.

#### 5. Conclusion

Business (financial) reports based on single-entry accounting which are primarily used to determine the income tax base of small family farm businesses and crafts are absolutely irrelevant when it comes to assessing their business performance. This is the main reason why small crafts, small family farm businesses and agricultural craft businesses are constantly being deprived of relevant information about business economics of their businesses. Solely with the appliance of single-entry accounting, the entrepreneur cannot be provided with the relevant information on business economics and this is the reason why such an accounting method loses on its relevance.

In times when small family farms and agricultural craft businesses can withdraw significant amounts of EU funding, information on internal economics of agricultural production are essential in strategic decision making.

Before making any decision about long-term investments, the entrepreneur has to conduct a detailed financial analysis of his/her business. The "six steps" methodology described in this paper aims to route a financial analyst conducting a financial analysis of small family farm businesses and agricultural craft businesses. Without applying the outlined methodology in detail, the final business result remains irrelevant as an important informational basis for strategic decision making.

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**ENTREPRENEURIAL UNIVERSITY – CONNECTION BETWEEN  
GROWING COMPANIES, ENTREPRENEURIAL CAPACITY AND  
ECONOMIC GROWTH**

**PODUZETNIČKO SVEUČILIŠTE – POVEZNICA RASTUĆIH  
PODUZEĆA, PODUZETNIČKOG KAPACITETA I EKONOMSKOG  
RASTA**

***ABSTRACT***

*The objective of this paper is to point to the possibility of using the entrepreneurial potential in Croatia which was discovered in GEM (Global Entrepreneurship Monitor) project. The potential is visible in high entrepreneurial activity of Croatian employees and the growing ratio of residents with entrepreneurial intentions.*

*The method used is a qualitative research method – analyses of secondary data and overview and critical review of recent theoretical discussions.*

*Today's knowledge-based society has innovation as a stronghold. The knowledge becomes tangible, useful, and marketable with the help of entrepreneurial activity. Entrepreneurial activity is an effective channel of realization and commercialization of knowledge-based innovation. One third of economic growth is a consequence of entrepreneurial activity. The growth of entrepreneurial activity generates new employment and prosperity of the country. Therefore, growing companies are most effective connection between entrepreneurial capacity and economic growth of each national economy. Results of international studies point out a tiny share of the growing companies in Croatia (less than 3%) as one of the major problems of entrepreneurship that is hindering economic growth of the country.*

*However, the results of an international research project on entrepreneurship Global Entrepreneurship Monitor show high entrepreneurial activity among Croatian employees and a growing share of the population with entrepreneurial intentions. In order for present entrepreneurial ideas to come to life and take clear shape in a socially acceptable, useful and*



*marketable innovation, a synthesis of science and industry complemented with entrepreneurial knowledge is necessary which can find support within the structures of the entrepreneurial university. The aim of this study is to point to the importance and possibilities of exploiting the synergy of different social formations and elements of the concept of entrepreneurial university in order to concretize the observed entrepreneurial capacity through conscious and aimed synergy and to contribute to the necessary increase in share of growing enterprises and spur economic growth.*

**Key words:** *knowledge-based innovation, entrepreneurial activity, growing companies, economic growth, entrepreneurial university*

## SAŽETAK

*Cilj ovoga rada je ukazati na mogućnosti iskorištavanja GEM (Global Entrepreneurship Monitor) projektom otkrivenog poduzetničkog potencijala u Hrvatskoj izraženog kroz visoku poduzetničku aktivnost hrvatskih zaposlenika te rastući udio stanovnika sa poduzetničkim namjerama.*

*Pri tom se koristi kvalitativna metoda istraživanja - analiza sekundarnih baza podataka te pregled i kritički osvrt recentne teorijske diskusije.*

*Današnje društvo znanja svoje uporište nalazi u inovaciji i znanju koje postaje opipljivo, korisno i utrživo uz pomoć poduzetničke aktivnosti. Poduzetnička aktivnost efikasan je kanal realizacije i komercijalizacije inovacije temeljene na znanju. Tako je jedna trećina ekonomskog rasta svake nacionalne privrede posljedica poduzetničke aktivnosti. Rast poduzetničke aktivnosti generira novo zapošljavanje i uvjetuje prosperitet zemlje. Stoga su rastuća poduzeća najdjelotvornija poveznica između poduzetničkog kapaciteta i ekonomskog rasta. Rezultati međunarodnih istraživanja ističu upravo maleni udio rastućih poduzeća u Hrvatskoj (manje od 3%) kao jedan od glavnih problema poduzetništva koji koči ekonomski rast zemlje.*

*Međutim, rezultati međunarodnog istraživačkog projekta o poduzetništvu Global Entrepreneurship Monitor ukazuju na visoku poduzetničku aktivnost hrvatskih zaposlenika te rastući udio stanovnika sa poduzetničkim namjerama. Kako bi prisutna poduzetnička ideja zaživjela te poprimila jasan oblik u društveno prihvatljivoj, korisnoj i utrživoj inovaciji, nužna je sinteza znanosti i industrije upotpunjena poduzetničkim znanjem koja svoj oslonac može naći unutar struktura entrepreneurial university. Cilj ovog istraživanja je ukazati na važnost i mogućnosti iskorištavanja sinergije različitih društvenih tvorevina i elemenata koncepta entrepreneurial university kako bi svjesnom i usmjerenom sinergijom konkretizirali uočeni poduzetnički kapacitet te time pridonjeli potrebnom porastu udjela rastućih poduzeća i njime potaknutom ekonomskom rastu.*

**Ključne riječi:** *inovacija temeljena na znanju, poduzetnička aktivnost, rastuća poduzeća, ekonomski rast, entrepreneurial university*

## 1. Introduction

The entire universe is a big open unit made up of a series of systems and their relationships that pervade us, bind and move us (Senge, 2009, 232). Systemic way of thinking is as old as philosophy. It occurred at the moment when the Greeks found a way to make a mystical and irresistible universe understandable (Bertalanffy, 1972). Then Aristotle (cited in Bertalanffy, 1972) laid the foundations of systematic approach by saying: "The whole is more than the

sum of its parts!“. We are all part of the system, organizations linked with multidimensional feedback of interdependence of cause and effect (Senge, 2009).

No element of micro and macro-environment can function independently nor can it be viewed in isolation.

In the following paper we observe entrepreneurial activity through interdependence with different elements of the entrepreneurial environment while emphasizing the inevitable correlation with the macro environment.

## 2. Entrepreneurial activity correlated with national economic activity

The international research project on entrepreneurship, the Global Entrepreneurship Monitor (GEM), is focused on the evaluation of the contribution of new enterprises, small businesses and existing businesses to economic growth of a country, emphasizing the holistic approach to entrepreneurship as a phenomenon of interaction of the individual and the environment which is present in all social organizations - the economy, education, research, culture, government, local government (CEPOR, 2006, 13). From this we conclude that the GEM project correlates economic growth and entrepreneurial activity dependent on the individual and its interaction with the environment.

A proven correlation between the level of entrepreneurial activity and indicators of national economic activity suggests that one-third of economic growth is a consequence of entrepreneurial activity (GEM, 2007).

According to the TEA index (Total Entrepreneurial Activity Index) in 2002 (when it was first included in the GEM research) Croatia was number 32 out of 37 countries included in the GEM project (CEPOR, 2012, 26-27). With the TEA index of 8.3 in 2013, Croatia is still among the countries with a low level of activity in launching business ventures (CEPOR, 2013, 16). The disturbing feature of the observed entrepreneurial activity is a low motivational factor (TEA opportunity/TEA necessity of 1.6 in 2013), which indicates the entrepreneurial activity launched out of necessity which ultimately results in unproductive economy, made up of business ventures that survive. Long-term ventures are rare and the expectation of new employment is low which has a detrimental effect on national economic activity marked by a small number of growing and "adult" businesses, low level of renewal of entrepreneurial structures and generally a small number of new business ventures. Thus, in 2013 only 52% of adult businesses were recorded in Croatia in relation to the EU average (Singer, 2014).

Other than the remarkable and unused entrepreneurial activity of employees representing a hidden component of entrepreneurial potential of Croatia and the observed increase in the share of people with entrepreneurial intentions to 24.1% in 2013 (Singer, 2014), all other characteristics of entrepreneurial activity represent limitations to strengthening of the entrepreneurial capacity and its intensive contribution to the creation of new values and new employment (CEPOR, 2012, 52).

*Table 1 Indicators of entrepreneurial and national economic activity*

YEAR	GDP at current prices / mil. KN *	TEA Index %	Motivational factor %	Rate of economic growth*
2002	211,579	3.62**	2.57**	5.2%
2003	232,383	2.56**	2.97**	5.6%
2004	250,873	3.73**	1.30**	4.1%
2005	270,191	6.11**	0.94**	4.2%
2006	294,437	8.58**	1.15**	4.8%
2007	322,310	7.27**	1.45**	5.2%
2008	347,685	7.59**	2.52**	2.1%

YEAR	GDP at current prices / mil. KN *	TEA Index %	Motivational factor %	Rate of economic growth*
2009	330,966	5.58**	1.44**	-7.4%
2010	388,041	5.52**	1.97**	-1.7%
2011	322,587	7.32**	1.78**	-0.3%
2012	330,456	8.27***	1.9***	-2.2%
2013	330,135	8.3***	1.6***	-0.9%

Source: \* Central Bureau of Statistics, 2014; \*\*CEPOR, 2012; \*\*\*Singer, 2014

### 3. Growing companies - most effective connection between entrepreneurial capacity and economic growth

The growing entrepreneurial activity in growing businesses generates new employment and conditions prosperity of the country (CEPOR, 2007, 29). In defining and studying the growth of businesses and the ensuing economic growth, it is necessary to emphasize the role of the market as a source of new opportunities and to perceive innovation as the ability to make use of these opportunities (Sutton, 1997 cited in Singer, 2014). Entrepreneurship represents the link between innovation and the market (Hisrich, Peters and Shepherd, 2011, 20). Innovation is developed and commercialized through entrepreneurial activity, which in turn stimulates economic growth (Hisrich, Peters and Shepherd, 2011, 14).

Within the GEM project, growing businesses are examined and assessed through innovation in the use of new technologies and in developing new products, exposure to competition and the capacity for new employment (CEPOR, 2007, 29). At the same time, it is noted that the application of new technologies and the capacity to create new products are fundamental assumptions for the formation of growing companies. In 2006 start-up entrepreneurs and adult entrepreneurs invested more in new technologies than companies in the group of the GEM countries one of which is Croatia (CEPOR, 2006, 32). Technological equipment in Croatian companies is still better than the EU average, although it recently recorded a decrease (Singer, 2014). However, the existing technological capital is not used innovatively, does not result in significant innovation output in the form of new products which inevitably inhibits the growth of enterprises and economic growth, and testifies to the insufficient activity of policy makers to encourage the growth of the economy (CEPOR, 2006, 32).

Numerous international studies (the Global Entrepreneurship Monitor, the Doing Business report, The Global Competitiveness Report, the Corruption Perceptions Index) point out a small share of growing enterprises as one of the major problems of entrepreneurship in Croatia, which hinder economic growth of the country (CEPOR, 2013, 7). According to the GEM research for the year 2012 Croatia had less than 3% of growing businesses, in contrast to developed countries where the share of growing businesses varies from 6% to 9% (CEPOR, 2013, 17).

A small share of growing enterprises in Croatia is largely a reflection of the mentioned lack of innovation in the use of new technologies and in new product development.

### 4. Economic activity observed as ever-present change/transition

The fact that Croatia has not fulfilled its aspirations and that we are still in a "transitional period" is unquestionable. All macroeconomic indicators described here speak in favour of this hypothesis. However, how are we to recognize the completion of the transitional period? Is it correct to define the ultimate goal of our transition within the framework of the model of liberalism and capitalism, and express it through indicators of national economic activity which are satisfactory in quantity (Ranga and Etzkowitz, 2010)?

**Table 2** Macroeconomic indicators of Croatia

YEAR	GDP at current prices / mil.KN *	Gross foreign debt / mil. EUR****	Debt-to-GDP ratio	Economic growth rate*	Total number of employees*	Total number of unemployed****	Unemployment rate
2008	347,685	40,956.1	29.2%**	2.1%	1,636,000	236,741	8.4%**
2009	330,966	45,269.3	35.1%**	-7.4%	1,499,000	263,174	9.1%**
2010	388,041	46,526.7	41.3%**	-1.7%	1,432,000	302,425	11.8%**
2011	322,587	45,900.5	45.7%**	-0.3%	1,411,000	305,333	13.5%**
2012	330,456	44,860.7	53.6%**	-2.2%	1,395,000	324,324	15.9%**
2013	330,135	45,631.4	75.7%*	-0.9%	1,364,000	345,112	20.2%***

Source: \*Central Bureau of Statistics, 2014a; \*\*CEPOR, 2013; \*\*\* Central Bureau of Statistics, 2014c; \*\*\*\* Croatian Employment Service, 2014a; \*\*\*\*\* Croatian Chamber of Economy, 2014

If we want the end of the transitional period in Croatia to be measured and expressed either a quantitatively and/or qualitatively satisfactory rate of economic growth and/or satisfactory indicators of economic development, we will find worrying data. The growth rate for 2013 is -0.9%, and the general government debt "climbed" to 249,836 million, i.e. 75.7% of GDP (the Central Bureau of Statistics, 2014b, 6). The negative macroeconomic indicators currently point to a difficult feasibility of objectives moulded in quantitative indicators of economic growth and development.

As a result of the privatization process, Croatia was faced with a major problem of structural unemployment. The labour market has gradually adapted to the new conditions and it is now better prepared to respond to new demands. Thus the statistics for 2013 speak of an upward trend in the share of highly educated population in the total Croatian population. According to information from the Census of 2001 this share stood at 9.8%, and recent studies indicate that in the last ten years the percentage almost doubled (the Central Bureau of Statistics, 2014d). Therefore according to the sources from the Ministry of Science, Education and Sports, in 2011 the share of highly educated persons in the population aged 25 to 64 was 20%.

The records of the Croatian Employment Service conducted during 2013 indicate the highest rate of employees within a group of highly educated persons of 29.3% (the Croatian Employment Service, 2014b). According to Eurostat data, in the same year a 76.3% of persons aged 25-64 were employed within the group of active highly-educated population in Croatia, despite a very high unemployment rate of 20.2% (Eurostat, 2014).

These figures speak in favour of the claim that the small number of remaining jobs generates skilled, flexible and creative workers open to change. Hence the data on high entrepreneurial activity among Croatian employees is not surprising, which was obtained on the basis of the GEM research. It is a hidden component of the entrepreneurial capacity of Croatia (Singer, 2014). This component should be emphasized, encouraged and used to achieve long-term stable economic growth.

Mankind is in the process of infinite transition, continuously striving to better, different, or at least more acceptable solutions (Samuelson and Nordhaus, 2011, 501). An intangible and immeasurable idea which is based on knowledge and creativity of individuals, who are also unable to express themselves in terms of quantity, is the only permanent foothold of today's knowledge-based society (Drucker, 1985). Therefore a proven and quantitatively highly expressed entrepreneurial activity of employees in Croatian companies and the growing share of the population with entrepreneurial intentions should be taken very seriously. It is necessary to invest in them so that the intangible synthesis of knowledge, creativity and audacity of individuals which is difficult to measure would result in the necessary innovation and its commercialization.

## **5. Growth based on innovation**

The central issue of any economic policy is how to ensure conditions for an economic growth which is as fast and stable as possible. Some of the modern theories of growth find a response in the synergy of three key elements: capital accumulation, human factor and technological progress (Delač, 2010, 49-55). Technological progress is a transparent reflection of the conditions and the manner in which a particular society acts towards entrepreneurship. Within the GEM project growing companies, as the most effective connection between entrepreneurial capacity and economic growth of the country, are observed and evaluated primarily through innovation in the use of new technologies and in new product development (CEPOR, 2007, 29). Perceiving technological progress as the basis and driving force of innovation and the consequent growth, leads to the conclusion that it can be encouraged with appropriate economic policies. For economically productive technological progress to occur, it is necessary to enable the synthesis of science and industry, and enrich it with entrepreneurial activity (Etzkowitz, 2002).

However, the results of the GEM research in Croatia conducted from 2002 to 2012 warn of a dire lack of transfer of results of research and development to the sector of small and medium enterprises and extremely poor quality of other key prerequisites of effective entrepreneurial activity, particularly entrepreneurial education and government policy according to the regulatory framework. In all the years of the GEM research, these components had the lowest rating and are seen as a serious obstacle to entrepreneurial activity (CEPOR, 2013, 37). The obvious consequence of the lack of interaction between academia and business entities is an insufficient technological capability of industry which is reflected in the lack of new products that can accumulate the necessary capital in the entrepreneurial structures and encourage growth of companies and the economy (CEPOR, 2013, 18).

Learning about entrepreneurship and for entrepreneurship is an important aspect of the educational programs of all developed countries (CEPOR, 2013, 60). However, the perception of the quality of education for entrepreneurship in Croatia has been assessed lower than the average of the countries involved in the GEM research (CEPOR, 2013, 60-61). These data are worrying because entrepreneurial education is necessary in order to refine and concretize a proven high rate of entrepreneurial activity of our employees and direct the perceived growing entrepreneurial intentions of the entire population (Singer, 2014).

## **6. ENTREPRENEURIAL UNIVERSITY - cradle of innovation and growth**

Based on the above mentioned data we conclude that, for an idea to actually work and take clear shape in a socially acceptable and useful innovation, it is necessary to have synthesis of science and industry complemented with entrepreneurial knowledge which is supported within the structure of entrepreneurial university (Etzkowitz, 2011).

Entrepreneurial university is the cradle of varied knowledge which combines theoretical and practical elements of innovation and provides commercial support for the idea from which it results (Etzkowitz, 2002, 16-18). Its characteristics are asserted as a key component of today's knowledge-based society, representing the source of researchers and professors of practice who skilfully summarize and complement the area of knowledge, creativity, innovation and their commercialization (Etzkowitz, 2011).

The concept of entrepreneurial university is a necessary enabling environment for the use of the synergy of different social structures (university, industry, the government) and the creation and commercialization of knowledge-based innovation that will encourage entrepreneurship and economic growth.

Therefore one of the most important goals of the national innovation system, the first step of an efficient use of the concept of entrepreneurial university for realization of the required growth should be harmonization of higher education system with economic policy objectives and the needs of industry and utilization of benefits of their synergy (FIDIBE, 2010, 71). In the framework of our economy, this type of synergy can be established if the government defines enrolment quotas for all higher education institutions. The proposals of the government in this case would have to be guided by the analysis and projections of the National Competitiveness Council, the Regional Development Agencies and the Croatian Employment Service. This would reduce unproductive work of our professionals and enhance national competitiveness, which is necessarily linked to productivity (GCFChannel, 2011). With the same intention, the government should make decisions on scholarships for a certain profile of students. With the aim of strong integration of entrepreneurial activity within the structures of higher education, the government should take on a key role by providing financial support to projects born from collaboration of higher education institutions and businesses, as well as the development of incubators and science parks. Via suitable elements of executive and legislative branches the government should also enable the establishment of companies within the academic structures in which external and internal stakeholders would cooperate on an equal footing connected by profit as the ultimate goal of their work. Education for entrepreneurship in synthesis with commercially-oriented research and development within the structure of the entrepreneurial university seems to be an effective way of achieving the necessary innovation in the use of new technologies and in developing new products and utilization of the positive elements of entrepreneurial activity in Croatia: high rates of entrepreneurial activity of employees and growing entrepreneurial intentions of the entire population. A growing entrepreneurial potential concretized through entrepreneurship education, innovation and socially useful and marketable technological advances of the concept of entrepreneurial university would cause an increase in the share of growing businesses and economic growth.

## **7. Conclusion**

In a turbulent environment prone to changes in which overproduction and free flow are only permanent elements, idea enriched with innovation is the sole possibility of survival. Looking at the turbulent environment of our activities we must not forget that no entity can function in isolation. We are all a part of systems connected by multidimensional bonds of interdependence. Through conscious and aimed synergy we can grow effectively and in long-term and change the society which seeks a foothold in knowledge and innovation. Entrepreneurial knowledge and skills are needed for a knowledge-based innovation to acquire a form of social strongholds and be concretized through market mechanisms. The concept of entrepreneurial university with its characteristics asserts itself as a key social component by skilfully summarizing and complementing the area of knowledge, creativity, innovation and commercialization.

Varied structures of the concept of entrepreneurial university are a suitable foundation for utilization of benefits of synergies between different social constructs (university, industry, government) in the realization of technological, entrepreneurial and economic progress.

Utilizing the perceived entrepreneurial potential with the help of socially useful and applicable innovation created on the foundation of entrepreneurial university concept would inevitably lead to the necessary growth.

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## **DARK SIDE OF BUSINESS AND MANAGEMENT IN FUNCTION OF ECONOMIC (UN)DEVELOPMENT**

## **MRAČNA STRANA POSLOVANJA I MENADŽMENTA U FUNKCIJI EKONOMSKOG (NE)RAZVOJA**

*„For economic success it is extremely important the ability of effective blocking the individual, groups, organizations and institutions to make damages and evil!*

Author

### **ABSTRACT**

*Key problem in economic development represent so called dark side of business and management. Under dark side of business and management is meant the abnormal, disfunctional, subclinical, but socially pathological, criminal and unethical aspect of business and management, which can not be thought only as rare, exceptional or isolated phenomena, but part of normal community and everyday individual, group, organizational, institutional (social) behaviour. Dark side of business and management constitutes numerous real phenomena which are represented by behaviours in interpersonal, business, institutional or social system and can be classified into numerous appearance forms. Without knowing not only for economic development positive but also negative, dark sides of business and management it is not possible substantially to understand the barriers which arises in economic development.*

*The purpose of this paper is to enlighten the influence of dark side of business and management on economic development by identifying its obstructive factors in Republic Croatia (RC), but also in broader international sense by means of the knowledge which about this phenomena exist in the real business world throughout the planet.*

*The aim of this paper is on the basis of existing researches about different appearance forms of dark side of business and management and identified obstructive appearance forms (from institutional corruption to the individual dark behaviors) explore its impact on economic (un)development and also to give the basic solutions for reducing the dark side of business and management on the functional level.*

*By the insight and synthesis method it is determined predominate harmful potential impact of dark side of business and management on economic development. Also it is determined the lack of basic and management knowledge about particular specific appearance forms of dark side of business and management what needs new researches in this area.*

**Key words:** *dark side of business and management, obstructive factors to economic development, economic development and stagnation, human resource management.*

## SAŽETAK

*Ključnu poteškoću u ekonomskom razvoju predstavlja tzv. mračna strana poslovanja i menadžmenta. Pod mračnom stranom poslovanja i menadžmenta misli se na abnormalne, disfunkcionalne, subklinički patološke, kriminalne i neetične aspekte poslovanja i menadžmenta, koji se ne mogu smatrati nekom rijetkom, iznimnom i izdvojenom pojavom, već dijelom normalne zajednice i svakodnevnih pojedinačnih, organizacijskih, institucijskih (društvenih) ponašanja.*

*Mračnu stranu poslovanja i menadžmenta čini brojni niz stvarnih pojava i ponašanja u interpersonalnom, poslovnom, institucijskom ili društvenom sustavu koji se mogu klasificirati po brojnim pojavnim oblicima. Bez poznavanja ne samo pozitivne već i negativne (mračne) strane poslovanja i menadžmenta nije moguće suštinski razumjeti zapreke koje se javljaju u ekonomskom razvoju.*

*Svrha ovog rada je osvijestiti važnost mračne strane poslovanja i menadžmenta za ekonomski razvoj na način da se istraže njegovi ometajući čimbenici na području Republike Hrvatske (RH), ali i širem međunarodnom smislu kroz znanja koja o tome postoje na svjetskoj razini.*

*Cilj je rada da se na temelju postojećih istraživanja različitih pojava mračne strane poslovanja i menadžmenta te utvrđenih opstruktivnih pojava (od korupcije do psihopatskih individualnih ponašanja) istraži njihov utjecaj na ekonomski (ne)razvoj te da se ponude osnovna rješenja za svođenje mračne strane poslovanja i menadžmenta na funkcionalnu razinu. Metodom uvida i sinteze utvrđen je prevladavajući snažan štetni potencijal mračne strane poslovanja i menadžmenta na ekonomski razvoj. Također je utvrđen nedostatak osnovnih i upravljačkih znanja o pojedinim specifičnim pojavnim oblicima mračne strane poslovanja i menadžmenta što zahtijeva nova istraživanja na ovom području.*

***Ključne riječi:*** mračna strana poslovanja i menadžmenta, opstruktivni čimbenici ekonomskom razvoju, ekonomski razvoj, ekonomska stagnacija

### 1. Introduction

Stagnant economic behaviors (thematic treated as antisocial/counter-moral or asocial/amoral behaviors in business) usually are treated as deviant organizational behaviors (Samnani, 2013), or in broader sense dark side behaviours in business and management (Petar, 2005). The appearance of dark side of business and management in the scientific literature and sources can be classified<sup>1</sup> e.g. as:

- a) corruption/bribery, organizational crime, fake/prank;
- b) misuse of power and position, intimidation, blackmail/extortion, aggressiveness and violence, dark side of business leadership;
- c) management by fear and stress, impression management, stupidity management;
- d) plagiarism/falsification, lying, cheating, spin (manipulative stories), exploitation of the victim (naivee, honest or simply the victims which do not fit in existing often pathological climate and culture);
- e) workplace bullying, ostracism, workplace maltreatment (e.g. sexual harassment), discriminations by different foundations;
- f) dark use of intelligence, creativity, learning in unethical and criminal (social harmful) purpose;

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<sup>1</sup> Because of numerous sources which treat dark side of business and management issues, in this paper they are not all mentioned because this will overfill the limited number of pages in this edition.

- g) dark project, technological or innovation management;
- h) individual deviant and unethical behaviors: ambition, greedy, carierism, revenge, machiavelianism, narcissism, psychopatya, sadism, fixed ideas, paranoia or similar subclinical but socially harmful psychological states;
- i) other appearance forms of dark side of business and management e.g. whistleblowing, rumours etc.

Dark side of business and management is extremely dangerous for little and medium entrepreneurship because there is a great possibility of obstructing him from different factors (individual, situational and systemic). Namely, strong dark side which exist in some socio-cultural matrix practically can block projects, development programs, entrepreneurship, innovations, production, export and key economic variables, without each is impossible to achieve entrepreneurial and economic development with new jobs, employment and development creation. The purpose of this paper is to enlighten the influence of dark side of business and management for economic development in a manner to explore its obstructive factors in the Republic Croatia (RC), but also in general throughtout the world by means of synthesis the dark side knowledggle which exist in the business and management world. The aim of this paper is on the ground of different appearance forms of dark side of business and management and defined obstructive factors explore its impact on economic (un)development, and give the solutions for deminishing the dark side of business and management on acceptable, functional level.

Decreasing dark side of business and management on a functional level is seen as key (unavoidable) acitivity in economic development on different level of aggregation (small, middle and large entrepreneurship), so its impact on the economy in the whole (on transition economies but also on the economy of every country in the world) is meaningful.

## **2. Obstructive factors for economic development in Republic Croatia (RC) and undevelopmental dark side of business and management in the general review**

When it is discussed about obstructive factors in the arising of developmental economic projects and innovations it is resumed that there are the four (N=4) main obstructive causal factors (Švarc, 2011):

a) *Economic factor*: privatization by „empty shell“pattern, destroying industrial researches, loosing technological competences, weak financial support to research and development. Here is obvious the cause in dark side of business and management of RC which enabled such undevelopmental economic scenario. About possible economic stagnation cause which is settled into purposely creating dependent economies of transition countries from the imperial neoliberal economic powers write Santini 2014 according Berger 1995 „[...] the decision about national economic policy are now defined outside the country and on the benefit of others. National economy is „biased“ because its direction dictate external needs, not its indigenous logic. National initiative is strangled often until the grade of „industrial infanticide“- i.e. domestic industrial development is stoped in the interest of foreign initiative which dominate over national economy. Finally, autohton population is pauperised, with exception of so called comprador class – local groups which become the trustee of foreign initiative. In other words, undevelopment of the „Third world“ is not the state which is antecedent of international capitalism arrival in this countries, but rather the state which this international capitalism produces, and this namely necessarily.“

b) *Way of thinking*: neoliberal economic model (only market is important - not the supporting institutions and culture), conservatism, lack of oppenes towards new. Beyond neoliberal

economic model which nowadays range on numerous criticism, a part of critics is related to the cultural factors, i.e. irresponsibility of deliberation and behavior in RC (Kulić, 2009a,b).

c) *Unappropriate public administration*: lack of learning, absence of vision and development strategy (never knows how is needed to develop RC), lack of professional competences, irrationality, noncooperative culture, weak selfinitiative, weak task delegation, inertia syndrom, syndrom „do not produce waves“ behavior, „bureau-pathology“ (Horvat, 2002; Županov, 2002). Also it is noted the disproportion between number of employees in public administration and its efficacy.

d) *Socio-cultural factors*: unmodernity (industry decreasing, science decreasing, growing the traditionality), corruption, opportunism, distrustfulness, lack of „entrepreneurial spirit“, weak managerial competences. This cause refer us to the consequences of different appearance form of dark side of business and management.

If we consult the general world research about economic development and wealth and poverty causes of different nations than we can conclude that in this area is known:

a) *Culture is key (un)development factor of economic development*. Culture is possible describe by means of numerous characteristics. Concretely, cultural characteristics of undeveloped, i.e. stagnant business-economic activity are as follow (Bogdanović, 2011: Landes 2003):

- inefficient, inability of government, bribe, cripe and corruption, as „normal“ social phenomen;
- incentive blockade, falsity cultivating (pretending, lying, „spin“), encasement into himself;
- domination of irrationality where the most important are ideology and motive, not important are reality, facts and the truth;
- insecurity of entrepreneurship (key dependance from above and lateral decisions<sup>2</sup>)
- obedience feelings, vanity satisfy, spiritual homogenity, intrigue, animosity, weakness, despair;
- directionality on general, common, abstract, unclear/vague, unprecise, unaccurate, the main communicative leverage is vagueness - manipulation;
- society institutions are averse to entrepreneurs;
- general disdain toward entrepreneurs (distorted perception that enterpreneurship is criminal and moral unaproprate activity, attitude „entrepreneurs are robbers“)
- entrepreneurship based on peculiar individuals, not system characteristic which is institutionally supported;
- mercantil- service - touristic, not production-cratve strategic orientation;
- commitment to richness, laziness, extravagance, affectation, nonintegrity, dowdiness and squalor;
- static, rigid, under-employed society (high unemployment, but even employed people have not enough job, so they are unproductive), society in „intellectual cage“, changes difficult vivify, enthusiasm is seen as „madness of enthusiast“;
- unconception; nonimaginativeness, unflexibility, rigidity;
- unrational resource usage, existing resources and capital is poorly used.

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<sup>2</sup> E.g. private entrepreneurs need to ask during the employment political parties and local government about suitability of each candidate (example of some environments in Republic Croatia) for employment in their firm.

b) *Disability of mutual cooperation.* About 75% of projects collapse although there are all needed resources (material, human, financial, information-organizational) because people are disabled to cooperate (Srića, 2008). The key factor here is distrust. Possible cause of this is existence of some or more appearance form of dark side of business and management, which in people create suspicion and fear to be faked and burgled, and so they pay high attention not to be victims of people who want to manage them for their own goals, but also others psychological factor, e.g. jealousy (Ozimec, 2001).

c) *Corruption as world economic-business and developmental problem.* Research about corruption shows us that this is transition but also world business-economic phenomena (Budak, 2005& 2014). It is known that corruption is greater problem for small and middle enterprises, whereas large enterprises and multinational companies (MNC) by means of corruption can buy public officers and politicians and so achieve extraprofits in little undeveloped countries. Especially is the role of so called „comprador class“ which serves to the interest of big capital (Berger, 1995).

d) *Developmental, entrepreneurial behavior demotivated because of inappropriate awarding and punishing.* In transition countries entrepreneurial innovation passivity or dark entrepreneurial motivation (for example destroying the enterprises for building terrain sale) can be mostly attributed to awarded deviant (dark) behaviours, and punishing positive entrepreneurial production oriented and creative behaviour. So in diligent work, entrepreneurship, innovations, initiative, enthusiasm is not seen as the possibility of good and successful life, but this possibility is seen in deviant behavior. So, to provoke entrepreneurial and innovation activity there is needed that people clearly see that creative entrepreneurial activity is beneficial and that by means of creative, not deviant entrepreneurship they can achieve better life.

e) *Undermined psychological capital.* Psychological capital as strategical resource which create competition advantage (on individual level it refers on: self-efficacy assessment, optimism, hope and hardiness on stress/failure) is positive connected with entrepreneurship and success of new business venture, but it is negative connected with reproachingly control and higher level of organizational/institutional antisocial behavior. Also higher level of stress do not support the psychological capital development which is key for higher level of creativity and development (Newman at al., 2014.). In transition countries psychological capital is not on higher levels exactly because of dark side of business and management attendance on different levels.

f) *Power, leadership relationship and economic activity.* Numerous individual, group, organizational/institutional/business and social deviant behaviors just become the subject of systematic researches. Some of dark business and manager behaviors are in favor of easier achieving the interest and profit of strong on damage the weaker ones. Such behavior have almost negative organizational results, but with some exceptions. For example it is shown that the most efficient leaders in crisis conditions are such persons which suffered from some kind of mental illness and personality disorders (Spain at al., 2014), although mentioned authors quote that about this fact so far never has written more, and what is known is not deeper investigated, although in the history is known that to the economy can be in favor specific behavior of pathological leaders.<sup>3</sup>

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<sup>3</sup> Adolf Hitler with his team (e.g. Albert Speer) created unhuman (dark) but extremely efficient organization and economy in relatively short time after the 1. World War. His dark technical innovations have great influence on the development of war and other technology, e.g. rockets V1 and V2, chemical industry, crematories, medical inventions. Also he introduced dark but efficient social solutions for undesired non-ary race, bringing trail system in the function of their elimination and segregation (e.g. coerced sterilisation according law) (TV transmission Trail in Nürnberg, 1961.). Similar dark economic examples historically are partial seen also by other nations, but as is known to the author the dark side of economic development in not enough nor systematically researched and there is also missing public sources about this issues.

Resume about existing knowledge in the topic of dark side in business and management which can be derived from this short review is that the culture of imprudence and irresponsibility is mainly responsible for such economic state in RC (Kulić, 2009; 2014), and the cause of such state can be located exactly to the domination of dark side of business and management. High level of vitiateness (one of existing forms of dark side of business and management) in the transition countries can be explained as cause of dependent economy (political-economic causes), where domestic „compradores“ (elite who implement the institutional politics of international capital relationship) because of his own survival create „gray economy“ which is not directly subjected to the social-darwinistic rules of game (competition in all areas) which promote World bank, MMF, USA (Lasić, 2014; Santini 2014).

### **3. Impact of dark side of business and management on business-economic activity**

The causes of stagnation/nonprosperity of undeveloped economies can be mostly attributed to the dark side of business and management which can and need be studied on different levels of aggregation (society, organizations/institutions, groups, individuals), but also in the context of individual, situational and systemic variables (Zimbardo, 2007).

On microeconomic level inferior business results show enterprises where rule bad organizational climate (bad psycho-social work conditions), deviant organizational behavior in different appearance existing forms, bad/unappropriate business leadership to the business and organizational situation, in general all systems and situations which disturb personal creative and organizational growth and development and this are the known facts.

The researches about management and leadership derailment (Furnham, 2010) which are the key factor of economic activity, showed that such failure can be attributed to dark side of business and management. The failure of the most of started business and economic important projects arises in spite of the fact that all the necessary resources were available (material, financial, human, information-organizational what refers to the conclusion that because of some reason people were not capable to create team harmony and cooperate together (Srića, 2008), i.e. they are not able to create needed cohesion and team harmony (Goleman, 1997a; 1997b), or management has destroyed the created ones. Such failures are of course in human component (human is the most important economic factor), and can be attributed to the presence of some of the existing appearance form of dark side of business and management, which do not accomplish the general agreement/consensus by what is cooperation and dedication to mutual goals limited or even suspended. Without collectiveness the organizational and economic success is not possible, and to achieve them is needed the consensus for which is crucial the trust. The trust between people is impossible to achieve in the condition of dark side of business and management domination. Passiveness and people demotivation to which bring dark side of business and management domination, can be settled into the causes of motivation explanation i.e. get a hold in negative models and directions towards deviant behaviors in the environment because they are awarded, so by means of such behaviors are achieved social or other benefits (Pastuović, 1999), or in complex explanation which introduce variables of individual, situational or systemic diapason (Zimbardo, 2007).

For destructive state of business-economic system there are needed three basic structural factors (Furnham, 2010):

- destructive entrepreneurship, management/business leadership;
- susceptible employers;
- affected environment and technology.

As it is known to the author about the impacts of total dark side of business and management (by every appearance form and on different level of aggregation) on economic activity (also by appearance forms) so far there do not exist systematic researcher activity (exist only partial) not even meta-analytic studies.

#### **4. What can be done in effectively blocking the negative effect of dark side of business and management**

To provoke and sustain economic development because of omnipresent appearance form of dark side of business and management as protective rules are eligible:

- a) *Awareness*. It should be aware of strong and active presence of dark side of business and management. If the people are not aware about its presence, there is a great danger to become a victim (on individual, group, organizational or sociocultural level).
- b) *Learning*. Without better knowing dark side of business and management at least by basic, and ideal about all existing appearance forms it is not possible the successful business and economic activity, and limited is also creative innovative activity (knowledge based economy).
- c) *Ethical choice*. Ethical choice should base on awareness and knowledge of dark side of business and management. There are three possible options:
  - Pure ethical choice. Unacceptance of dark side and uncompromised ideological war against the „evil“ of dark side of business and management (Zimbardo, 2007).
  - Adaptation to the environment reality. This means functioning in the borders of „art of possibility“, or aware passivity.
  - Acceptance the rule of the game of dark side of business and management (acceptance and obedience to existing philosophy of dark side of business and management) – it is not prosperous for general economic development, and at the same time represent unethical answer.

The only one ethical answer compatible to the moral imperative is option of ethical (prosocial) choice. Zimbardo (2007. in chapter 16) cite ten suggestions for individual resistance against unacceptable influences based on the social psychology principle which can and need to apply on dark side of business and management in the context of challenging it. Paraphrased they are:

1. *Confess the mistake*. The mistake of judgement results with mistaken decision. It is better to confess and change the direction of behavior than persevere in behavior which is harmful for individual, group, organization or society. This is individually based moral imperative.
2. *Think before acting/have always an active, awake mind*. Do not enter mindless without critical thinking into new situations. Do not tolerate hurry in his own actions, abort simple solutions for complex individual, group, business or social problems. Support critical thinking.
3. *Do always from the position of personal responsibility*. On undesired dark social influences people are more resistant if they consider his own responsibility. The good strategy is to imagine himself on trial and at the same time have valid arguments, not

the typised arguments like „I only follow the commands“ or „ Everyone behaved like that (unmoral)“.

4. *Underline own individuality, unique talent and way of thinking.* Anonymity and secrecy give boost to the possibility of dark side of business and management, decline human cohesion and its resistance possibility. This creates the conditions for dehumanisation/deindividualisation what is fertile soil for all forms of dark side in business and management (especially for workplace bullying and sadism).
5. *Respect fair authority/power, but resist against unfair authority/power.* In every situation in business there is to differentiate the authority/power because of its competence, wisdom, seniority, special achievements which deserve respect, from unfair authority/power which command obedience without cover. Authority of pseudo-leaders, false prophets, extremely self-confident people, unscrupulous self-promoters which need to submit the critical evaluation. Also it should resist to the authority/power which do not deserve respect. On this way it is diminished uncritical obedience, self-proclaimed leaders which priorities are not in our best interest.
6. *Appreciate the group acceptance but not by dependance cost.* It is extremely important to know when follow the group norm and when to refuse it. It should be willing and prepared to fight his independence without of social isolation consequence which such behavior can provoke. The pressures like „Be team player“, „Sacrifice his morality for team good“ often are undefendable. If this is the case find another group which will support your independence and promote your values. There is always the possibility of another, different and better group.
7. *Be carefull in interpreting the messages/informations which you receive.* Do not be allured and cheated with messages which emphasise what the sender of message will and what with this information will achieve.
8. *Have omni-time perspective.* Do not make decision only for one moment, do not lose omni-time perspective of moral decisions and behaviors, make the right thing which is according the criterion of the past and future correct.
9. *Do not sacrifice your personal, civil or business freedom for security which is illusion.* Refuse to be manipulated so that you involve into activities which are totally moral strange to you because of security promise. Refuse to deny your freedom or even smaller right or smaller part of your freedom because of security promise, because the sacrifice of rights/freedom is real and urgent, and security is outlying illusion. Promises of personal and national security for the cost of collective low, privacy and freedom sacrifice is the step into dark side of business and management.
10. *It is possible to resist unfair system.* Individuals can change systems agreeing with the risk whistleblowing against corruption or constructive work to transform it. In situation where informations, awards and punishments are under control it is possible that it is needed to move. Resistance can demand the authority help, advisers, journalists or patriots. Hero act can challenge unfair system, and the best way is creating the group which make resistance, minimum of three people in group make power which do resistance against dark side of system.

To combat and limit dark side of business and management on functional level all people (on individual, group, organizational/institutional, national level) who strive to the better economy&society, it is needed to personally empower the people. Even with empowered people the combat against dark side is permanent process, just as is the permanent battle against good and evil. With the awareness of dark side of business and management it is made important step in the right economically and socially desired direction, in the direction of potential emancipation of managers, politicians, entrepreneurs, innovators, experts all the



people from the dark side in business and management. So can be created an prosper economy and society much more easier.

## 6. Conclusion

Dark side of business and management has important, often crucial impact on economic development, and it is present in numerous appearance forms on different levels of aggregations (macro, mezo, micro level). Some of them are: corruption/bribery, organizational crime, fake/prank; misuse of power and position, intimidation, blackmail/extortion, aggressiveness and violence, dark side of business leadership; management by fear and stress, impression management, stupidity management; plagiarism/falsification, lying, cheating, spin (manipulative stories), exploitation of the victim; workplace bullying, ostracism, workplace maltreatment (e.g. sexual harrasment), discriminations by different foundations; dark use of intelligence, creativity, learning in unethical and criminal (social harmful) purpose; dark project, technological or innovation management; individual deviant and unethical behaviors: ambition, greedy, carierism, revange, machiavelianism, narcisism, psychopaty, sadism, fixed ideas, paranoia or similar subclinical but socially harmful psychological states; other appearance forms of dark side of business and management e.g. whistleblowing, rumours, etc. Knowing concrete appearance forms and its preconditions, influences and consequences it is possible to prepare strategies and answers on the dark side business-economis challenges. Awareness about the problem of dark side of business and management, learnig about them , people empowerment and ethical choice are meaningful answers against dark side of business and management domination. If the strategic answer is moral imperative i.e. uncompormised doing good and appropriate things than the economic system can be changed through given ten (N=10) meaningful answers according the suggestion of Zimbardo (2007). For limiting the dark side of business and management on functional level, mangers, politicians, enterpreneurs, innovators, experts, but also all the people who strive to the better society, enterprise, group, individuals need to combat permanently against the dark side in business and management, in the same way as it is permanent the combat between good and evil.

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**NEW GLAGOLITIC SIGNS IN A DIGITAL AGE****NOVI ZNAKOVI GLAGOLJICE U DIGITALNOM DOBU****ABSTRACT**

*Human communication is based on message transfer and its simplification (Danesi, 2004, 1). With the development of human writing systems ways of written communication have also changed (Cvitić, 2011, 3), new scripts have been developed (such as Glagolitic script – script created in 9<sup>th</sup> century), as well as new signs in existing scripts. Digital age is accelerating written communication is introducing a large number of new signs (monkey, emotions etc.). Although Glagolitic script is not in official use any more its comeback through projects which popularize cultural heritage (project Fabula Croatica for example) has resulted in designing glagolitic fonts (Epistula Croatica and Misal DPG) available for public use. The existence of glagolitic fonts has led to their use in digital medias what brought about the need for introducing new signs to existing Glagolitic script system. The criteria for introducing new signs into the fund of existing glagolitic fonts was the insurance of transcribing given forms to English language. In accordance with the stated criteria it is decided to add signs representing letters Q, X, Y, W and punctuation marks like monkey, ampersand, question mark, exclamation mark and similar to the existing glagolitic font. The authors of this article have proposed their graphic forms with functionality being their main criteria. Designed signs have kept the simplicity in their form and as such contribute previously constructed glagolitic fonts as a unique graphical unit with a clear visual rhythm, but also insure the visibility and recognizability of new signs in comparison to the existing ones. Because of the fact that glagolitic fonts are available online, authors of the new glagolitic signs have offered information about Glagolitic script's existing structure of as well as information about the form and function of each glyph.*

**Key words:** Glagolitic script, fonts, graphic signs, communication, digital age

## SAŽETAK

Ljudska komunikacija temelji se na prenošenju poruka i težnji njihova pojednostavljanja (Danesi 2004: 1). S razvojem ljudske pismenosti mijenjali su se načini pisane komunikacije, stvarala su se nova pisma (poput glagoljice – pisma koje je nastalo u 9. stoljeću), ali se i unutar postojećih pisama stvaraju novi znakovi. Digitalno doba ubrzava pisanu komunikaciju te se time uvodi veliki broj novih znakova (monkey, osjećajnici itd.). Premda je glagoljica pismo koje se više ne nalazi u službenoj uporabi njezin povratak kroz projekte koji populariziraju kulturnu baštinu (primjer – projekt *Fabula Croatica*) rezultirao je konstruiranjem računalnih glagoljičkih znakova (*Epistula Croatica* i *Misal DPG*) dostupnih za javnu uporabu. Postojanje računalnih glagoljičkih znakova dovelo je do njezina korištenja u digitalnom mediju što je nadalje dovelo do potrebe uvođenja novih znakova u postojeći glagoljički sustav pismena. Kriterij za uvođenje novih znakova u fond postojećih glagoljičkih računalnih znakova bilo je osiguravanje transkripcije zadanih forma na engleski jezik. Sukladno navedenom kriteriju utvrđeno je kako je postojeće glagoljičko računalno znakovlje potrebno upotpuniti znakovima koji će reprezentirati slova abecede Q, X, Y, W i interpunkcijske znakove 'monkey', 'ampersand', 'uskličnik', 'upitnik' i sl. Autori ovoga članka predložili su njihova grafička rješenja pri čemu su funkcionalnost postavili za temeljni kriterij. Konstruirano znakovlje težilo je zadržati oblikovnu jednostavnost te doprinosti prethodno konstruiranom glagoljičkom znakovlju kao jedinstvenoj grafičkoj cjelini podržavajući vizualni ritam, ali osiguravajući uočljivost i prepoznatljivost novih znakova u odnosu na postojeće. S obzirom da se računalno znakovlje nalazi na mrežnim stranicama ponuđeno za javnu uporabu, autori novih glagoljičkih znakova uz same znakove ponudili su i informacije o postojećoj strukturi glagoljice te o formi i funkciji grafema.

**Ključne riječi:** glagoljica, računalni znakovi, grafički znakovi, komunikacija, digitalno doba

### 1. Introduction

Every nation is defined by its language, script, history and area on which it lives. Language and script are the basic determinants of one nation and its national identity (Bratulić, 1995, 5), but also the basic feature of this civilization which develops its own communication with the use and development of the script. Two scripts have been used for Croatian area – Latin script and Glagolitic script.

Glagolitic script was used on this area for a millennium and has permeated the life of all society and its presence can be found in liturgy, law, science and art. Although there are more theories, the majority of scientists agree that the Glagolitic script is an invention of just one man, Constantine Cyril the Philosopher, and that it has been created before his trip in Moravia, in 863 (Nazor, 2008, 14). After the death of Methodius (brother and follower of Saint Constantine Cyril the Philosopher) and the banishment of students from Moravia (885), Slavic orthodox nations have accepted cyrillic script, whereas Glagolitic script had stayed in active use only by the Croats (Bratulić, 1995, 5). Apart from Glagolitic script's genesis linguistic science studies forms of this complex script. Glagolitic letters have the model in basic Christian symbolism and are constructed from a cross (symbol of Christ's redemption), a triangle (symbol of Trinity) and from a circle (symbol of eternity and God's perfection) (Bratulić, 1995, 12). The script has used all three geometrical shapes for its basic visual element throughout history, and today glagolitic shapes are diversified visible from trigonous, round and squared Glagolitic script. Glagolitic signs, unlike current letters of the alphabet, communicate on more levels – on the level of words, of numbers and symbols. Furthermore one sign has the ability to simultaneously transfer several meanings. In that manner, for

example, 'az' ('a') has the meaning of an individual, man, christianity while 'buki' ('b') represents God, house, letter, message. The reason why sign 'buki' is extremely important can be found in glagolitic books. In them, God was not written by placing letters in a string which would unfold the word 'God' but instead the name was just marked with the letter B, all in harmony with the commandment "You shall not make wrongful use of the name of the Lord your God" (Biblija, 2003, 146) (Žagar, 2013, 314). Letter 'vidi' represents ('v') knowledge, beauty, 'jest' ('e') represents creation etc. (Horvat, 2009, 188). That kind of Glagolitic's symbolic level in communication sense has determined it as a script which possess the potential of multidimensional coding. Glagolitic script with its structure testifies about scripts' high understanding as a complex system in which many elements, besides the dimension of letters and numbers, contain a symbolic "theological code" (Bratulić, 1995, 11). Croatian Glagolitic script represents Croatian culture and at the same time a communication media for recording Croatian knowledge, moral values, history and culture. Glagolitic script was embedded in lives of people of that time, as a part of their national identity about which numerous documents and memorials have testified (Žagar, 2013) (Fučić, 2009). Considering emotional values which Glagolitic script has had with literate part of the population who used it, it can be concluded how one can define Glagolitic script as sort of a brand in which each sign was a brand in its own (Cvitić, 2012, 34). In that way each letter was possible to send unambiguous, and at the same time a three-unit message (message of letters, numbers and symbols).

Brands communicate complex messages of social, economic and political subjects because brands are capable of transmitting complex messages in a short period of time. Besides that brands encourage assurance and induce certain behaviours, give products additional value, and consumers safety that that brand will deliver certain promises (Skoko, 2009, 129). One of the greatest characteristics of a brand is the ability to trigger emotions (positive or negative) to a great number of consumers. Creating a brand demands constant investment and resources, strategical planning and systematic analysis as well as adjustments to their results. Successful brands, independent of the company, manufacturer or institution, bind users, but also others who have switched from a user to the furthest form of loyalty under the name 'fan'. Strong brands own global users / fans and do not need to be introduced (for example - Nike, Apple, Samsung). In 21<sup>st</sup> century successful brands are those which are closely tied with thoughts and feelings of the consumer, ie. these brands which are build as relationships and not as products. If one sees Glagolitic script as a brand, with access to its origin and genesis, one can perceive that its inventor Saint Constantine Cyril the Philosopher did not accent it as a product but as a relationship. The fact that support this thesis is that the recipients of literacy have also received faith through Glagolitic script, ie. that Christian believers learned to write in such a way that they read symbolic messages in Glagolitic characters closely associated with the Gospel. Glagolitic script in this context has successfully created and built a relationship with its user in which, through reading, the user received belief (and experiences) so that he could share them with others.

## **2. Glagolitic fonts**

Although the Glagolitic script is a script that is no longer in official use its comeback through projects which popularize cultural heritage (example - project Fabula Croatica) resulted in constructing glagolitic fonts (FC Epistula Croatica and Missal DPG) available for public use.

## 2.1. Epistula Croatica – fonts created based on authentic model

Project Fabula Croatica is a project which aim is to modernize parts of Croatian cultural heritage, to present it appropriately and introduce it to the wider local and global community using all means of visual communication and design. In the first phase of the project Fabula Croatica called Epistula Croatica (publicly presented in Matica Hrvatska in 2009) promotes Glagolitic script which was approached in the project as a resource which fundamental content is going to be modernized and brought to the public of digital age. The name Epistula Croatica means “Croatian script” and is kept in its Latin version because of the international character of the project and highlights the fact that Latin was one of the languages used by the Croats. In the first phase of the project Fabula Croatica the wish was to investigate public reactions for digital presentation of cultural heritage, intrigue and inform the local public about the project’s content and inform the global community about the cultural richness of Croatia. The complexity of project’s information is related to the complexity of Glagolitic script and the need to create transparent and understandable guides through the script’s complicated genesis, its nomenclature and characteristics of script’s graphic forms. Designing a Glagolitic font is an applicative part of the project which presents a direct and interactive digital product, available for public<sup>1</sup> and thus attractive for direct introduction to the public of the script with a thousand years of tradition (Figure 1). Because of a faithful connection with the original Glagolitic symbols the font was designed having in mind an authentic model, the first printed book (Missale Romanum Glagolice from 1483).

*Figure 1 Glagolic font Epistula Croatica*



In order for the project Fabula Croatica to be interesting to the general public, especially younger age groups, besides creating Glagolitic font Epistula Croatica the project is supported by a specially designed multimedia website<sup>2</sup> and a promo movie - which have already resulted in public echoes<sup>3</sup> in 2010. The font Epistula Croatica has gained experienced and applications

<sup>1</sup> By the end of 2009

<sup>2</sup> Web page designed by Filip Cvitić i Darko Žubrinić ([www.croatianhistory.net/glagoljica/ec](http://www.croatianhistory.net/glagoljica/ec), pristupljeno 12. 4. 2015.)

<sup>3</sup> Filip Cvitic created Epistula Croatica font for Croatian Glagolitic Script in Croatian World Network ([www.croatia.org/crown/articles/10010/1/](http://www.croatia.org/crown/articles/10010/1/) accessed 11. 4. 2011.)

(<http://www.culturenet.hr/default.aspx?id=33054>, accessed 12. 4. 2015.)

(<https://www.sites.google.com/site/novoslovienskij/youtube>, accessed 12. 4. 2015.)

in related design projects through media echoes<sup>4</sup> where project Salamander<sup>5</sup> stands out (a computer application available for public on the Internet which uses Epistula Croatica for the transcription of Latin letters to Glagolitic signs), and is applied in magazine design Baščina<sup>6</sup> - a magazine from Društvo prijatelja glagoljice (Figure 2) as well as Slovo rogovsko - a magazine from Udruga glagoljaša Zadar.

**Figure 2** Design of magazine Baščina – a magazine from Društvo prijatelja glagoljice (issue 11, 12 and 13)



## 2.2. Glagolica Missal DPG from the author Nenad Hančić-Matejić

At the beginning of 2011 the font Glagolitic Missal DPG was completed equipped with Unicode’s Glagolitic codes. The characteristic of this font is that it is made on the basis of two models. Lowercase letters from Glagolitic Missal DPG font are made according to “Missale Romanum Glagoliticum” from 1483, and uppercase letters according to “Legend of Saint Jerome” from 1508. In May of the same year an application *Transliteratör* has been programmed which enables direct writing with Glagolitic script on the Internet via web browser Mozilla Firefox.

## 3. Innovative signs as the achievement of communication processes

The need to create new characters came with a public use of Glagolitic font Epistula Croatica. The users have tried to use the font for writing sentences in English language and have frequently written warnings of how certain words in English can not be conveyed to a Glagolitic sign system because the signs Q, X, Y, W in Glagolitic script have not been created yet. Equally so automated transcription of sentences which in their Latin version have punctuation (semicolon ‘;’, quotation marks “ ”, question mark ‘?’), exclamation mark ‘!’

<sup>4</sup> (<http://web1.uct.usm.maine.edu/~smax/languages/glagolitic.htm>, accessed 11. 4. 2015.)

([http://www.synaxis.info/azbuka/4\\_računalno\\_znakovljes/01\\_ustav.html](http://www.synaxis.info/azbuka/4_računalno_znakovljes/01_ustav.html), accessed 10. 4. 2015.)

<sup>5</sup> (<http://glagoljica.salamander-studios.com>, accessed 12. 4. 2015.)

<sup>6</sup> Baščina – a magazine Društva prijatelja glagoljice using computer characters Epistule Croaticae in design issue: 11.,12.,13.,14.,15. (<http://www.fabula-croatica.com/bascina/Vizija>, accessed 12. 4. 2015.)



ampersand ‘&’, et ‘@’ and similar) has been determined untenable. The lack of punctuation characters and previously mentioned letters (Q, X, Y, W,) has resulted in an incomplete compatibility of the Glagolitic font with computer characters in Latin which indicates the impossibility of its implementation in the global environment of the digital age.

Human communication is based on message transmissions and aspirations of their simplification (Danesi, 2004, 1). With the development of human literacy ways of communication have evolved and with them new characters which, although of the same design, were used for a variety of purposes. The numbers and letters have evolved historically as a result of searching for a set of shapes enough simple to write them easily, to perceive them and remember them, and yet to make them distinguishable as much as possible from one another (Rukavina, 2009, 573).

According to Danesi (2004) when creating new characters, the newly created forms, in addition to simplicity, should contribute to communication’s integrity of the script as a whole in graphical sense. The primary commitment is to maintain a complete visual rhythm when introducing new letters / characters (eg. in the alphabet), but at the same time it is important that the newly introduced letters / characters are sufficiently different from existing ones to ensure their visibility and recognition. Recognizing signs and their parts can be achieved when constructing the letters / characters by using diverse forms. However, as applied forms as simpler, their recognition is easier.

By analyzing the Glagolitic signs it is noticeable that the creator of the Glagolitic script was thinking exactly in a previously mentioned manner. Glagolitic signs used for the role of letters (ie, in text) were arranged in the parchment area so that their forms are emphasized near the x-height line. By observing that composition one gets the impression as if the letters are hanging from a thread (Bratulić, 1995, 40) (Čunčić, 2008 , 276) (Figure 3).

*Figure 3 Glagolitic signs shown in the typographic grid*



In Latin ‘baseline’ is the main line where the letters are but in Glagolitic script x-height has taken that role. When constructing new Glagolitic signs the x-height line became the guiding principle on which the newly built constructions leaned on. In addition to the x-height line rule, Glagolitic sign system possesses the rule of ligatures as well, ie, the way in which adjacent characters are connected. A ligature is created by merging adjacent letters (Čunčić, 2008, 278) and there are two basic types of ligatures in Glagolitic script: adequate and inadequate ligature. Adequate ligatures are created by merging adjacent letters of equal parts while inadequate ligatures are created by merging adjacent letters of unequal parts (Figure 4). Ligatures in Glagolitic script are built horizontally or vertically (Bratulić, 1995, 110).

*Figure 4 Example of adequate and inadequate ligature*



Since the punctuation signs ‘monkey’, ‘ampersand’, ‘question mark’, ‘exclamation mark’ are subsequently created from the Latin alphabet, the same visuals are taken as a model for their construction within the Glagolitic fonts (example Epistula Croatica). The functions of the newly created (punctuation) signs in Epistula Croatica, are identical to the ones taken from the signs in Latin. The remainder of this paper will describe the formation of new signs within the Glagolitic font Epistula Croatica.

#### 4. New characters in existing Glagolitic fonts

Glagolitic font Epistula Croatica has been supplemented with new signs – specific punctuation signs and letters that originate from Anglo-Saxon speaking countries, which Croatian Latin system does not have but use them only for specific needs related to a particular profession. The process and elements of building new Glagolitic signs were led by the rule of respecting the main line (x-height) and the rule of determining certain adequate ligatures.

##### 4.1. Orlo (swan)

Although an ampersand ‘&’ is actually the letter ‘i’ in Croatian language, in order to preserve the visual character of familiar words and logos in Latin script, in Epistula Croatica new sign is created based on the Latin ampersand. Given the character of the sign ampersand ‘&’ its curved lines the same was implemented in the new sign in order to achieve the highest resemblance possible to its model (Figure 5).

*Figure 5 Comparison of Latin and new Glagolitic ampersand*

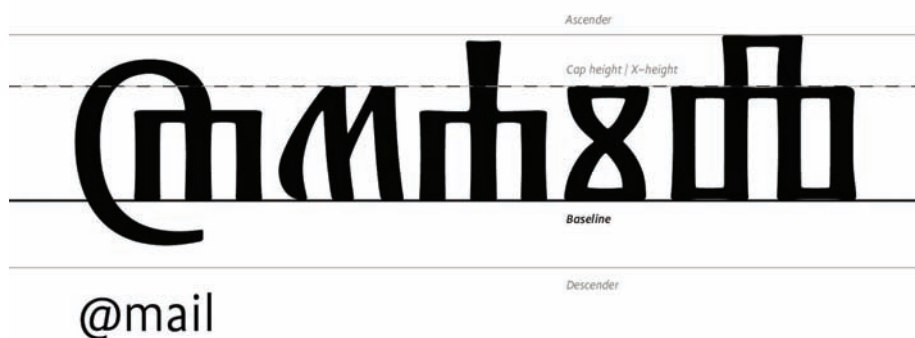


As the Latin ampersand originated from letters e and T so is the new Glagolitic sign created by merging Glagolitic letters jest and tvrdo that in Epistula Croatica font create a new ligature. Since the sign resembles a swan the name orlo was chosen which in Latin denotes a swan.

#### 4.2 Auris (ear)

Auris is a sign introduced instead of the Latin sign monkey (et or @). Auris was introduced with the intention for Epistula Croatica to have the same purpose as in the Latin writing system, but with a different name. As 'monkey' is reminiscent of an animal monkey (wrapped tail), the name 'Auris' was chosen because this Glagolitic sign resembles an ear (Figure 6).

*Figure 6 The appearance of the sign Auris (sign that represents et in Glagolitic script)*



The sign graphically consists of letter a as it is with the @, around which a semicircle was drawn. In order for the sign to look harmoniously with other Glagolitic signs, the semicircle was adjusted to the size of other signs, and the contrast between the horizontal and vertical elements harmonized in order for the semicircle's thickness to become equally wide as other Glagolitic letters. With it the semicircle of auris looks like a part of the sign a and all together acts as a singular unit. The height of the semicircle is set lower than the baseline and higher than the x-height line of the Epistula Croatica's typographic grid in order for it to become immediately apparent. The letter auris is built enough different from other letters of the Glagolitic alphabet, and thus has gained visibility and has kept similarity to sign 'monkey' (et) from the Latin alphabet.

Because the sign auris does not look identical to 'monkey' but only resembles it, it was decided to change the name of the sign. The same was also changed because of its appearance is similar to the human ear on an association level. Since after creating and aligning elements of this sign, the semicircle visually looks like a man's ear, the sign was given the Latin name auris which means ear in English. So sign which has the function of displaying e-mail, in Glagolitic script has the name auris or ear. The new name was assigned to the sign of a different graphic appearance from its Latin models, but the same function was maintained.

#### 4.3 Q, X, Y, W

After some time a discussion has been established on forum.hr website *About the Glagolitic script in Glagolitic script*. That is when the idea of Croatian Wikipedia in two scripts has emerged, but also the first discussion on the problems that occur with direct transfer from

Latin script to Glagolitic script and vice versa. As contemporary Croatian language foreign words are written originally, and are not adjusted according to Croatian pronunciation, it is extremely difficult to program such algorithms that would transfer the text from Latin script to Glagolitic script and return the same composition of letters in the Latin script. With Glagolitic script the following words for example could be written in their original form only phonological: *Washington* (Vašington), *Queen* (Kvin), *Lady* (Lejdi), *Firefox* (Fajerfoks). In that context, it is proposed to use glagolitic signs for Latin script glyphs Q, W, X, Y that are no longer in Croatian's Glagolitic document use. For example ZELO for X, OT for W and triangular A for Q. It is noticeable that such a solution still creates problems in spelling words and that within this solution the word *Queen* would be pronounced "triangular A-UK-JEST-JEST-NAŠ", for which there is no real basis. Sound value of Glagolitic letter ZELO was originally a form of DZ, and later in Croatian Glagolitic script only Z, which reflects the name of that letter in Croatian Glagolitic script (original name is DZELO). The phonetic value of Glagolitic letter OT is O, which made it to Glagolitic script through the Greek letter Ω (Omega). The difference from the letter ON lies only in the length of the pronunciation of that sound. Triangular A is located on the Bašćanska table and its sound value is a long spoken A. The sound value of these Glagolitic letters were accepted in the world of Slavic languages and therefore it is estimated that it would not be appropriate to change their sound values. There would be difficulties if in one text in contemporary Croatian language, written in Glagolitic script, a discussion about the Old Slavic texts would be made. In that case, the reader of the text would not be able to recognize if he needs to read some letters by a traditional sound value or by a new one. For that reason, new glyphs for Latin letters Q, W and X are used. Darko Žubrinić and Nenad Hančić-Matejić have initiated the idea about new Glagolitic signs Q, X, Y, W used in English language.

In October 2011, in Zagreb, Darko Žubrinić, Nenad Hančić-Matejić and Filip Cvitić defined the appearance of these new Glagolitic signs, in order to harmonize them into Croatian

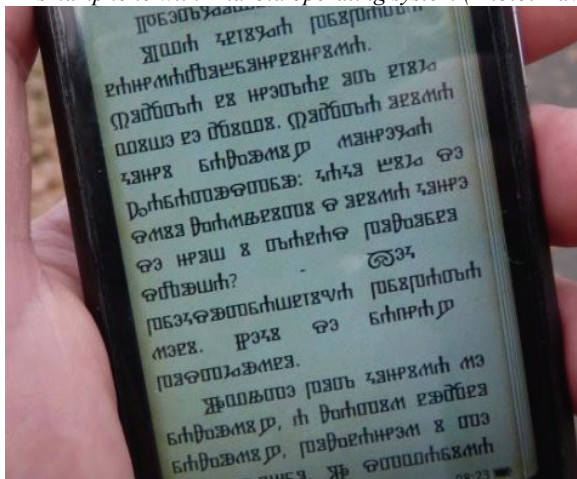
*Figure 7 New signs in Glagolitic script for X, Y, W, Q*



An agreement was reached that it is not necessary to create with a new letter for a sign Y because IŽE could be used for that sign instead. For sign W a ligature is taken from two letters VIDI, in the same way how that sign was created in Latin. Since Q is visually shaped like an O with a line on the right side, it was decided to use the following combination for the new Glagolitic sign, ON with a line shaped like the Glagolitic sign JER. For sign X upper part

of Glagolitic ‘I’ is used, with an opening on its lower part, as two vertical pillars on which the whole signs stand as sign. For now there is a possibility for using these new signs in printed publications (eg. newspapers and letters via MS-Word), but they can not be used on the Internet as they do not have their own Unicode. In order for the Unicode-Consortium to include new signs in their tables it is necessary to prove that these signs are applicable in practice (Figure 8) after which a request can be sent for assigning a separate code for these signs in the Unicode system. If it is possible to achieve the inclusion of these signs to the Unicode’s system great possibilities could be opened for Glagolitic script in modern electronic age. That would contribute not only further popularization of Glagolitic script in Croatia, but globally as well – to all interested in the old scripts and Croatian cultural identity based on Glagolitic script.

*Figure 8 ZTE smartphone with Android operating system (Photo: Pavle Močilac)*



## 5. Conclusion

Companies are creating new signs in response to the challenges which are brought by new technologies and new forms of communication (Danesi, 2004). Because of this tendency and the phenomena of a growing number of signs, the research work of George Kingsley Zipf resulted in Zipf’s law. According to Zipf’s law human species has an appeal for decreasing effort (to perform certain activities) and simultaneous pursuit for form condensation. Given the growing number of meanings embedded in letters of the alphabet, there is a possibility that the current alphabet system will develop into a more complex system in which letters won’t be just an abstract representation of the sound, as in Glagolitic script, for example, but will represent more meanings and will develop from the domain of letters to the domain of symbols. In addition, it is anticipated that the alphabet will take symbolic meanings adapted to the modern age, which will be used and modified by consumers depending on her / his need (Cvitić et al., 2014, 21). Creating new Glagolitic signs also confirms the assumption that forms and new meanings are needed for existing forms in the new age new, all caused by new ways of communication. Thus, by partially changing existing signs slightly changed forms are created with new meanings necessary for consumer’s expression in new forms of

communication, especially those developed for digital social networks (Facebook, Twitter, Viber, etc.).

Glagolitic script is a traditional script which has been under the protection of the Decision from Ministry of Culture at the beginning of 2014 as an intangible cultural heritage of Croatia. The script is also a visual element of Croatian's national identity which has the potential for use in a variety of products and the potential for promoting Croatian cultural identity. No matter that the concept of heritage implies inheritance created by our predecessors, it is necessary to expand this script and upgrad it with new values.

By creating new signs within the current system of Glagolitic signs contribution is made to promoting Glagolitic script, and with its implementation in publicly available fonts Glagolitic script is further popularized. By actively using Glagolitic script the creation of new cultural products is enabled (clothing, paintings, interior design...) which gives glagolitic fonts additional value. Written information that accompanies all Glagolitic projects informs users of Glagolitic signs about the foundations on which the Glagolitic script arose as well as the cultural heritage of Croatian territory.

Such approach to the project contributes further popularisation of Glagolitic script and its modernization for use in the digital age, but also offers new reflections on sign communication and improves communication processes on a theoretical and practical level.

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**E-BUSINESS – (UN)UTILIZED OPPORTUNITY  
FOR SYNERGISTIC AND JOINT DEVELOPMENT  
OF EASTERN CROATIA AND OTHER CROATIAN REGIONS**

**E-POSLOVANJE – (NE)ISKORIŠTENA PRILIKA  
ZA SINERGIJSKI I ZAJEDNIČKI RAZVOJ  
ISTOČNE HRVATSKE I OSTALIH HRVATSKIH REGIJA**

***ABSTRACT***

*The main purpose of scientific research within this scientific paper is to investigate, analyse and synthesize: 1) the current state of e-business development within the Republic of Croatia's economy (with a special reference to economy of eastern Croatia), 2) individual business entities' attitudes towards*

*e-business in multitudinous activities within the Republic of Croatia's economy as well as 3) (post) graduate students' (from Faculty of Economics at University of Rijeka) perceptions of e-business.*

*As of research approach (and methods) used, authors use the most recent available and the most significant statistical and business data, that is processed and displayed in the context of this scientific paper, in order to elucidate the current state of e-business development within the Republic of Croatia's economy. Moreover, the most significant scientific research findings from the first set of surveys / questionnaires with individual business entities' attitudes towards e-business and the second set of surveys / questionnaires with students' (from Faculty of Economics at University of Rijeka), perceptions of e-business will be represented, explained and elaborated in detail from. From the authors' preliminary scientific research findings it is observable that the major results are going to be useful as a growth-inclusive and vision-inclusive signboards for joint development of both IT sector and other multitudinous activities within the Republic of Croatia's economy with a special reference to economy of eastern Croatia. In this sense, authors have also filtered, listed and investigated how many and which of the business-related survey / questionnaire participants were located in eastern Croatia.*



*Conclusively, concerning implications of this scientific paper and scientific research, those two can be perceived as the beginning of authors' e-business-related research endeavour that will carefully, critically and realistically address e-business issues that are (too) often observed in one-sided, subjective and superficial manner.*

**Key words:** *e-business, synergistic and joint development, IT sector and multitudinous activities, eastern Croatia's economy*

## SAŽETAK

*Glavna svrha znanstvenog istraživanja unutar ovog znanstvenog rada je istražiti, analizirati i sintetizirati: 1) trenutno stanje razvoja e-poslovanja unutar gospodarstva Republike Hrvatske (s posebnim osvrtom na istočnu Hrvatsku), 2) stavove individualnih pravnih osoba prema e-poslovanju u mnogobrojnim djelatnostima unutar gospodarstva Republike Hrvatske i 3) percepcije e-poslovanja od strane studenta diplomskog studija (Ekonomskog fakulteta Sveučilišta u Rijeci).*

*Vežano za korišteni pristup (i metode) istraživanja, autori koriste recentno dostupne i najznačajnije statističke i poslovne podatke koji su obrađeni i prikazani u kontekstu ovog znanstvenog rada, kako bi rasvijetlili trenutno stanje razvoja e-poslovanja unutar gospodarstva Republike Hrvatske. Nadalje, najznačajniji rezultati znanstvenog istraživanja iz prvog seta upitnika / anketa sa stavovima individualnih pravnih osoba prema e-poslovanju u mnogobrojnim djelatnostima unutar gospodarstva Republike Hrvatske i istraživanja iz drugog seta upitnika / anketa s percepcijama e-poslovanja od strane studenta diplomskog studija (Ekonomskog fakulteta Sveučilišta u Rijeci) biti će izložene, objašnjene i detaljno elaborirane.*

*Iz preliminarnih rezultata znanstvenog istraživanja autora može se opservirati da će glavni rezultati biti korisni, te će uključivati putokaze vizije i rasta za sinergijski i zajednički razvoj IT sektora i mnogobrojnih djelatnosti unutar gospodarstva Republike Hrvatske s posebnim osvrtom na istočnu Hrvatsku. U tom smislu, autori su filtrirali, izlistali, te istražili koje i koliko pravnih osoba obuhvaćenih upitnikom / anketom je locirano u istočnoj Hrvatskoj.*

*Zaključno, vezno za implikacije ovog znanstvenog rada i znanstvenog istraživanja, iste se mogu sagledavati kao početak istraživačkog poduhvata od strane autora kojim će se pažljivo, kritički i realistički uputiti na probleme e-poslovanja koji se (pre) često sagledavaju na jednostran, subjektivan i površan način.*

**Ključne riječi:** *e-poslovanje, sinergijski i zajednički razvoj, IT sektor i mnogobrojne djelatnosti, gospodarstvo Republike Hrvatske i istočne Hrvatske)*

## 1. INTRODUCTION

This scientific paper represents the introductory collaborative authors' research in e-business within the Republic of Croatia's economy. However, due to the myriad of research findings that emerged in a relatively short period of time, it was decided to write this scientific paper in modern and insightful scientific style, so that it encompasses the most significant research findings i.e. the ones that have predisposition and potential of being growth-inclusive and vision-inclusive signboards.

Unquestionably, it is perfectly true that people were doing numerous and various forms of business throughout the whole humankind's history until late 1970s without the help of computers, information and communication technologies (ICT) as well as Internet. Nevertheless, while some of the business entities and private persons went through numerous technology adoption lifecycles in doing their business throughout the previous approximately 40 years, others did not even want and/or were not urged to start with technology adoption.

Moreover, during this span of time, there has been an abundance of inventions, improvements and solutions that were designed to meet the most varied business' information and communication technology (ICT) needs. Paradoxically and unexpectedly, thus far, none of them was and still is so widespread, recognizable and enduring as the one has no physical presence, unified form as well as indispensable part and it is not even a product, a service or a commodity. As a matter of fact, that is an idea, an insight and a concept or to be exact, that is renowned E-BUSINESS!

On the one hand, regardless of the fact that e-business was coined exactly 20 years ago i.e. in 1995 by IBM's employees from marketing department, people worldwide still do not seem to recognize its full importance, significance and value. On the other hand, in spite of quality and quantity of materials produced on this topic so far, people still tend to see e-business and accompanying solutions as something that they can live and do business without, since, at least for some of them, it is just a platform, but business has to be done and it is done with or without it, anyway.

However, despite today's global markets, uneven balance of power and peoples' individual values, there are definitely numerous keywords that are used in conjunction with e-business. They are rightfully, pragmatically and frequently used in order to describe, accentuate and differentiate what e-business provides and enables in comparison with traditional i.e. non-electronic means of doing business. One of those keywords is definitely OPPORTUNITY!

That is exactly why it is included in the title of this scientific paper, along with some purposely added words i.e. (un)utilized - in order to profit from opportunity one must seize it not just spot it, synergistic and joint development - beside classic synergy equation  $1 + 1 = >2$  there is also saying "A problem shared is a problem halved." that both express exactly what it was planned to convey, eastern Croatia and other Croatian regions - in this regard Croatia as a rather small locality in today's world should definitely, imminently, immanently start behaving according to the saying "Think globally, act locally!".

All things considered, the widest range of people who could benefit from it should be encouraged and motivated to learn what e-business really is. Briefly, it is neither quick fix nor automatic money making machine, or something in-between. Exceptions aside, it is primarily profitable in the medium and long term, especially if it is built on good economic and technologic foundations. Such and related thinking, attitude and approach towards e-business is exactly what authors are trying to teach, promote and disseminate to students, colleagues and community. Hence, this scientific paper as a whole is natural, logical and direct continuation of those efforts through presentation and elaboration of fresh, contemporary and original research findings.

## **2. The current state of E-Business development within the Republic Of Croatia's And Eastern Croatia's Economy**

Even though diverse research findings by numerous authors about e-business in Republic of Croatia have been published throughout the previous 20 years, only the most significant statistical and business data will be processed and displayed under this heading. Still, it is intentionally divided into 2 subheadings below. Finally, like it was previously stated and like it is visible from their titles, one of those subheadings includes special reference to economy of eastern Croatia.

### **2.1. National state of e-business development in the Republic of Croatia**

In order to avoid repetition of issues, numbers and information that are (too) often brought out and published in this regard, only the most recent, the most representative and the most crucial ones along with its references will be presented in the 3 bulleted lists i.e. Croatian Bureau of Statistics (CBS) related, World Economic Forum (WEF) related and Association of Chartered Certified Accountants (ACCA) related lists below.

- Regarding “usage of ICT in business activities” (CBS, 2014), 98% use computers, 98% have Internet access and 87% own website.
- Concerning “usage of ICT in service activities” (CBS, 2014), 96% use computers, 96% have Internet access and 62% own website.
- In relation to “access to Internet in enterprises” (CBS, 2014), 96% have Internet access, 93% have fixed broadband Internet access and 64% have mobile broadband Internet access.
- As to “contracted speed of Internet access in enterprises” (CBS, 2014), most of them i.e. 44% have 2 to 10 Megabits per second (Mbps) Internet access speed.
- With reference to “e-commerce - Internet sales in enterprises” (CBS, 2014), most of them i.e. 42% have more than 50% share of sales via Internet compared to total sales.
- Number 114,5 is number of “Mobile telephone subscriptions” (WEF, 2014) per 100 people in Croatia what makes it 66th out of 144 economies worldwide.
- Number 6 is “number of procedures required to start a business procedures” (WEF, 2014) in Croatia what makes it 57th out of 144 economies worldwide.
- 8 days is “time required to start a business” (WEF, 2014) in Croatia what makes it 39th out of 144 economies worldwide.
- 4,5 (out of 7) is Croatia’s grade in “Technological adoption” (WEF, 2014) what makes it 79th out of 144 economies worldwide.
- 5,1 (out of 7) is Croatia’s grade in “Availability of latest technologies” (WEF, 2014) what makes it 59th out of 144 economies worldwide.
- 4,6 (out of 7) is Croatia’s grade in “Firm-level technology absorption” (WEF, 2014) what makes it 72nd out of 144 economies worldwide.
- 4,6 (out of 7) is Croatia’s grade in “ICT use” (WEF, 2014) what makes it 40th out of 144 economies worldwide.
- 66,70% is Croatia’s percentage of “Internet users” (WEF, 2014) what makes it 42nd out of 144 economies worldwide.
- Number 21,5 is number of “Fixed broadband Internet subscriptions” (WEF, 2014) per 100 people in Croatia what makes it 36th out of 144 economies worldwide.
- Speed of 40513 kb/s “Internet bandwidth” (WEF, 2014) per user in Croatia makes it 62nd out of 144 economies worldwide.
- Number 65,3 is number of “Active mobile broadband subscriptions” (WEF, 2014) per 100 people in Croatia what makes it 24th out of 144 economies worldwide.
- Number 114,5 is number of “Mobile telephone subscriptions” (WEF, 2014) per 100 people in Croatia what makes it 66th out of 144 economies worldwide.
- A total of 28,40% of public sector experts from European Union countries agreed that “Policymakers in this country rely substantially on the expertise of service and solution providers when discussing e-invoicing” (ACCA, 2012, 13) whereas experts from Croatia are among the ones who were most likely to agree with the quoted statement.
- As of cross-border government procurement, use of “Pan-European Public Procurement Online (PEPPOL) to open up government procurement processes to foreign businesses and ensure access for their own enterprises to opportunities abroad” (ACCA, 2012, 14) is something that Croatia as a country has tendency to rely on.
- Regarding interoperability, Croatia is among the countries that have benefited the most because of interoperability’s contribution to e-invoicing adoption, since “interoperability between service providers is a major focus of e-invoicing adoption, and relies on an easy-to-use identification and addressing system, both domestically and abroad” (ACCA, 2012, 14).

In the final line, those lists, contents and values are the exemplary sample of (e-)business and economic indicators that those who are really engaged e-business should regularly follow.

## **2.2. Regional state of e-business development in eastern Croatia**

First of all, it has to be defined what eastern Croatia is, at least in the context of this scientific paper. Eastern Croatia, essentially, comprises of 5 geographically easternmost counties: 1) Osijek-Baranja, 2) Vukovar-Srijem, 3) Virovitica-Podravina, 4) Požega-Slavonia and 5) Brod-Posavina. Despite the lack of e-business related data for Croatian counties, there is Croatian e-business feat that must be evoked here.

Notably, all 5 out of 5 abovementioned counties had their 5 representatives in the largest ever Croatian IPA IIIC project titled e-Business Competitiveness Improvement Programme that was successfully implemented in Phase I (May 2010 to March 2012) and Phase II (January 2013 to November 2014).

Representatives were 5 regional entrepreneurship support institutions i.e. BIOS, HRAST, VIDRA, Business centre Pakrac and Development Agency of Brod-Posavina County. Beside them, users of this Programme were: Ministry of Entrepreneurship and Crafts (that was also the responsible body), small business entities/subjects and consultants.

However, everything planned and arranged was made possible because Programme was wholly and generously financed by European Union with 20,10 mil. HRK what is circa 2,64 mil. EUR. Even though those funds were allocated for many purposes, the most important were numerous and various e-business education initiatives. At last, one must hope that Croatia will succeed to repeat similar e-business related knowledge and skills dissemination success story in the near future.

## **3. Individual business entities' attitudes towards e-business**

It would be extremely difficult and it would not be eminently reasonable to collect every individual or very large number of business entities' attitudes towards e-business as such, for a purpose of writing a single scientific paper. However, representative research sample that is soundly based on multitudinous activities within national economy can provide reasonably comprehensive overview on aforementioned matter in a given period of time. Consequently, exactly this research approach was used in this case.

In short these, research findings under this and the following heading, are the direct outcomes of authors' research-based teaching and teaching-based research. Namely, this particular research was conducted by students of (post)graduate study at Faculty of Economics at University of Rijeka who were enrolled on both core and elective course named Electronic Business within 1st i.e. winter semester of academic year 2014/2015. In addition, students were constantly, carefully, closely and personally supervised and mentored through the whole process and through teamwork, project as well as case-study based lectures.

Moreover, these students were divided into a total of 13 groups. Whereas, students who were enrolled on core course were divided into 6 groups (46,15%) while students who were enrolled on elective course were divided into 7 groups (53,85%). Each group had to: choose their own unique activity (within the Republic of Croatia's economy), prepare their own survey / questionnaire, provide their own survey / questionnaire samples, distribute their own survey / questionnaire, analyze and synthesize their own survey / questionnaire, present their own survey / questionnaire. In this regard, students were instructed, but also supported, encouraged and motivated to achieve these course objectives in orderly, responsible and timely manner in order to gather as much activity points as possible.

Individual activities chosen by students on both courses are sorted by alphabetical order in 2 lists below.

Activities chosen by students on core course:

- 1) health
- 2) road carriers
- 3) secondary education
- 4) tertiary education
- 5) tourism
- 6) wholesalers

Activities chosen by students on elective course:

- 1) auto salons
- 2) financial institutions
- 3) food industry
- 4) hotels
- 5) media
- 6) pharmacies
- 7) tourist agencies

Additionally, it was compulsory that each survey / questionnaire must include a total of 18 questions with precisely and clearly specified order and sections. That was done purposely in order to unify their appearance, layout and format so that they could be at least fairly comparable at the end of the semester. However, due to the official page number limitation of 9 pages, at this i.e. GIH 2015 symposium, only the most relevant, leading and probing questions will be presented, evaluated and elaborated under the first subsequent subheading. For this purpose, third-level headings will be used.

Similarly, students had to draw their research samples from abovementioned activities, whereas they were initially distributing their surveys / questionnaires and accompanying letter that were succeeded by repeated surveys / questionnaires and follow-up letter. That way, students were essentially taught how and encouraged to receive as much as possible answers from individual business entities.

Consequent to those were the predominately students' activities directed towards and focused on analyzing and synthesizing results of their surveys / questionnaires. In this regard, students were given considerable freedom as long as their assignments were correct, original, logical and closely related to their course i.e. Electronic Business and to their individual survey / questionnaire.

Students' final semestral effort was to create and present aforementioned survey / questionnaire results by using presentation software of their choice. Endowed with maximal creative freedom students had to convey their ideas, results and insights to the best of their knowledge and ability. Only constrains were time and fact that they had to either provoke discussion or arise questions at the end of their presentation.

Finally, as it was announced earlier in the text, under the second subsequent subheading there will be a special reference to actual number of individual business entities from eastern Croatia that were covered with students' surveys / questionnaires.

### **3.1. Most relevant, leading and probing questions from students' surveys / questionnaires**

Comprehensive, detailed and comparative mathematical analysis was made in every single one of 18 questions of all 13 students' groups and in every single one of survey / questionnaire participant's answers. In short, there was the extensive search for common grounds out of a total of 234 questions. After lots of calculations and optimizing, it was decided that exclusively those questions that are essentially the same and comparable for at least 6 students' groups will be taken into account.

According to that objective and strict criterion, on the one hand only 32 out of 234 (13,68%) of students' questions have met it, but on the other hand it was mathematically and unambiguously proven that the rest i.e. 202 out of 234 (86,32%) of students' questions were highly original. Moreover, those 32 individual students' questions were actually precisely 4 synthesized questions as such. For every single one of them, only the most common answers will be presented and analyzed. Therefore, a single heading per students' survey / questionnaire question i.e. a total of 4 appropriately titled third-level headings will be used in order to present what is described and considered above.

### 3.1.1. Number of employees

Regarding this question, 3 of the most common answers, exclusively according to what participants chose in students' survey / questionnaires were:

- 1<sup>st</sup> place → **35+** → 38 out of 289 (13,15%) and
- shared 3<sup>rd</sup> place with no 2<sup>nd</sup> place → **1-5** and **6-10** →  $2 \times 28$  out of 289 ( $2 \times 9,69\% = 19,38\%$ ).

### 3.1.2. Number of computers

Concerning, 3 of the most common answers, exclusively according to what participants chose in students' survey / questionnaires were:

- 1<sup>st</sup> place → **20+** → 42 out of 243 (17,28%),
- 2<sup>nd</sup> place → **1-5** → 38 out of 243 (15,64%) and
- shared 4<sup>th</sup> place with no 3<sup>rd</sup> place → **11-20** and **30+** →  $2 \times 28$  out of 243 ( $2 \times 11,52\% = 23,04\%$ ).

### 3.1.3. Websites

As of this question, 3 of the most common answers, exclusively according to what participants chose in students' survey / questionnaires were:

- 1<sup>st</sup> place → **Yes** → 142 out of 161 (88,20%),
- 2<sup>nd</sup> place → **No, but it is in construction** → 9 out of 161 (5,59%) and
- 3<sup>rd</sup> place → **No, but it is in plan** →  $6 \times 161$  out of 289 (3,73%).

### 3.1.4. Operating systems

Concerning this question, 3 of the most common answers, exclusively according to what participants chose in students' survey / questionnaires were:

- 1<sup>st</sup> place → **Windows** → 142 out of 151 (91,39%),
- 2<sup>nd</sup> place → **Mac OS** → 9 out of 151 (5,97%) and
- shared 4<sup>th</sup> place with no 3<sup>rd</sup> place → **Linux** and **DOS** →  $2 \times 2$  out of 151 ( $2 \times 1,32\% = 2,64\%$ ).

## 3.2. Business entities from eastern Croatia covered with students' surveys / questionnaires

In accordance with what was written under subheading 2.2. Regional state of e-business development in eastern Croatia, eastern Croatia is herein observed and evaluated as the same 5 counties. Besides, students were supported, encouraged and motivated to draw their survey / questionnaire sample from all 21 of Croatia's counties in order to impartially obtain the most realistic, direct and concrete results especially when it comes to such widespread and complex subject like e-business.

Unfortunately, because all students' surveys / questionnaires were anonymous, in this case it was impossible to know the exact number of participants originating from eastern Croatia. However, since students were obliged to hand in their survey / questionnaire samples, through systematic analysis of samples, for a purpose of composing this scientific paper, authors were eventually able to detect and calculate that 8,92% of individual business entities were originating and from 5 previously listed counties i.e. from eastern Croatia.

After all, from the percentage calculated and presented above, it can be concluded that students were somewhat prone to regional bias, especially because no clear boundaries and strict percentages were defined and set in advance.

## 4. (Post) Graduate students' perceptions of e-business

After all students' efforts were successfully completed and carefully graded, students were deliberately surprised by their lecturers with surveys / questionnaires regarding their own

perceptions of e-business. Notably, because this survey / questionnaire was prepared for full-time students at Faculty of Economics at University of Rijeka, Croatia, Europe, most of whom still did not enter the workforce, the emphasis was put on their perceptions rather than on their attitudes. Once again, official page number limitation has inevitably reduced a number of portrayed lecturers' survey / questionnaire questions from a total of 18 to 9 most relevant ones that will be presented in the equivalent number of self-explanatory titled subheadings.

To finish, from the 2nd to the 9th subheading, lecturers' survey / questionnaire sample will be analyzed as a whole. Despite diversity between students mentioned under the 1st subheading, this was perfectly possible because they were all essentially enrolled on the same course. As of analysis, questions from the 2nd to the 4th were analyzed via percentages of chosen multiple-choice answers, while questions from the 5th to the 9th were analyzed via numerical values selected on Likert scale.

#### **4.1. Numbers and percentages of students participating in survey / questionnaire**

From a total of 59 students, 24 (40,68%) were enrolled on core course and 35 (59,32%) were enrolled on elective course. Furthermore, 55 out of 59 students (93,22%), 22 out of 24 (91,67%) students enrolled on core course and 33 out 35 (94,29%) students enrolled on elective course have participated in this survey / questionnaire. Remarkably, those numbers and percentages indicate rather large and representative survey / questionnaire sample, especially from the student population.

#### **4.2. Electronic distribution of students' surveys / questionnaires**

As of this subject, 3 out of 55 participating students (5,45%) distributed by using survey software, 34 out of 55 participating students (61,82%) distributed by using e-mail and 18 out of 55 participating students (32,73%) distributed by using combination of survey software and e-mail.

#### **4.3. Complementary channels for distribution of students' surveys / questionnaires**

Concerning very closely related subject, 2 out of 55 participating students (3,64%) distributed by using telephone, 49 out of 55 participating students (89,09%) did not distribute by using complementary channels and 4 out of 55 participating students (7,27%) did not answer this question.

#### **4.4. Software for analysis and synthesis of students' surveys / questionnaires**

As of this essentially very particularly important issue, 46 out of 55 participating students (83,64%) were using survey software, 3 out of 55 participating students (5,45%) were using other software (whereas 3 of 3 were using spreadsheet software) and 6 out of 55 participating students (10,91%) were using combination of survey and other software (whereas 4 of 6 were using spreadsheet software, while 1 of 6 were using presentation software).

#### **4.5. Grade for teamwork, project and case-study based lectures in Electronic Business**

With such modern, inclusive and engaging lectures students were prepared for real-world business environment that actually operates in the same manner on everyday basis. About grades, average for this question was 4,18 and standard deviation for this question was 0,94 what indicates that students were generally very satisfied with such lectures, while the diversification of their opinions was low.

#### **4.6. Grade for lecturers' approach that encourages students to choose activities by themselves**

Since Electronic Business is (post)graduate course at Faculty of Economics at University of Rijeka, Croatia, Europe, students were given complete freedom of choice when it comes to activities.

Notably, the one and only condition was that 2 groups cannot select the same activity. As of grades, average for this question was 4,15 and standard deviation for this question was 1,30 what indicates that students were generally very satisfied with given freedom to choose activities by themselves, while the diversification of their opinions was moderate.

#### **4.7. Grade for lecturers' random selection of group members and presentation order**

Randomness is common and unavoidable in business. That is exactly why students were intentionally put into series of positively unpredictable situations that definitely required quick decision-making and quality teamwork. Concerning grades, average for this question was 3,73 and standard deviation for this question was 1,51 what indicates that students were generally satisfied with small amount of randomness, while the diversification of their opinions was high.

#### **4.8. Grade for scientific survey / questionnaire method that lecturers demanded from students**

Primarily, lecturers demanded scientific survey / questionnaire method from students in this course, because even though it may seem complicated in the beginning, once it is done properly, in team and with special care of activity at hand, it is actually readily and instantly applicable in practice. Regarding grades, average for this question was 3,91 and standard deviation for this question was 1,32 what indicates that students were generally satisfied that they were properly introduced to scientific survey / questionnaire method, while the diversification of their opinions was moderate.

#### **4.9. Interest in the results of lecturers' survey / questionnaire**

This question was included because students were fairly disappointed that participants of their surveys / questionnaires were not very interested in results i.e. feedback. Fascinatingly, they showed relatively mild curiosity themselves. On grades, average for this question was 3,09 and standard deviation for this question was 1,35 what indicates that students were moderately interested in results of lecturers' survey / questionnaire, while the diversification of their opinions was moderate.

### **5. Conclusion**

Despite of having 9 pages, this scientific paper actually contains tremendous amount of qualitative data, quantitative data, information, and calculations in addition to analysis and synthesis of questions, answers and other related data from 2 separate surveys / questionnaires. As a result, such myriad of observations, interpretations and figures were impossible to cover with unfired and obvious conclusion.

That is exactly why authors have decided to divide conclusions into 3 sets of i.e. a single set of conclusions for each of the main parts of this scientific paper. Accordingly, each conclusion should be perceived in both individual context and collective context at the same time. Briefly, like a single drop in the ocean is, at the same time, the entire ocean in a single drop.

Conclusions from the 2nd part:

- Individuals must be in common with and follow various e-business information and activities.
- Every serious customer-centred business should own the website that will support its e-business.
- Those really engaged in e-business should follow (inter)national (e-)business and economic indicators.
- Nowadays, e-invoice is already indispensable (lat. *conditio sine qua non*) for e-business.

Conclusions from the 3rd part:



- Those serious about e-business regularly check the market pulse and adapt to new trends accordingly.
- Scientifically based survey / questionnaire method can be extremely powerful if it is utilized properly.
- Proper use of scientific survey / questionnaire method requires time, concentration and teamwork.
- Those distributing survey / questionnaire must be prepared to use various distribution channels.

Conclusions from the 4th part:

- Modern tertiary economic and business education must introduce students to e-business specifics.
- Scientific survey / questionnaire method can be used to teach and learn e-business essentials hands-on.
- In order to properly teach and learn e-business students should be put into business-like situations.
- Students should learn to spot which e-business are (not) prone to change over the course of time.

Exclusively when conclusions listed above are perceived in previously described and suggested way, they i.e. those conclusions can truly be turned into universal, valuable and applicable growth-inclusive and vision-inclusive signboards, steps, guidelines and advices. That is exactly why all of them have considerable potential to be utilized for joint development of both IT sector and other multitudinous activities within national economy like it was demonstrated on Croatian example in this scientific paper.

As a final point, predominately and perfectly regionally and nationally focused GIH symposium, along with its important thematic area New trends in economic development and subarea IT sector as one of development initiators, are definitely incentives to take this research to the completely new level in the following academic year. Whereas, much more focus will be shifted towards eastern Croatia and conscious effort will be made in order to easily and unambiguously identify county related to the particular survey / questionnaire response.

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## **INFLUENCE OF OUTSOURCING ON THE COST MANAGEMENT**

### **UTJECAJ OUTSOURCINGA NA UPRAVLJANJE TROŠKOVIMA**

#### **ABSTRACT**

*The goal of this paper is to research whether the outsourcing is directly influencing on reduction and control of expenses of companies, but also, indirectly on enhancement of competitive advantage of companies. Lately, the companies encountered numerous changes but one of the most important was the one that concerned customers' needs. In the midst of world economic crisis which, besides affecting the companies, did not bypass the buyers, mostly express buyers' requirements for products, namely services of high quality, with relatively low price. Companies, trying to attract the buyers, make their best to reduce the expenses where the purpose is to provide the price acceptable to the buyers. Very often, as the possible solution for reduction and control of expenses, comes the outsourcing as the possible solution. In this paper we are writing about outsourcing that explains company's efforts and resources on strategic activities, where the other activities are singled out and let to external specialized partners all with the purpose of focusing on primary activities, as well as to reduction of expenses and increase of the quality.*

*Intensive changes did not bypass the Croatia either. For that reason the research was done in 2014 to establish if outsourcing is possible answer to ever growing demands for reduction and control of expenses. Conducted research has showed that the companies operating within the Republic of Croatia implemented, at the most, outsourcing for the purpose of reduction of operating expenses and they stated reduction of expenses as their primary reason for engagement of external partners. Managers in Croatian companies find outsourcing as the solution for managing expenses, where the solution of research shows that outsourcing reduces the operating expenses from 5 to 10 %. Outsourcing can be considered as good strategy for managing expenses, but, as almost every solution, gives positive and negative impacts. But outsourcing also contains, within negative effects, the question of quality.*

**Key words:** *outsourcing, cost management, competitiveness, companies, Republic of Croatia*

## SAŽETAK

*Cilj ovog rada je istražiti da li outsourcing izravno utječe na smanjenje i kontrolu troškova hrvatskih poduzeća, ali i posredno na unapređenje konkurentskih prednosti poduzeća. Poduzeća se proteklih godina susreću s mnogobrojnim promjenama, a jedna od najizraženijih je promjena zahtjeva kupaca. U jeku svjetske ekonomske krize koja, osim što zahvaća poduzeća, ne zaobilazi niti kupce, posebno do izražaja dolaze zahtjevi kupaca za visokom kvalitetom proizvoda, odnosno usluga, po relativno niskoj cijeni. Poduzeća, u borbi za kupce, teže smanjivanju troškova kako bi bila u mogućnosti kupcima osigurati njima prihvatljivu cijenu. Često se kao moguće rješenje za smanjenje i kontrolu troškova spominje outsourcing, fenomen koji objašnjava usmjeravanje napora i resursa poduzeća u strateške aktivnosti, dok se ostale aktivnosti izdvajaju i prepuštaju eksternim specijaliziranim partnerima i to u cilju fokusa na primarne aktivnosti te smanjenja troškova i povećanja kvalitete.*

*Intenzivne promjene nisu zaobišle ni Hrvatsku. Stoga je provedeno istraživanje kojim se nastojalo utvrditi je li outsourcing moguć odgovor na sve izraženije zahtjeve za smanjivanjem troškova. Istraživanje je pokazalo da poduzeća koja posluju na području Republike Hrvatske najviše primjenjuju outsourcing radi smanjenja troškova poslovanja i navode smanjenje troškova primarnim razlogom donošenja odluke o angažmanu eksternih partnera. Menadžeri hrvatskih poduzeća outsourcing smatraju izvrsnim načinom upravljanja troškovima, a rezultati istraživanja pokazuju da outsourcing smanjuje troškove poslovanja u iznosu od 5 do 10%. Outsourcing se može smatrati dobrom strategijom za upravljanje troškovima, međutim, kao i svako rješenje, nosi pozitivne i negativne učinke. Uz outsourcing se često veže, u kontekstu negativnih učinaka, i pitanje kvalitete.*

**Ključne riječi:** *outsourcing, upravljanje troškovima, konkurentnost, poduzeća, Republika Hrvatska*

### 1. Introduction

The authors in this paper are enveloping the notion of outsourcing and what is its impact on Croatian companies. In the literature it is possible to find many definitions that explain this "phenomenon, as many authors call it. According to Young and Macinati (2012, 773) outsourcing is a phenomenon of transmission services that were previously performed within the company to a third party. According to Drljača (2010, 57) outsourcing of the part of the company or to abandon activities in which the competition is better, with which the company is usually related. Companies focus on their main business and other activities, in which they are weaker than the competition, they externalize. Outsourcing is one way to improve the efficiency of operations. It is an act of letting less important internal activities to the external supplier focusing on main business activities (core business). Davidović et al. (2010) argue that outsourcing is the relocation of business processes to another company and delegation of tasks, operations, activities or functions to a third party under a service contracts. A Nedović Čabarkapa and Šibalić (2010, 76) wrote that outsourcing is a strategic use of external partners for the purpose of performing the activities which are traditionally in charge of internal staff and resources. It is contractually switch side of non-core activities of a company to the specialized service providers. From the above definition it is possible to conclude, in simple terms, that the companies put their efforts and resources in main activities, while other activities are left to specialized external partners. Companies are doing that in order to focus on primary activities and to reduce costs and increase quality. Outsourcing is applied among companies for many years and has become a common form of business. Increasingly, it is gaining importance due to the orientation of management to maintain the highest possible

efficiency and effectiveness in order to achieve the greatest possible profit (Nedović Čabarkapa and Šibalić, 2010, 76). Outsourcing, with regard to the meaning and scope, can be divided into three main groups according to Thomsett (2003). The first group includes the strategic outsourcing that occurs when entire process functions are left on the market, while retaining supervision and control. The second group includes tactical or partial outsourcing that occurs when a part of a business process is left on the market. And the third group includes the targeted outsourcing that occurs when in project work in the market are hired experts or specialized agencies that have to do a certain job. It is also the most common form of outsourcing.

The notion of outsourcing occurs at the end of the 1980s (Pavić, 2009, 41). The authors Nedović Čabarkapa and Šibalić (2010, 76) points out that outsourcing is not a new concept, and the beginnings of outsourcing could be found in the 14<sup>th</sup> century in Venice where was built the first commodity warehouse for the needs of traders from all over Europe. The warehouse was a point of collection and distribution of goods. In the US, the outsourcing of transport services and storage was common during the 1950s and 1960s. During the 1970s, manufacturers put great emphasis on cost reduction and improved productivity. The result was increased interest in outsourcing of any function that is not directly related to the main activity of the company and more and more manufacturers began to rely on the services of their suppliers. Using sophisticated technology, suppliers are increasingly delivering value-added services which resulted in entrusting inventory management, transportation and supply chain from the manufacturer to the supplier (Nedović Čabarkapa and Šibalić, 2010, 76). Table 1 shows the waves in the outsourcing from the 1980s.

*Table 1 Outsourcing waves*

<b>Time</b>	<b>1<sup>st</sup> wave (since 1980s)</b>	<b>2<sup>nd</sup> wave (since 1990s)</b>	<b>3<sup>rd</sup> (since 2000)</b>
<b>Activity</b>	Manufacturing	IT	Business activities
<b>Place</b>	China, middle and east Europe, Mexico	India, Ireland	India, Pakistan, soth Africa
<b>Type of companies</b>	Manufacturing companies	Manufacturing companies, banks	Financial services, and common services
<b>Motive</b>	Reducing costs of working force	To get IT experts and to reduce costs	Reducing costs of working force and providing services under 24/7

*Source: Nedović Čabarkapa, M., Šibalić, V. (2010): Orijentacija gospodarskog subjekta na temeljni biznis primjenom outsourcinga, Poslovna logistika u suvremenom menadžmentu, p.76.*

Special attention in Table 1 should be paid to the motive of outsourcing. It is possible to observe that in all of these periods as their primary reason for using outsourcing is the reduction in costs. Author Harrow (2010, 57), as well as many other authors, who for many years was engaged in research outsourcing, points out that the most important reason for making a decision on outsourcing to external sources is that they perform certain activities more efficiently and at lower costs. The conclusion is that the very essence of outsourcing is to use external resources, ie. to reach for resources outside of the company, and the cause for outsourcing is in increasing pressure on companies in terms of increased efficiency and efficient cost management.

From everything aforementioned emerged the aim of this paper. Therefore, the objective of this paper was to investigate whether outsourcing in Croatian companies directly influence on a reduction of costs and whether indirectly affects the increase of competitiveness. The paper presents the existing researches in the above mentioned area as well as the results of the research conducted by the authors in 2014 among companies in the Republic of Croatia.

## **2. Advantages and disadvantages of outsourcing**

Before making a decision on the application of outsourcing as a business strategy, it is necessary to thoroughly analyze the situation of the company. According to Drljača (2010) it is necessary to consider which systems and processes can be outsourced, to create communications channels for efficient implementation and support, which is the best use of available and new resources, to establish a new partnership and how to better shape the partnership model in order to ensure continuity of success. Also, before making a decision on the application of outsourcing it is necessary to conduct an analysis of strengths and weaknesses with respect to market position, staff, equipment and finances. Based on the identified strengths and weaknesses, the company identifies the crucial activities and determines what can be outsourced, and what does not (Schniederjans et al., 2005, 10).

Thomsett (2003) suggested several guidelines for successful use of outsourcing. Therefore, it is necessary to monitor the productivity and costs; it is necessary to professionally and precisely define the scope, objectives, quality, costs, benefits and risks of outsourcing and is crucial to create a "win - win" relationship.

Literature suggests a number of reasons why companies choose outsourcing. Ferruzzi et al. (2011, 60) conducted a study in 2011 on a sample of 184 respondents of the reasons for the use of outsourcing. Research has shown that companies resort to outsourcing because of three primary reasons of the positive effects of outsourcing; because providers are highly specialized; outsourcing allows you to reduce and control operating costs and outsourcing of non-core activities allows a greater focus on core business.

From the foregoing reasons why companies choose to outsource certain processes, operations or activities could carry out the objectives of application outsourcing (Ferruzzi et al., 2011, 60):

- achievement of high quality products or services through the specialized knowledge of external partners and providers of outsourcing services;
- reducing costs: services of external partners are preferable than setting up own infrastructure, hiring own staff, resources, etc. in order to produce a particular product or provide service, or the process, operation, activity should be conducted internally;
- exclusion and turning over non-core activities to external partners allows focus on the primary or strategic activities of the company and directing all available resources to achieve excellence in the implementation of the "core" business.

Citra (2002, 25) "containment" of costs considers a key reason for outsourcing and wrote: Thanks to outsourcing, companies can avoid a large part of the costs that are not necessary and concentrate only on the essential activities, those that create greater value (which are helpful). It is likely that on the level of costs alone external service providers may in turn offer additional benefits that can be reduced to a greater experience and the potential economies of scale. Outsourcing allows companies liquidation of fixed costs that are structurally related to the internal supply of services, such as equipment and software, and allows you to minimize future investment in research and development. In addition to the above objectives which are considered to be the most common, companies also tend to increase the efficiency, flexibility, agility and transparency. The whole is thus aims to increase the competitive ability of companies. Application of outsourcing should result in improved operations, which ultimately results in increased company profits (Pavić, 2009, 44).

In addition to those major reasons why companies choose to apply outsourcing, Pavić (2009, 45) states a number of other reasons as increase flexibility, increase the value of products and services, customer satisfaction and shareholder value, improve operational performance, acquisition of innovative ideas, increasing the credibility and image of connectivity with top partners, gain access to new markets and business opportunities through business network outsourcers, accelerating expansion by using developed capacity, processes and systems of outsourcers, converting fixed costs to variable, the possibility in promotion of employees and shortening development time.

Companies that accurately plan and professionally manage outsourcing create a useful baseline for the implementation of the following benefits that outsourcing can provide. The authors Nedović Čabarkapa and Šibalić (2010,78-79) explain in detail how outsourcing produces aforementioned advantages. When focusing on core competencies, outsourcing enables management focusing on strategic issues and activities which are unburdened with regard to non-core activities. Outsourcing non-core activity indirectly increases the quality of the product. Company put all resources to the product itself or its improvement, design, etc., which will result in customer satisfaction. By reducing costs due to application of outsourcing, the authors emphasize the reduction of labor costs. For example, if the IT services are not outsourced, company must have a number of experts from various fields of information technology. By separating the IT functions outside of the company is requiring possibly one employee as a link between the company and the IT service provider. It is similar to a service call centers that company because of expensive infrastructure and employee training are increasingly separating from operations.

Production requires a large number of workers and the manufacturing companies are increasingly deciding to relocate from market with high labor costs on the market with a lower labor cost (eg. India). From the aspect of competitiveness, companies that have their secondary activities and processes outsourced can better respond to market changes because they are oriented on their core competencies and to the new market conditions and dynamic environment they must adapt less. The price of outsourcing is included in the price of the product; the product cost will be lower, because outsourcing is cheaper. By using outsourcing, companies are using the latest technology that can not be used when those activities they performed internally. In this way companies do not have to waste time and resources on improving operational activities and there is a possibility of directing resources to strategic activities. For example, instead of investing significant resources in transport equipment, companies can use external transportation services, and they could invest those resources in research and development to improve product quality. Also, a very significant advantage of outsourcing is to use the knowledge and skills of outside experts to supplement limited capacities within the company for product development. So, outsourcing provides access to intellectual property and the experience and knowledge of external experts.

In addition to the expected benefits, it is necessary to take into account the negative effects of outsourcing. Harrow (2010, 62) states most often questionable quality of external service providers; loss of insight into the business processes of external service providers; resistance to outsourcing because of "lossess" in the domestic economy; corruption of local officials in the poorer areas and security of data outside the company. The disadvantages of outsourcing actually arise from urgent, improper or inadequate surrendering part of the business to subcontractors. By using outsourcing, risk reduction in the quality of products or services can occur. So, there is a possibility that the product or service become faulty due to poor execution activities. Therefore, it is necessary and very important to establish direct communication between the company and the service providers. Client expectations and instructions regarding outsourcing services must be elaborated in detail. Outsourcing for reasons of reducing costs may have a negative effect on the actual performance of the

company. As previously stated, the company is often moving production facilities in areas with a lower cost of labor in order to reduce costs and increase productivity. It should be borne in mind when deciding on outsourcing, that is increase in the effectiveness result of exemplary tools and methods that are used in the process, rather than hiring more workers with lower labor costs (Nedović Čabarkapa and Šibalić, 2010, 81-82).

There is no doubt that outsourcing provides numerous benefits for which the companies belonging to different industries are turning in their business strategy. However, management should bear in mind that outsourcing is not without its drawbacks, which require long-term and complex preparation and ready-made solutions to potential problems.

### **3. Overview of previous research in outsourcing application**

#### **3.1. World practice in outsourcing application**

When it comes to international practice, it can be said that the application of outsourcing is far more common in respect of Croatia. Large multinational companies are long been accepting outsourcing as a business solution, primarily as a strategic outsourcing. They have been recognizing the advantages of outsourcing and in practice gradually prevailed all disadvantages.

Harrow argues (2010, 61) that in the world today there are whole regions for which it could be said that they are the region of outsourcing. To all known example is India. Apart from India, the Asian continent, as well as frequent outsourcing destinations, according to Tholonsu (2013), are the Philippines, China, Vietnam, Malaysia, Sri Lanka and Singapore. In the area of the African continent, known outsourcing countries are: South Africa, Ghana, Morocco, Egypt and Kenya. As for America, Tholons (2013) states Chile, Argentina, Brazil, Uruguay, Brazil, Mexico, Colombia and Peru. The reason lies in the fact that the southern and southeastern Asia, South America and Africa are areas of low labor costs as these areas makes it attractive to companies that tend to reduce labor costs. This is exactly what many multinationals leads to the displacement of activities or even entire production facilities in India and the region of similar or identical characteristics. American Express Company is in 1994 moved part of their processes to India, establishing a financial center for East (Thomsett, 2003). In the US, over 90% of companies use outsourcing (Berger, 2008). Below we will give some examples of outsourcing projects of known companies.

IBM is in the context of the global service, created to offer a minimum, partial or complete takeover of the IT function from its clients. Offer applies to technical support, monitoring functions of the system, information system security management, user administration, database management, etc. (Berger, 2008). Some of the most important and certainly the most famous clients using IBM outsourcing services are: General Motors, Fiat, JP Morgan, American Express and Deutsche Bank (Brkić, 2013). The contract value of the basic service offering ranges between 100,000 and \$ 10 million for a period of 5 -10 years. According to Goransson et al. (2007, 34) H & M, famous Swedish fashion brand, does not own production facilities, the entire production is outsourced. However, H & M fully coordinated around 700 independent suppliers, mostly in Asia and Europe. Also, have numerous offices in Europe, Asia, Central America and Africa, responsible for monitoring and verifying whether products are produced according to the standards and in the right conditions. As for the textile industry, we have witnessed that today it is almost impossible to find clothes of European brands produced in Europe and it is mainly Asian origin.

When Procter & Gamble began to use outsourcing, the number of their innovation has increased by 60%. Today, almost half of the innovation of the company is resulting from outsourcing (Heric and Singh, 2010). General Electric has used outsourcing for development

of its largest integrated R & D hub in India (Ibid, 2010). Nike designs its products in America, and then has contracted production in countries such as South Korea, India, China or Indonesia. Women employed in Nike's manufacturing facilities are paid 20% below the existential minimum for an adult (\$ 2.25 a day), and there are estimates that it was "stolen" \$ 800,000 in wages in the same period in which Nike had net profit of 1.4 billion dollars (Šabarić, 2008, 45). Delta Air Lines has managed to save \$ 15 million per year because they have transferred basic services as plane tickets provision to India and to the Philippines (Ibid, 46). It is estimated that the cost of wages in Eastern Europe are about 50 - 60% below western levels. That was the reason for the relocation of data processing operations of companies such as DHL, Siemens and Lufthansa in the Czech Republic (Ibid, 49). Companies such as Dell, Apple, Microsoft, IBM, Cisco Systems and General Electric, apply the outsourcing of IT services, while India in this field is leading. Listed companies in India are opening new plants, but plants are moved from the US to India due to, again, cheap labor, but also educated and professional labor. In recent years, there is also relocation of research and development, software testing and design operations. The Indian stock market in recent years has risen by 200% and records growth thanks to billions of dollars of foreign investment triggered by outsourcing and daily flows into the Indian economy (Brkić, 2013, 26). This statement certainly best describes how outsourcing is a huge business that changes the look of modern companies and the way of doing business.

### **3.2. The use of outsourcing in Croatian companies**

Drljača (2010, 60-61) in 2004 has conducted a research in Croatia on a sample of 91 large companies (size of more than 250 employees). The questions referred to the use of outsourcing, to the measurement and achievement of the objectives and to the association of outsourcing and implementation of set objectives. The results showed that 73% of surveyed companies used outsourcing (61% of the surveyed companies in two or more activities or processes); 70% of surveyed companies were satisfied or very satisfied with the outsourcing; 70% of the surveyed companies consider the outsourcing of an excellent management tool and 68% of companies believe that outsourcing has no or little effect on the achievement of the objectives of the companies.

Outsourcing in Croatia is used as a business strategy for many years in the real sector, and of the Croatian accession to the European Union, the public sector is faced with changes to the strategic restructuring. Croatian Government in 2013 produced a document called "Project Implementation Plan for the long-term reform of fiscal consolidation measures for the 2014-2016". The government is outsourcing, among other measures, recognizing as an appropriate measure to reduce deficit. The plan states that outsourcing from the public sector, and thus the budget, entirely planned to allocate services that do not constitute the basis of the activity of the institutions in which they are provided. The goal is to extract the "non-core" activities like cleaning services area, laundry service, food preparation and beverage, maintenance and repairs while during the process to consider the inclusion of security services and transport services of passengers and goods, all in order to remove from the state budget all items and all expenses related to the cost of personnel, material and other costs of those services. Also, the Government points out that in addition to greater efficiency and quality will achieve savings as the difference between the current cost of the current irrational system and costs (expenses) for the payment of services according to the actual demand for the service user. In the Plan Government has lists a number of reasons for the application of outsourcing, especially in the field of education and health sectors: reduced costs, shorter time span, reduced the need for working space, reducing the cost of employees, continuous investment in the latest technology, contribution to greater economic activity in the sectors covered by outsourcing,



and so on. It is important to note that the stated reasons for outsourcing attributed to reduced costs (savings) as the primary reason.

When we talk about the real sector in Croatia, the results of research from 2009 (Pavić, 2009, 51-52), conducted on a sample of 32 large Croatian companies, shows that Croatian companies usually allocate activities like transport and distribution (60.87%), information technology (52.17%), production and maintenance of facilities (both activities 26.09%), marketing activities (21.74%), security services (17.39%), storage and legal affairs (both activity 13.04%), sales, procurement, accounting and administrative activities (8.70%), human resources, technical documentation - drawings, aftersales, canteen (4.35%). Again, research shows that the most common motive for outsourcing in Croatian companies is reduction and cost control (60.87%). However, even 50% of the surveyed companies stated that the most common adverse effects of outsourcing, among other things, are increased costs occur because of outsourced activities and the emergence of unforeseen costs (30%). Berger (2008) states the following facts that favor the development of outsourcing in Croatia: companies are increasingly aware of the fact that it is necessary to outsource activities that are not helping in reducing costs and increase profitability and they do not have a best practice in the "non-core" activities. According to Berger (2008) as barriers to outsourcing in Croatia state that a major international "players" who specialize in the provision of services in certain areas are not interested in the Croatian market, there are bureaucratic obstacles which prevent the relocation of activities in Croatia, the immaturity of the domestic market for individual providers of outsourcing services, labor and civil service unions can be a great obstacle to outsourcing activities, most contracts are concluded through public procurement based on the lowest price as the main criterion and the company with dumping prices, but not the abilities pose a threat to professional outsourcing companies, the issue of data protection, especially in the area of IT outsourcing activities.

Šabarić (2008, 82-84) states that the Croatian banking sector is leading when it comes to outsourcing. They recognized outsourcing as a solution for IT services, cleaning services and maintenance of premises and services to protect property and people. The survey from 2008, which refers to outsourcing in Croatian banks, shows that over 93% of Croatian banks when relying on outsourcing wants to lower cost, and 57% of the surveyed banks stated that the expected benefits of application outsourcing is in the future reduction of costs (Šabarić, 2008, 84).

Regardless on the number of obstacles, the domestic market increased when it comes to the number of specialized providers of outsourcing services. The demand for outsourcing services is recorded in the areas of accounting services, IT services, call centers, catering services, cleaning services and maintenance space.

#### **4. Empirical research results**

In this part of the paper authors presents the results of the empirical research (Krnjić, 2014) about outsourcing in Croatian companies. The research will show whether the awareness and practice of outsourcing in Croatian companies has changed compared to the previous years and are Croatian companies responding to dynamic market requirements by outsourcing in order to reduce costs. The survey was conducted among companies in the Republic of Croatia. For the purpose of interrogation the questionnaire was made that was sent to 70 companies by e-mail. Companies were selected from the Register of business subjects in Croatian commercial Chamber with usage of simple random selection procedure and it was necessary to select companies of all sizes in order to have representative sample. And indeed, from 70 contacted Croatian companies, 29 of them decided to take part in the survey and fill it. This gave a response rate of 41,43%. Of 29 companies which answered on questionnaire,

16 of them are small companies, 8 medium and 5 large companies. According to the Accounting Act (Accounting Act, 2007) in Croatia companies are recognized regarding their size as small, medium and large companies. The companies are defined on the last day of the fiscal year preceding the fiscal year for which the financial statements are prepared according to the following three criteria: total assets value; the income value; and average number of employees during the financial year. So the small companies are those which do not exceed two of the following criteria: total assets value of HRK 32.5 million, the income of HRK 65 million, average number of 50 employees during the financial year. On the other hand, the medium companies are those which do not exceed two of the following criteria: total assets value of HRK 130 million, the income of HRK 260 million, average number of 250 employees during the financial year. Large companies are those which fulfilled two requirements for medium-sized companies.

The first part of the questionnaire examined the size of the company according to the Accounting Act, type of activity which surveyed companies perform and the area of their business. The second part of the questionnaire was conducted with the aim of gaining insight into the familiarity of respondents with outsourcing: does management know about outsourcing, opinion of respondents on outsourcing and similar. The third part of the questionnaire is designed in a way that enables specific information on the application of outsourcing: whether companies used outsourcing and still use, do they consider outsourcing as suitable option for cost management, use outsourcing to reduce costs, with which the effects of outsourcing have they meet, etc. The information gathered through the questionnaire enable us to establish cause - effect relationship between the use of outsourcing in Croatian companies and reducing costs. The questionnaire was designed in a way that makes it simple to use, and the questions are short and understandable. After collecting responses from the company, analysis of results has been done in the Statistical Package for Social Sciences (SPSS).

The largest number of surveyed companies belongs to the sector of trade, transport and services, 22 companies out of 29 respondents. 7 companies belong to the sector of industry, energy and construction. 14 out of the 29 surveyed companies operate around the world, while only 10 of the 29 surveyed companies operate exclusively on Croatian territory.

Table 2. shows the familiarity of management with the concept of outsourcing. Answers are ranked from 1 to 5. Rank 1 - not familiar, and rank 5 - totally familiar. It is apparent that only five out of the 29 surveyed companies is fully familiar with the concept of outsourcing, which relatively presents only 17.24%. However, if we add to that number 19 companies that are mostly familiar with the concept of outsourcing (65.52%), we get almost 83% of managers who are familiar with the concept. That is very high and satisfactory rate, and shows that the awareness on outsourcing in Croatia is developed as an important precondition for the development of outsourcing practices in Croatian companies.

**Table 2** *Familiarity of management with the concept of outsourcing*

	I am not familiar	Mostly I am not familiar	I know something about	I am mostly familiar	I am fully familiar
<b>Number of companies</b>	-	-	5	19	5

Source: authors

Table 3 shows agreement and disagreement of the surveyed companies with the claim that outsourcing is an efficient way of doing business. Comments are ranked from 1 to 5. Rank 1

means "strongly disagree" and rank 5 means "strongly agree". The table shows that only 5 of the 29 (17.24%) of Croatian companies outsourcing considered fully efficient way of doing business, while 15 of 29 (51.72%) companies outsourcing generally considered as an effective way of doing business. Summed, even 68.96%, or 20 of the 29 managers, consider outsourcing as an effective way of doing business.

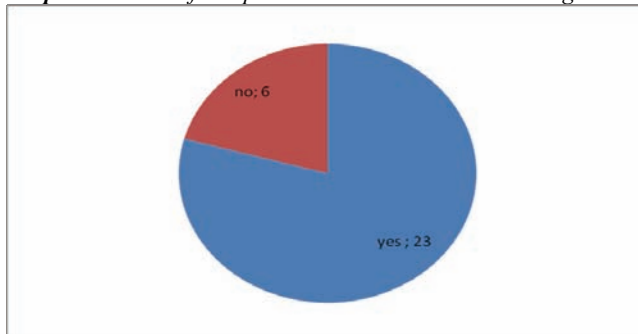
**Table 3** *Wheter outsourcing is considered to be an effective way of doing business*

	I strongly disagree	Mostly disagree	Do not disagree or agree	Mostly agree	I strongly agree
<b>Number of companies</b>	2	2	5	15	5

Source: authors

Primarily it was necessary to find out if awareness of outsourcing in Croatia developed and whether the company is prone to outsourcing. Research has shown that a very high percentage of surveyed companies applied outsourcing and that it still applies it, and that certain activities, processes or functions at the time of the survey were entrusted to external partners. Even 23 of 29 (79.3%) of the surveyed companies had been applying outsourcing, and 7 (20.7%) of the surveyed companies had never applied outsourcing.

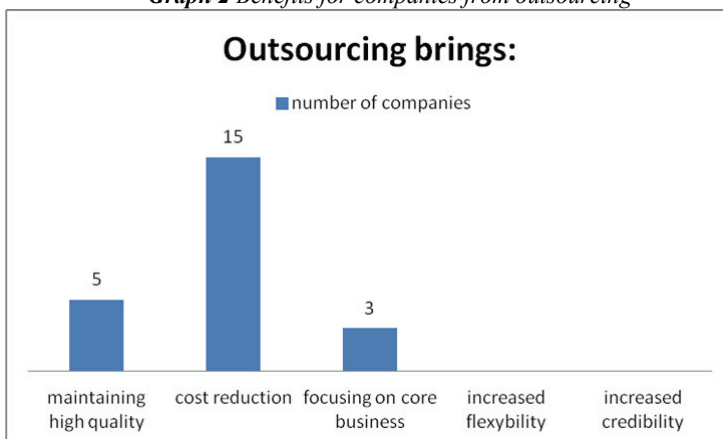
**Graph 1** *Number of companies that have used outsourcing*



Source: authors

Furthermore, research has shown that companies that are applying outsourcing are continuing to use outsourcing. Thus, 79.3% of the surveyed companies that had previously expressed that are outsourcing, to a question about the current outsourcing responded positively. The result of 79% of companies that have used or still use outsourcing services is very high and satisfactory and shows that outsourcing is accepted as a business solution in the Republic of Croatia and as a business model has a future in Croatian companies.

**Graph 2** Benefits for companies from outsourcing



Source: authors

From Graph 2 it is evident that Croatian companies recognize benefits from outsourcing. The largest number of companies answered that benefits of outsourcing are visible in reduction of cost, then in maintaining high quality and then in the ability to focus on their core business.

The above shows the responses to the questions related to outsourcing in general. Moreover, we will do statistical testing of the specific questions on outsourcing in order to draw a relevant conclusion.

Testing the hypothesis cause - effect relationship will be tested in application of outsourcing and cost reduction in company. More specifically, does really outsourcing reduces costs and thus increase the competitiveness of companies in the market. In order to test assumption two hypotheses were formed and we have used one-tail z test about a population proportion. SPSS statistical software calculated the values on which it was conducted testing. Because of the small sample the t-test was used.

Testing the hypothesis  $H_1$  ( $H_1$ : Companies that operate in the Croatian market are likely to use outsourcing) will examine whether companies used outsourcing as a strategic option and whether outsourcing has been accepted as a business solution in Croatia. The respondents were asked asked: "Have you applied outsourcing in your company?". Therefore, it is assumed that more than 60% of the surveyed companies has used outsourcing. Thus the test hypotheses are:  $H_0... p \leq 0.60$ ,  $H_1... p > 0.60$ . Conducted statistical test confirmed that assumption. In other words we reject the null hypothesis at significance level of 5% (test statistic = 2.1227, p-value = 0.0169). Consequently, at significance level of 5% we reject the assumption that 60% and less companies operating on the Croatian market apply outsourcing. That is, one can accept the assumption that more than 60% of companies operating on the Croatian market applies outsourcing. Based on the test results, it is evident that companies use outsourcing as a strategic option and that outsourcing in practice has been accepted as a solution. The results show that outsourcing as a business model has a future in Croatian companies. Therefore, we have confirmed our first hypothesis.

Testing the hypothesis  $H_2$  ( $H_2$ : Outsourcing reduces costs in the amount of 5 to 10%) will be examined in which percentage outsourcing results in the reduction of costs in relation to the costs that would arise using the insourcing. Respondents were asked: "According to past experience, in what percentage, according to the assessment, the outsourcing has cut costs?".

It is assumed that more than 50% of companies will reduce costs in the amount of 5-10% by using outsourcing. Thus the hypothesis test is as follows  $H_0 \dots p \leq 0.5$ ,  $H_1 \dots p > 0.5$

Conducted statistical test confirmed that assumption. In other words we reject the null hypothesis at significance level of 5% (test statistic = 2.4004, p-value = 0.0082). At the significance level of 5% we can reject the assumption that 50% or less of the company realized savings in the amount of 5 to 10% by outsourcing. That is, one can accept the assumption that more than 50% of companies achieved savings in the amount of 5 to 10% by outsourcing. On that way, we also confirmed our second hypothesis in the paper.

## 5. Conclusion

Frequent changes in the business environment have forced companies to continuously find new ways to maintain competitive abilities and possibilities of improving business. At the beginning of the paper asked question was whether outsourcing is possible response to the growing pressure in order to reduce operating costs. By using outsourcing company directs all available resources on key activities, and supporting activities are outsourced to specialized partners that such activities performed better and cheaper.

Lower costs and better performance of non-core activities enables companies to improve business by focusing on key activities. To make the entire outsourcing successful, it is necessary to thoroughly plan each step carefully and choose partners. But most important is to properly identify key actions that companies should not be outsourced because they create value and form the foundation of their business.

Numerous studies conducted on the topic of outsourcing show that companies which outsource non – core activities reduce operating costs and increase the quality of products or services. Therefore, in this paper it was assumed that Croatian companies apply outsourcing and meet with the positive effects of outsourcing in the form of reduced costs.

The results show that the majority of Croatian companies' apply outsourcing and managers of Croatian companies outsourcing consider as an effective means business. Also, the results showed that companies that are applying outsourcing still use the services of external partners, which may point to the satisfaction of Croatian companies with the effects of outsourcing outcomes.

Companies are applying outsourcing to reduce operating costs (cost reduction) and cite cost reduction as their primary reason on the involvement of outsourcers. Also, the management of the surveyed companies consider outsourcing as an excellent way to manage costs. The research results show that outsourcing reduces operating costs in the amount of 5 to 10%, which is by no means negligible percentage. Most of the surveyed companies consider that outsourcing has a positive effect on the competitiveness by reducing price of the product or service as a result of cost reductions resulting from the application of outsourcing. This result is very important for the development of outsourcing in the Republic of Croatia.

Based on the research concluded that the size of the company significantly influence the decision on outsourcing, and that small businesses often outsource, and the reason is lack of financial and human resources. Small businesses are usually not financially powerful enough, and they lack human resources for internal performance of activities. Outsourcing enables to small businesses access to advanced technology, knowledge, innovation, etc. That enables them to compete on an equal footing and fight for their share of the market.

The research results show that the awareness about outsourcing is developed, that the management of Croatian companies is familiar with the concept of outsourcing and that realizes the advantages and disadvantages of the concept. The above is a very important prerequisite for the further development of the concept in Croatia. Research shows that domestic companies adopt and introduce new ways of doing business. Among companies of

developed countries outsourcing is present for several decades and Croatian companies are adapting to global trends.

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## **TOWARDS THE EFFICIENT USE OF PUBLIC HEALTHCARE RESOURCES IN CROATIA<sup>1</sup>**

### **PRIJEDLOG ZA EFIKASNO KORIŠTENJE ZDRAVSTVENIH RESURSA U REPUBLICI HRVATSKOJ**

#### ***ABSTRACT***

*Rational and efficient use of public resources is crucial in order to reduce the healthcare costs and consequently to decrease the problem of excessive indebtedness of public healthcare providers in Croatia. Given the growing prevalence of chronic disease (e.g. cancer), secondary prevention (screenings of risky population) has the potential for achieving significant savings in the health care system. Nowadays, many national health care systems are focusing on disease preventing activities. Pap test is proven to be the most cost-effective method of early detection of cervical cancer. Unfortunately, with the model of opportunistic screening a large percentage of women rarely undergo the Pap test, which points to a need for an organized screening program. One of the goals of such programs is to detect a larger population of women with pathological cell changes. The purpose of this paper is to analyze the justification for the implementation of organized screening for cervical cancer by examining the relationship between the number of Pap tests and number of pathological Pap test results as a share in abnormal Pap test results.*

*The estimation is carried out within vector autoregressive (VAR) model and Granger causality testing. Standard Granger causality analysis was helpful in establishing the direction of causal links between the variables of interest, while the signs of these relationships are examined by using impulse response function. Findings suggest that there is a unidirectional causality that*

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runs from number of conducted Pap smears to the share of pathological in abnormal Pap results. Also, results indicate that Pap smears cause a positive response in the share of pathological in abnormal Pap results. This indicates that as the number of conducted Pap smears increases (which can only be done as part of organized screening programs) there will be more cases of an early detection of disease, which could result in healthier population and decrease in health care costs, resulting in less insolvency problems for individuals as well as for the public health care.

**Keywords:** organized screening, Pap test, Granger causality, effectiveness, indebtedness

## SAŽETAK

Racionalno i efikasno korištenje zdravstvenih resursa ključno je za smanjivanje troškova javne zdravstvene zaštite te posljedično za rješavanje problema pretjerane zaduženosti pružatelja javnih zdravstvenih usluga u Republici Hrvatskoj. Obzirom na rastuću prevalenciju kroničnih bolesti (primjerice, karcinoma), sekundarnom prevencijom (probir rizične populacije) moguće je ostvariti značajne uštede u zdravstvenom sustavu. U skladu s time, mnogi se nacionalni zdravstveni sustavi okreću ka prevenciji bolesti i preventivnim aktivnostima. Papa test je dokazano troškovno efikasna metoda ranog otkrivanja bolesti, ali se uz oportunistički probir populacije veliki broj žene ne podvrgava pregledu, što upućuje na potrebu za organiziranim programima probira. Jedan od ciljeva ovakvih programa je otkriti populaciju žena s patološkim promjena stanica, a svrha ovog rada je analizirati opravdanost implementacije organiziranog probira ispitujući odnos između broja Papa testiranja i broja patoloških rezultata u ukupnom broju abnormalnih rezultata Papa testiranja.

Analiza je provedena koristeći model vektorske autoregresije (VAR) i Grangerov test kauzalnosti. Standardna Grangerova analiza kauzalnosti ukazala je na smjer kauzalne povezanosti između promatranih varijabli, dok su predznaci analizirani funkcijom impulsnog odaziva. Rezultati ukazuju na smjer povezanosti od broja provedenih Papa testiranja prema udjelu patoloških u abnormalnim rezultatima Papa testa. Također, rezultati ukazuju da porast broja Papa testiranja uzrokuje pozitivni odaziv udjela patoloških u abnormalnim rezultatima Papa testa. Sukladno rezultatima, može se zaključiti da kako se povećava broj provedenih Papa testiranja (što se može učiniti samo putem organiziranih programa probira) bit će više slučajeva rane detekcije bolesti, što u konačnici može rezultirati zdravijim stanovništvom i smanjenjem troškova zdravstvene zaštite, odnosno smanjivanjem problema insolventnosti kod stanovništva kao i zdravstvenog sustava u cijelosti.

**Ključne riječi:** organizirani probir, Papa test, Granger kauzalnost, efektivnost, zaduženost

### 1. Introduction

With regular screening tests and follow-ups, cervical cancer is the easiest gynecologic cancer to prevent (Arbyn et al. 2010) and Pap test is still the best and cost-effective morphological test for cell abnormality due to its simple use for physicians, acceptability for patients and high test sensitivity (NCI, <http://seer.cancer.gov/statfacts/html/cervix.html>). The Pap test (or Pap smear) looks for cell changes on the cervix that might become cervical cancer if they are not treated appropriately. Its purpose is to prevent cervical cancer and identify women with CIN II and more severe lesions (CIN II+).

The number of provided annual Pap tests in Croatia varies around 230,000, but many women never took the Pap test and cervical cancer still causes the deaths of more than 100 women



annually (National program for early detection of cervical cancer, 2010). This is in accordance with many middle-income developing countries where opportunistic cervical screening programs tend to be ineffective, as adequate coverage does not extend to the majority of women with high risk (WHO, 2002; Anttila et al. 2004).

A well-organized screening is proved (Nieminen et al. 1999; Madlensky et al. 2003) to be more efficient than opportunistic (spontaneous) screening (it is more effective, costs less, and results in less harm than the spontaneous one), partly because screened women tend to be in high risk for the disease. The goal of organized cervical cancer screening (in its first phase) is to detect as many women with pathological cells change in early stage of the disease, which could improve the probability of cure and decrease costs of invasive cervical cancer. After certain time since the introduction of screening program, it is expected that effective screening (attendance rate of target population greater than 80 percent) would lead to increase in the number of Pap test diagnosis that does not imply pathological cells change (second phase). It is estimated that 80-91 percent cases of invasive cervical cancer could be prevented with screening interval of every three years (National program for early detection of cervical cancer, 2010).

Considering the above stated findings, the purpose of this paper is to analyze the need for an organized program of cervical cancer screening which in the long run should result in positive epidemiological and sociological implications, along with cost savings within public health care system. Empirical investigation was conducted using data on monthly basis from 2007 to 2012 by examining the relationship between the number of Pap smears and pathological Pap results as a share in overall abnormal Pap results. As the goal of organized cervical cancer screening is to include women who avoid Pap screening but are in the group with pathological Pap results (CIN II and CIN II+), justification for the introduction of screening program can be found in positive relationship between the number of performed Pap smears and number of pathological Pap results as a share in overall abnormal Pap results. If this relationship was negative it would mean that current opportunistic cervical cancer screening is already accomplishing the long term goal of organized screening and it would be more prudent to allocate resources in other purposes.

## **2. Economic implications of cervical cancer screening**

Poor health and chronic illness can affect the economy through spending and savings (capital formation), as well as the level of education (Suhrcke et al. 2006). Reduced (due to illness) household consumption and the level of education have a negative impact on gross domestic product, while at the same time expenditures for chronic diseases across Europe are taking an increasingly large share in the government and private consumption. Empirical research at the micro level shows that chronic diseases reduce wages, earnings, labour force participation and productivity while, also, affecting early retirement, disability benefits and high rate of employee turnover (Busse et al. 2010). Therefore, it is necessary to redesign the public health system towards a model of integrated care (Pelletier et al., 2009) with a focus on chronic disease management (McKee & Nolte, 2004) and to ensure greater sensitivity to patients' needs and preferences, consequently increasing the efficiency of the provision of public healthcare.

The prevention of chronic diseases that reduces morbidity and disability has a significant part in integrated medicine and there is a growing interest towards the prevention (Clarke, 2010). Given that in times of crisis the burden of chronic disease is increasing, preventive interventions are becoming more important as they affect the maintenance and improvement of the population's health, therefore reducing government spending on the sick leave and disability benefits (Wei-Hua et al., 2010; Sassi & Hurst, 2008). Also, the effective use of the prevention helps to reduce

the need for curative care and the associated high costs of medical treatment (Wei-Hua et al., 2010; Sassi & Hurst, 2008) which is of great importance nowadays. According to National Social Marketing Centre (2010) in Great Britain, every improvement by one percent in quality of health due to health preventive program leads to costs savings in public health in GBP 190 mills. Moreover, investment in prevention is not only in the interest of the government but also in the interest of the employers (Pelletier et al., 2009), who can save 2-3 dollars on average in costs associated with the loss of productivity due to employee illness only by spending a dollar on medical/pharmaceutical costs.

The effectiveness of cervical screening programs has been demonstrated in several countries (Advisory Committee on Cancer Prevention, 2000), and Pap smears are considered to be the successful method of prevention and early detection of cervical cancer. Apart from the reduction of medical costs, screening implies significant benefits for families, business and broader society (Brow, Lipscomb & Snyder, 2001). Compared to other disease preventive interventions and accepted baseline cost-effectiveness ratio, cervical cancer screening is highly cost-effective (Eichler et al., 2004) with relative costs and benefits of screening varying upon the age of target population and the interval of screening (Goldie, 2006). Moreover, organized screening program with active invitation activities could improve participation and equity of access to the preventive health care thus allowing educational (Espinosa et al. 2011) and socioeconomic (Segnan, 1997) gap to narrow.

In Croatia the cost of treating one patient with cervical cancer varies around HRK 100,000. This means that annual medical costs of treating around 350 women in the age of 25 to 69 goes beyond HRK 35 mills. If incidence of cervical cancer were to decrease by 60 percent, annual medical costs could decrease by HRK 20-30 mills, leaving behind much healthier population. Only the funds that could have been saved on the sick leaves of women treated for invasive cancer would be enough to cover the costs of acquisition and maintenance of technical equipment along with education of public health care providers.

### **3. Data and methodology**

There is agreement that cytology indicative of high-grade lesions (CIN II-III or moderate and severe dysplasia plus carcinoma *in situ* or (according to Bethesda system) HSIL - high-grade squamous intraepithelial lesion) should be followed by immediate referral for colposcopy. On the other hand as the large majority of low-grade lesions (LSIL - low-grade squamous intraepithelial lesion or ASCUS - atypical squamous cells of undetermined significance) resolve spontaneously (WHO, 2002), women can be followed with regular cytology and only referred for colposcopy if repeat smears at 6-month intervals show evidence of cytological progression (Miller et al. 2000).

Considering above-mentioned, in examining the interactions between variables, the following vectors of time series are examined. One observed variable was the share of Pap results that indicated pathological cell change (or high-grade lesions) in overall number of abnormal Pap results (both low-grade and high-grade lesions). The second variable was the number of Pap smears that were taken by gynecologist in primary health care which was expressed in natural logarithms in order to stabilize its variance. Time series consist of monthly data in period 1M2007 – 12M2013. The data were obtained from cytology laboratory of the Clinical Hospital Centre Rijeka and encompassed the Pap smears taken by gynecologists in primary health care from Primorje-Gorski Kotar County. The analyzed data are not publicly available, making this research unique.

Since we opted for time series approach, based on diagnostic testing we choose a vector autoregression analysis as appropriate time series technique. Vector autoregression (VAR) has emerged as an important tool in the empirical analysis of time series in the early 1980s (Cooley, Dwyer, 1998). There are two basic applications of VAR methodology: testing theories and analysis of the dynamics phenomena between variables. The key property in the VAR model is the stationarity<sup>2</sup> of all variables included in the model. To examine the stationarity of variables, it is necessary to apply well known unit root tests such as Augmented Dickey-Fuller test (ADF) and Phillips-Peron test (PP). In this sense, if variables are not stationary they have to be transformed to become stationary and as such, included in VAR models.

Also, VAR methodology cover an analysis of causal variables in the model (Granger causality), innovative analysis, which is a common term for the analysis of the impulse response function (IRF - Impulse Response Function) and analysis of variance decomposition (DVC - Decomposition of Variance). Results of innovative analysis provide the same information, but presented in a form suitable for interpretation and conclusions (Bahovec and Erjavec, 2009).

It the paper, we used general unrestricted VAR model (Sims, 1980) that assumes no constraints on the parameters of the model, i.e. there should not be any a priori distinction between endogenous and exogenous variables.

Granger causality test (Granger, 1969) was used for determining the direction of causality between the number of Pap smears and the share of pathological in overall abnormal Pap results. Granger's test is a convenient and very general approach for detecting the presence of a causal relationship between two variables. A time series X is said to Granger-cause another time series Y if the predication error of current Y declines by using past values of X in addition to past values of Y. The application of the standard Granger's causality test requires that the series of variables to be stationary. If this is not the case, then two variables have to be first transformed to covariance stationary processes. This is usually done by taking their first differences. The Augmented Dickey-Fuller and Phillips-Perron test are used in examining the unit roots and stationary property of two variables. To test for Granger's causality between number of Pap smears (LPAPA) and the share of pathological in overall abnormal Pap results (PAT\_ABN), two bivariate models are specified, one of Pap smears and another for the share of pathological Pap results. If two variables are stationary, the standard form of the Granger's causality test used in this paper can be specified accordingly as follows:

$$\Delta PAT\_ABN_t = \alpha_{11} + \sum_{i=1}^n \beta_{11i} \Delta LPAPA_{t-i} + v_{11t} \quad (1)$$

$$\Delta LPAPA_t = \alpha_{21} + \sum_{i=1}^m \beta_{21i} \Delta PAT\_ABN_{t-i} + v_{21t} \quad (2)$$

Also, the innovation analysis is used to obtain information concerning the interaction among the variables. It is possible to analyze the dynamics of the share of pathological in the overall abnormal Pap results in terms of the relative contribution of endogenous shocks and their transmission effects (Cooley, Dwyer, 1998). As we are interested in the analysis of impact of conducted Pap smears, the variance decomposition is performed on the share of pathological in abnormal Pap results.

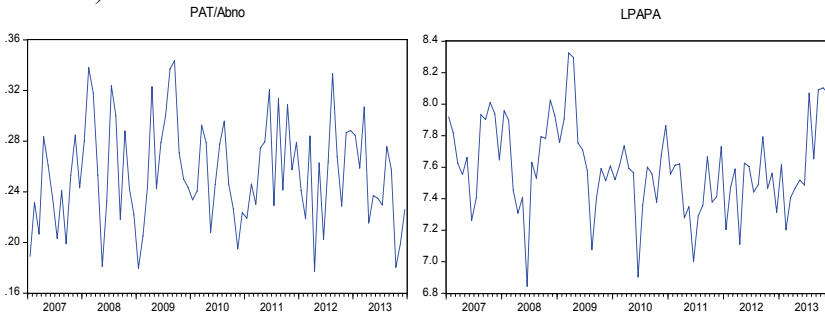
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<sup>2</sup> Mean and variance of underlying variable do not change over time, meaning that the series has no drift and is homoscedastic.

#### 4. Empirical results (Unit root tests and VAR and Granger causality)

The initial step in the analysis is to determine the order of integration of the variables included in the analysis. The graph 1 presents time series variables in levels. Based on the graphical representation it can be assumed that the variables in levels are stationary, which can be confirmed by using the unit root tests.

**Graph 1** Share of pathological in abnormal Pap results and Pap smears in levels (1M2007 – 12M2013)



Source: Authors calculation

Unit root tests are used to test for the existence of unit roots and identify the order of integration for each variable. Augmented Dickey-Fuller test (ADF) and Phillips-Perron test (PP) unit root tests are performed allowing for an intercept and a time trend. The optimal lag length for the VAR model was determined by using the sequential modified LR test statistic model selection criteria which indicated that the optimal lag is five. Unit root test for levels of Pap smears and share of pathological in abnormal Pap results in the period 2007-2013 are presented in table 1.

**Table 1** Unit root test results for share of pathological in abnormal Pap results and Pap smears (in levels)

Variable	ADF value, Constant incl.	ADF value, Constant and trend included	Phillips-Perron t, Constant incl.	Phillips-Perron t, Constant and trend included
ABN	-5.219 (0.000)	-5.183 (0.000)	-5.382 (0.000)	-5.358 (0.000)
PAP	-7.024 (0.000)	-6.982 (0.000)	-6.973 (0.000)	-6.926 (0.000)

Notes:  $\Delta$  is the difference operator. MacKinnon (1996) critical values are used for the rejection of the hypothesis of a unit root (p-values in brackets).

ADF and PP test have the null hypothesis of non-stationarity, i.e. the underlying variable has a unit root. Based on the obtained results, at 1% significance, we can reject the presence of a unit root in levels for both variables and conclude that both series are stationary and a VAR model can be employed.

Validity of the chosen number of lags and stability of the VAR model can be tested by calculating the roots of the characteristic polynomial. VAR model is stable if all characteristic roots lie outside the unit circle.

**Table 2** Roots of characteristic polynomial

Root	Modules
0.829380 - 0.335138i	0.894533
0.829380 + 0.335138i	0.894533
-0.254296 - 0.711901i	0.755956
-0.254296 + 0.711901i	0.755956
-0.680046 - 0.172654i	0.701621
-0.680046 + 0.172654i	0.701621
0.227537 - 0.656346i	0.694668
0.227537 + 0.656346i	0.694668
0.200502 - 0.186347i	0.273726
0.200502 + 0.186347i	0.273726

Source: Authors calculation

Since no roots lie outside the unit circle it can be concluded that VAR model satisfies the stability condition. VAR model (Table 3) has been evaluated and the results indicate that there is significant positive relationship, at 5th lag, between the number of Pap smears and share of pathological in abnormal Pap results. It means that an increase in the number of conducted Pap smears in the period t-5 raises the share of pathological in abnormal Pap results in the period t.

**Table 3** Results of the VAR model

Ident variable	PAT ABNO
ABNO(-1)	0.2796
	(0.1137) [ 2.4572]
A(-5)	0.0561
	(0.0181) [ 3.094]
ared	0.257
R-squared	0.147
sq. resids	0.097
equation	0.038
istic	2.348
likelihood	152.66
ce AIC	-3.586
arz SC	-3.256
dependent	0.256
lependent	0.0409

Standard errors in parentheses and t-statistics in brackets

Source: Authors calculation

Since correlation does not signify causality, we are interested in the existence and the possible direction of causality between the two analysed variables. We proceed with the standard pairwise Granger causality test (1969) which is used to determine the existence and the direction of causality between the variables.

**Table 4** Results of the pairwise granger causality test between the share of pathological in abnormal Pap results and Pap smears

Null Hypothesis:	Obs	F - Statistic	Probability
ABN does not Granger Cause LPAPA	79	1.30099	0.2739
<b>A does not Granger Cause PAT_ABN</b>		<b>3.02753</b>	<b>0.0159</b>

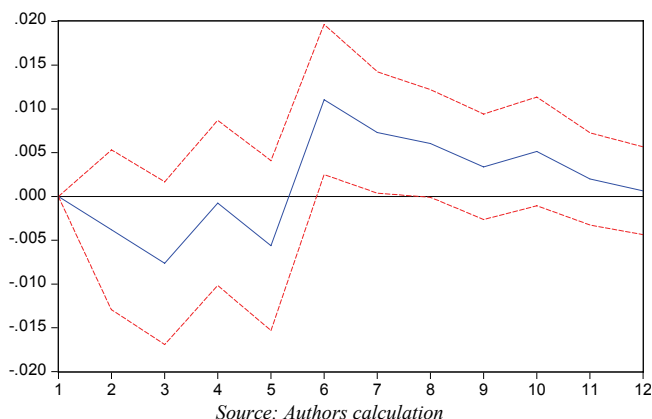
Source: Authors calculation

Results shown in table 4 indicate that there is a unidirectional causality relationship between Pap smears and share of pathological in abnormal Pap results. The results show that number of Pap smears Granger causes the share of pathological in abnormal Pap results. These findings are expected due to the fact that organized screening program in Croatia was introduced in 2013 and it is in its first phase, with attendance rate of target population being only around 10 percent. Even more importantly, the results justify the introduction of an organized screening program. As increase in Pap smears causes increase in the share of pathological cell formations detected in the population, it means that women with high risk of cervical cancer are being detected as the number of conducted Pap smears in population increases. Within the organized screening in Croatia women who did not take the Pap test in last tree years are being invited for the Pap smear. Given this results, it can also be expected that increase in the attendance rate of target population of the screening program could enhance the early detection of cervical cancer.

Since analysis of Granger causality may not provide a full picture of the dynamic interactions between underlying variables, impulse response function based on orthogonal residuals and decomposition of variance was also performed.

**Graph 2** Impulse response function of the share of pathological in abnormal Pap results to one s.d. shock in Pap smears

Response of PAT\_ABNO to Cholesky  
One S.D. PRIM\_PAPA Innovation



Source: Authors calculation

Impulse response function indicates the response of the share of pathological in abnormal Pap results (defined to be the response variable in the application of linear causality analysis at the 5% significance level) to a one s.d. (i.e. standard deviation) shock in Pap smears (defined to be the causal factor in the linear causality analysis). A one s.d. shock from Pap smears causes a positive response in the share of pathological in abnormal Pap results after five months (the

highest positive response was reported in 6 month). This probably can be explained by the fact that it usually takes three to six months to get the cytology results for Pap smears.

Further analysis of the relationships between variables, can be explained by using the variance decomposition of the share of pathological in abnormal Pap results. Table 5 shows how the underlying variable responds to the shocks in a number of conducted Pap smears. As expected, the share of pathological in abnormal Pap results is largely explained by its own lagged shocks. However, the proportion of variance explained by the number of Pap smears is not negligible and during the one year period (12 months) time span, it reaches almost 16,5%.

**Table 5** Variance decomposition of share of pathological in abnormal Pap results

l	S.E.	AT_ABNO	LPAPA
1	0.037767	100.0000	0.000000
2	0.039511	98.43041	1.569588
3	0.040073	95.72263	4.277370
4	0.040460	95.73045	4.269552
5	0.041029	93.39407	6.605930
6	0.042285	88.00247	11.99753
7	0.042743	86.13169	13.86831
8	0.043197	84.60049	15.39951
9	0.043431	84.35234	15.64766
10	0.043769	83.53195	16.46805
11	0.043808	83.51390	16.48610
12	0.043816	83.51531	16.48469

Cholesky Ordering: PAT\_ABNO LPAPA

*Source: Authors calculation*

In assessing the robustness of the estimated VAR model we conducted several residual tests. Based on the LM test statistics, none of the test statistics could reject the null of no serial correlation and heteroscedasticity in the residuals. The results of residual testing suggest that the estimated VAR model is unbiased and efficient. The residual normality test is computed using the Jarque–Berra statistic with Cholesky (Urzua) orthogonalization and shows that residuals for the VAR model can be viewed as being multivariate normally distributed. Overall, diagnostic statistics indicate that a model is adequately specified, therefore, we can conclude that the model is statistically sound.

## 5. Conclusion

The goal of organized cervical cancer screening (in its first stage) is to detect as many women with pathological cells change in early stage of the disease, which could improve the probability of cure and decrease costs of invasive cervical cancer. Therefore, it is argued in this paper that justification for the introduction of organized screening programs can be found in positive relationship between the number of performed Pap smears and number of pathological Pap results as a share in overall abnormal Pap results. Empirical results indicate that increase in Pap smears causes increase in the share of pathological cell formations detected in the population and therefore justify the introduction of an organized screening program. Also, it means that more women with high risk of cervical cancer can be detected as women (who do not take the Pap test regularly) are invited for the screening, respectively the increase in the attendance rate of target

population of the organized screening program could enhance the early detection of cervical cancer.

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## **PARADIGMA COST ACCOUNTING METHODS IN PRODUCTION ECONOMICS OF A SMALL ENTREPRENEUR**

### **PARADIGMA METODA TROŠKOVNOG RAČUNOVODSTVA U EKONOMICI PROIZVODNJE MALOG PODUZETNIKA**

#### **ABSTRACT**

*This paper illustrates the method of calculating of production economics of a small entrepreneur who applies single-entry accounting. Based on a business case of a small family farm business, the authors compare three different reports on production economics calculated on the basis of the outlined methodological approach. The authors apply single-entry and double-entry accounting techniques, managerial accounting techniques (Volume Based Costing and Activity Based Costing methods) and techniques of financial analysis. This paper proves the necessity of keeping detailed record of assets used in the production process in cases when different calculation methods are applied, and when the applying of a certain method depends on the quality of the informational basis. This paper also proves the reliability of the outlined methodological approach for determining of accurate data on production economics based on single-entry-accounting information.*

**Key words:** *single-entry accounting, double-entry accounting, ABC method, VBC method, small entrepreneur*

#### **ABSTRACT**

*U ovom radu se prezentira postupak izračuna ekonomike proizvodnje malog poduzetnika koji vodi jednostavno knjigovodstvo. Na praktičnom primjeru proizvodnje obiteljskog poljoprivrednog gospodarstva izračunavaju se tri izvještaja o ekonomici proizvodnje prema opisanom metodološkom postupku i kompariraju se dobiveni rezultati. U radu se koriste tehnike jednostavnog i dvojnog knjigovodstva, upravljačkog računovodstva (Volume Based*

*Costing i Activity Based Costing metode) i tehnike financijske analize. U radu se dokazuje nužnost vođenja evidencije upotrebe osnovnih sredstava u stvaranju proizvodnih učinaka (proizvoda ili usluga) kada se primjenjuju različite metode za izračune i kada njihov izbor ovisi o kvaliteti informacijske podloge. Također, u radu se dokazuje realitet metodološkog postupka za utvrđivanje točnih rezultata ekonomike proizvodnje kada je informacijska osnova jednostavno knjigovodstvo.*

**Ključne riječi:** jednostavno knjigovodstvo, dvojno knjigovodstvo, ABC metoda, VBC metoda, mali poduzetnik

## **1. Single-entry vs. double-entry accounting**

Small family farms (OPG) and craft businesses which generate less than 2 millions HRK of revenues on an annual basis are obliged by the law to apply single-entry accounting. Corporations, family farms and craft businesses with annual revenues over 2 millions HRK are obliged to apply double-entry accounting. The method of single-entry accounting does not provide accurate data on business performance (profits), largely due to the fact that its main purpose is to determine the income-tax base and to meet the required informational conditions of the control system of the state. On the other side, the profit and loss statements of enterprises applying double-entry accounting provide detailed information on their business performance (i.e. profit or loss). Therefore, the income of a small family farm (OPG) applying single-entry accounting essentially differs from the profit of a corporation applying double-entry accounting. The profit of a corporation is its business result, while the income of a small family farm is its income-tax base. This paper applies techniques of a static financial analysis on an example of a small family farm business which uses agricultural machinery, land and human capital in the production process, and whose business performance cannot be determined solely by using its single-entry-accounting-based reports/documentation. The first step before calculating the production economics per agricultural cultures is to determine the exact business result. Hence, the application of various accounting techniques and double-entry accounting methods is used to calculate the total business performance of a small family farm. Calculating of production economics of agricultural cultures is based on a specifically for this purpose compounded report on business performance. In agricultural production, it is possible to sort out variable costs from fixed costs and direct costs from indirect costs. Such sorting-out is the main precondition for calculating of agricultural production economics. A financial analyst can also apply some of the methods of indirect costs allocation. The quality of the informational basis and the nature of the production process largely determine which method and/or a combination of methods will be used. Both, an accurate record of business events and the quality of the informational basis substantially affect the quality of reports on production economics whose major purpose is to serve as a basis for quality decision making.

## **2. Methodology for calculating of production economics based on data from single-entry accounting**

The process of determining the business performance of an entrepreneur applying single-entry accounting includes six steps:

1. Determining of revenues/expenses from the book of incoming/outgoing invoices
2. Determining of realistic depreciation costs from the list of long-term assets

3. Determining of realistic costs of assets not registered on business's list of long-term assets, but used in regular business operations
4. Determining of the cost of human capital
5. Determining of the direct cost of raw materials
6. Determining of the realistic value of inventory of final products at the beginning and at the end of an accounting period

After having compounded the report on business performance based on the six outlined steps, a financial analyst has enough quality information to precisely calculate agricultural production economics of a small family farm applying single-entry accounting. Sorting out of direct costs from indirect costs (per specific agricultural culture) has to be done as well. Direct costs which can easily be determined are the cost of labour, the cost of raw materials and the cost of services. A survey conducted in 2012 and based on 30 small family farms in Vukovar-Syrmia County, Croatia (Grebenar, Banović, Bošnjak, 2012) stated that 90% of small family farm businesses do not keep accurate records on agricultural machinery used in the production process. Without a quality informational basis on the usage of assets in the production process, all occurred costs which relate to usage of assets in the production process are documented as general (indirect) production costs. In such a case, a financial analyst can allocate such documented costs either on a basis of generated revenues or expenses or the land area used in the production process. The quality of the informational basis and the nature of the production process determine which method will be the most suitable. Both, an accurate record of business events and the quality of the informational basis substantially affect the quality of generated reports on production economics, thus directly affecting the quality of business decision making. A financial analyst can also compound several different reports and compare them. The report which generates the smallest amount of indirect costs is the most reliable one. The method which reduces the share of indirect costs in total costs and transforms them into direct costs is the *Activity Based Costing* (ABC) method. An alternative method which can be used is the *Volume Based Costing* (VBC) method.

### 3. Calculating of production economics (Activity Based Costing vs. Volume Based Costing)

For the purpose of this paper, the ABC and the VBC methods are applied on a business case of a small family farm which produces 5 products (i.e. 5 agricultural cultures: corn, wheat, beet, soy and sunflower) on a total land area of 259 ha. In the production process, the family farm uses agricultural machinery, land and labour work. In the respective business case, the working hours of used machinery as well as the direct costs of consumed energy per a piece of machinery are determined. This means that every piece of machinery will serve as a cost pool<sup>1</sup>. Other occurred costs related to machinery are registration costs, maintenance costs and depreciation costs. The key (driver)<sup>2</sup> for cost allocation in the ABC method is a working hour of a machine. Based on total working hours and total costs of a machine, the cost per hour of a machine can easily be determined (cost rate)<sup>3</sup> by applying the following formula:

$$(\text{Depreciation} + \text{maintenance} + \text{energy} + \text{registration}) / \text{Working hours of a machine} = \text{Cost rate}$$

<sup>1</sup>Hilton, R. (2009). *Managerial Accounting: Creating Value in a Dynamic Business Environment*. New York: McGraw-Hill Irwin.

<sup>2</sup>Hilton, R. (2009). *Managerial Accounting: Creating Value in a Dynamic Business Environment*. New York: McGraw-Hill Irwin.

<sup>3</sup>Hilton, R. (2009). *Managerial Accounting: Creating Value in a Dynamic Business Environment*. New York: McGraw-Hill Irwin

The depreciation cost of buildings (storage houses) is determined in the same way. This cost is allocated on the basis of the surface used for storage of each product (i.e. agricultural culture). Out of all general costs, only the cost of some services (telephone, some overhead expenses etc.) and a part of the cost for personal usage could not be allocated by applying the ABC method and this is why the VBC method was used for allocation of these costs. Tables 1, 2 and 3 illustrate reports on agricultural production economics compounded by applying the outlined methodological approach.

**Table 1** *Agricultural production economics (VBC method) – driver: revenue*

	ha / culture:		Corn		Wheat		Beet		Soy		Sunflower	
	In HRK	%	In HRK	%	In HRK	%	In HRK	%	In HRK	%	In HRK	%
REVENUES/EXPENSES			35	138			47		4			35
<b>EXPENSES</b>												
<b>TOTAL DIRECT COSTS</b>	<b>1.481.283</b>	<b>169.597</b>		<b>612.673</b>			<b>524.157</b>		<b>22.228</b>			<b>152.627</b>
<b>1 DIRECT COSTS OF HUMAN LABOUR</b>	<b>333.909</b>	<b>47.081</b>		<b>146.920</b>			<b>86.816</b>		<b>9.016</b>			<b>44.076</b>
2 Direct costs of human labour	333.909	47.081		146.920			86.816		9.016			44.076
<b>3 DIRECT COSTS OF MATERIAL/SERVICES</b>	<b>1.147.374</b>	<b>122.516</b>		<b>465.753</b>			<b>437.341</b>		<b>13.212</b>			<b>108.551</b>
4 Raw material	997.507	109.027		412.569			369.177		11.671			95.062
5 Outsourced services	50.050	0		0			50.050		0			0
6 Other costs	99.817	13.489		53.185			18.114		1.542			13.489
<b>TOTAL GENERAL COSTS</b>	<b>950.732</b>	<b>111.482</b>		<b>381.460</b>			<b>341.460</b>		<b>14.096</b>			<b>102.235</b>
<b>7 GENERAL COSTS</b>	<b>74.873</b>	<b>8.780</b>		<b>30.041</b>			<b>26.891</b>		<b>1.110</b>			<b>8.051</b>
8 Services	49.540	5.809	11,7%	19.877	40,1%		17.793	35,9%	734	1,5%		5.327
9 Costs for personal (own) purposes	25.333	2.971	11,7%	10.164	40,1%		9.098	35,9%	376	1,5%		2.724
<b>10 MACHINERY</b>	<b>845.769</b>	<b>99.174</b>		<b>339.346</b>			<b>303.762</b>		<b>12.539</b>			<b>90.948</b>
11 Energy	155.647	18.251	11,7%	62.450	40,1%		55.901	35,9%	2.308	1,5%		16.737
12 Spare parts	49.430	5.796	11,7%	19.833	40,1%		17.753	35,9%	733	1,5%		5.315
13 Depreciation	640.692	75.127	11,7%	257.064	40,1%		230.108	35,9%	9.499	1,5%		68.895
<b>14 DEPRECIATION OF BUILDINGS</b>	<b>30.090</b>	<b>3.528</b>		<b>12.073</b>			<b>10.807</b>		<b>446</b>			<b>3.236</b>
15 Storage houses	30.090	3.528	11,7%	12.073	40,1%		10.807	35,9%	446	1,5%		3.236
<b>TOTAL COSTS</b>	<b>2.432.015</b>	<b>281.079</b>		<b>994.133</b>			<b>865.616</b>		<b>36.324</b>			<b>254.862</b>
<b>REVENUES</b>												
16 Revenues from grants	460.200	54.250		213.900			131.600		6.200			54.250
17 Revenues from sales	2.731.397	319.994		1.066.657			1.014.676		41.119			288.951
18 Other revenues	0	0		0			0		0			0
<b>TOTAL REVENUES</b>	<b>3.191.597</b>	<b>374.244</b>		<b>1.280.557</b>			<b>1.146.276</b>		<b>47.319</b>			<b>343.201</b>
<b>PRODUCTION ECONOMICS</b>												
19 Produced in kg		350.000		938.400			3.431.000		14.400			133.000
20 Cost of production (kn/kg)		0,80		1,06			0,25		2,52			1,92
21 Revenue per unit (kn/kg)		1,07		1,36			0,33		3,29			2,58
22 Profit per unit (kn/kg)		0,27		0,31			0,08		0,76			0,66
<b>Profit per agricultural culture (kn)</b>	<b>759.582</b>	<b>93.165</b>		<b>286.424</b>			<b>280.660</b>		<b>10.995</b>			<b>88.339</b>

Source: Financial documentation of a small family farm business in Vukovar-Syrmia County, Croatia

**Table 2 Agricultural production economics (VC method) – driver: direct costs**

	ha / culture:		Corn		Wheat		Beet		Soy		Sunflower	
	In HRK	%	In HRK	%	In HRK	%	In HRK	%	In HRK	%	In HRK	%
REVENUES/EXPENSES			35	138			47		4			35
<b>EXPENSES</b>												
<b>TOTAL DIRECT COSTS</b>	<b>1.481.283</b>	<b>169.597</b>		<b>612.673</b>			<b>524.157</b>		<b>22.228</b>			<b>152.627</b>
<b>1 DIRECT COSTS OF HUMAN LABOUR</b>	<b>333.909</b>	<b>47.081</b>		<b>146.920</b>			<b>86.816</b>		<b>9.016</b>			<b>44.076</b>
Direct costs of human labour	333.909	47.081		146.920			86.816		9.016			44.076
<b>3 DIRECT COSTS OF MATERIAL/SERVICES</b>	<b>1.147.374</b>	<b>122.516</b>		<b>465.753</b>			<b>437.341</b>		<b>13.212</b>			<b>108.551</b>
Raw material	997.507	109.027		412.569			369.177		11.671			95.062
Outsourced services	50.050	0		0			50.050		0			0
Other costs	99.817	13.489		53.185			18.114		1.542			13.489
<b>TOTAL GENERAL COSTS</b>	<b>950.732</b>	<b>108.853</b>		<b>393.232</b>			<b>336.420</b>		<b>14.267</b>			<b>97.961</b>
<b>7 GENERAL COSTS</b>	<b>74.873</b>	<b>8.572</b>		<b>30.968</b>			<b>26.494</b>		<b>1.124</b>			<b>7.715</b>
Services	49.540	5.672	11,4%	20.490	41,4%		17.530	35,4%	743	1,5%		5.104
Costs for personal (own) purposes	25.333	2.900	11,4%	10.478	41,4%		8.964	35,4%	380	1,5%		2.610
<b>10 MACHINERY</b>	<b>845.769</b>	<b>96.835</b>		<b>349.818</b>			<b>299.278</b>		<b>12.692</b>			<b>87.146</b>
Energy	155.647	17.821	11,4%	64.377	41,4%		55.076	35,4%	2.336	1,5%		16.037
Spare parts	49.430	5.659	11,4%	20.445	41,4%		17.491	35,4%	742	1,5%		5.093
Depreciation	640.692	73.355	11,4%	264.997	41,4%		226.711	35,4%	9.614	1,5%		66.015
<b>14 DEPRECIATION OF BUILDINGS</b>	<b>30.090</b>	<b>3.445</b>		<b>12.446</b>			<b>10.647</b>		<b>452</b>			<b>3.100</b>
Storage houses	30.090	3.445	11,4%	12.446	41,4%		10.647	35,4%	452	1,5%		3.100
<b>TOTAL COSTS</b>	<b>2.432.015</b>	<b>278.450</b>		<b>1.005.905</b>			<b>860.576</b>		<b>36.495</b>			<b>250.588</b>
<b>REVENUES</b>												
Revenues from grants	460.200	54.250		213.900			131.600		6.200			54.250
Revenues from sales	2.731.397	319.994		1.066.657			1.014.676		41.119			288.951
Other revenues	0	0		0			0		0			0
<b>TOTAL REVENUES</b>	<b>3.191.597</b>	<b>374.244</b>		<b>1.280.557</b>			<b>1.146.276</b>		<b>47.319</b>			<b>343.201</b>
<b>PRODUCTION ECONOMICS</b>												
Produced in kg		350.000		938.400			3.431.000		14.400			133.000
<b>Cost of production (kn/kg)</b>		<b>0,80</b>		<b>1,07</b>			<b>0,25</b>		<b>2,53</b>			<b>1,88</b>
<b>Revenue per unit (kn/kg)</b>		<b>1,07</b>		<b>1,36</b>			<b>0,33</b>		<b>3,29</b>			<b>2,58</b>
<b>Profit per unit (kn/kg)</b>		<b>0,29</b>		<b>0,29</b>			<b>0,08</b>		<b>0,75</b>			<b>0,70</b>
<b>Profit per agricultural culture (kn)</b>	<b>759.582</b>	<b>95.794</b>		<b>274.651</b>			<b>285.700</b>		<b>10.824</b>			<b>92.613</b>

Source: Financial documentation of a small family farm business in Vukovar-Syrmia County, Croatia

**Table 3 Agricultural production economics (ABC method) – driver: working hours of machinery**

REVENUES/EXPENSES		Corn		Wheat		Beet		Soy		Sunflower	
		ha / culture:	In HRK	%	In HRK	%	In HRK	%	In HRK	%	In HRK
		35	138		47		4		4		35
<b>EXPENSES</b>											
<b>TOTAL DIRECT COSTS</b>		<b>1.481.283</b>	<b>169.597</b>		<b>612.673</b>		<b>524.157</b>		<b>22.228</b>		<b>152.627</b>
<b>1 DIRECT COSTS OF HUMAN LABOUR</b>		<b>333.909</b>	<b>47.081</b>		<b>146.920</b>		<b>86.816</b>		<b>9.016</b>		<b>44.076</b>
Direct costs of human labour		333.909	47.081		146.920		86.816		9.016		44.076
<b>3 DIRECT COSTS OF MATERIAL/SERVICES</b>		<b>1.147.374</b>	<b>122.516</b>		<b>465.753</b>		<b>437.341</b>		<b>13.212</b>		<b>108.551</b>
Raw material		997.507	109.027		412.569		369.177		11.671		95.062
Outsourced services		50.050	0		0		50.050		0		0
Other costs		99.817	13.489		53.185		18.114		1.542		13.489
<b>TOTAL GENERAL COSTS</b>		<b>950.732</b>	<b>173.101</b>		<b>443.924</b>		<b>127.842</b>		<b>42.139</b>		<b>163.726</b>
<b>7 GENERAL COSTS</b>		<b>74.873</b>	<b>10.550</b>		<b>32.529</b>		<b>20.073</b>		<b>1.982</b>		<b>9.739</b>
Services		49.540	6.981	14,1%	21.523	43,4%	13.281	26,8%	1.311	2,6%	6.444
Costs for personal (own) purposes		25.333	3.570	14,1%	11.006	43,4%	6.792	26,8%	670	2,6%	3.295
<b>10 MACHINERY</b>		<b>845.769</b>	<b>161.930</b>		<b>386.000</b>		<b>106.937</b>		<b>37.536</b>		<b>153.366</b>
Energy		155.647	21.033		82.931		28.245		2.404		21.033
Spare parts		49.430	6.680		26.337		8.970		763		6.680
Depreciation		640.692	134.217		276.731		69.722		34.369		125.653
<b>14 DEPRECIATION OF BUILDINGS</b>		<b>30.090</b>	<b>620</b>		<b>25.396</b>		<b>833</b>		<b>2.621</b>		<b>620</b>
Storage houses		30.090	620		25.396		833		2.621		620
<b>TOTAL COSTS</b>		<b>2.432.015</b>	<b>342.698</b>		<b>1.056.597</b>		<b>651.999</b>		<b>64.367</b>		<b>316.353</b>
<b>REVENUES</b>											
Revenues from grants		460.200	54.250		213.900		131.600		6.200		54.250
Revenues from sales		2.731.397	319.994		1.066.657		1.014.676		41.119		288.951
Other revenues		0	0		0		0		0		0
<b>TOTAL REVENUES</b>		<b>3.191.597</b>	<b>374.244</b>		<b>1.280.557</b>		<b>1.146.276</b>		<b>47.319</b>		<b>343.201</b>
<b>PRODUCTION ECONOMICS</b>											
Produced in kg			350.000		938.400		3.431.000		14.400		133.000
<b>Cost of production (kn/kg)</b>			<b>0,98</b>		<b>1,13</b>		<b>0,19</b>		<b>4,47</b>		<b>2,38</b>
<b>21 Revenue per unit (kn/kg)</b>			<b>1,07</b>		<b>1,36</b>		<b>0,33</b>		<b>3,29</b>		<b>2,58</b>
<b>22 Profit per unit (kn/kg)</b>			<b>0,09</b>		<b>0,24</b>		<b>0,14</b>		<b>-1,18</b>		<b>0,20</b>
<b>Profit per agricultural culture (kn)</b>		<b>759.582</b>	<b>31.546</b>		<b>223.960</b>		<b>494.277</b>		<b>-17.048</b>		<b>26.848</b>

Source: Financial documentation of a small family farm business in Vukovar-Syrmia County, Croatia



#### **4. Volume Based Costing vs. Activity Based Costing Report**

Tables 1, 2 and 3 show that calculated agricultural production economics essentially differ with the applying of different cost allocation methods (i.e. the ABC and the VBC methods). Calculations based on the VBC method illustrated in tables 1 and 2 show that production economics of all 5 agricultural cultures is cost-effective and profitable and that there is no material discrepancy between indicators illustrated in table 1 (where revenue is the driver /allocation key) and table 2 (where direct costs are the driver /allocation key).

On the other side, the applying of the ABC method resulted in materially different indicators. According to the ABC method, profitability of beet production almost doubled compared to calculations based on the VBC method, while profitability of other cultures largely deteriorated. Profitability of soy production turned negative. The major cause of such discrepancy is higher quality of the informational basis resulting from the appliance of the ABC method. In this particular case, the report on production economics based on the ABC method is more realistic and more reliable.

In both cases, costs of direct labour work, costs of outsourced services and costs of direct raw material were allocated per product (i.e. agricultural culture) in the amount of actually spent quantities. Since the majority of small family farms do not keep accurate records of assets used in the production process, by applying the VBC method (tables 1 and 2) we have assumed that all occurred costs related to agricultural machinery are indirect costs.

In this respective business case, the analysed small family farm uses 30 different pieces of agricultural machinery (e.g. tractors, harvesters, ploughs, sowing machines etc.) and it was possible to precisely calculate working hours of a piece of machinery per specific agricultural culture.

The applying of the VBC method is more suitable for a simpler business cases when a family farm produces only one or two products in smaller quantities. In the business case analysed in this paper, in which a family farm produces 5 products and uses 30 pieces of machinery in the production process, the applying of the VBC method can result in unreliable final outcomes (i.e. reports).

#### **5. Conclusion**

In an environment which generates many opportunities for small entrepreneurs to develop their businesses, determining of economics of the current business situation is of crucial importance. Preparing of quality projects also requires a quality financial analysis. Small entrepreneurs need to base their business growth on cost-effective and profitable products and services. Many small entrepreneurs in the Republic of Croatia are small family farms (OPG) and craft businesses which are obliged by the law to apply single-entry accounting. The process of calculation of production economics of a small entrepreneur applying single-entry accounting and producing more than two different products requires a high level of knowledge on techniques of single-entry and double-entry accounting, managerial accounting and financial analysis. Without applying all mentioned areas of expertise, it is not possible to exactly determine production economics. Small entrepreneurs (OPG) producing more than two products and using many different pieces of machinery in the production process cannot determine their production economics without an accurate record of used machinery. The ABC method can only be applied when there is a quality informational basis to conduct an analysis of production economics, while applying such a method crucially and positively affects the quality of the final outcome (i.e. the report on production economics/performance). The aim of this paper is to set-up a clear methodological approach for a quality financial analysis and calculation of production economics of a small entrepreneur. It is of crucial

importance for a small entrepreneur to apply the outlined methodology before making any important investment/strategic decision and before applying for EU funding.

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## THE EFFECT OF FIRM SIZE ON SME's CAPITAL STRUCTURE

### UTJECAJ VELIČINE PODUZEĆA NA STRUKTURU KAPITALA MALIH I SREDNJIH PODUZEĆA

#### ABSTRACT

*One of the key determinants of leverage is firm size. Larger firms are usually more established in their markets, diversified and less likely to fail. Therefore, it has been argued that size can be seen as an inverse measure of bankruptcy risk. The aim of this paper is to investigate the relationship between firm size and the capital structure of Croatian small and medium-sized enterprises. Most of previous studies have shown a positive relationship between firm size and leverage. But, several empirical studies found negative relationship between firm size and leverage. This study has been conducted on a sample of 500 Croatian SMEs for the period between 2005 and 2010. The data used for the empirical analysis were taken from companies annual reports. The Pearson Correlation Coefficient is applied in order to examine the relationship between firm size and leverage measures. The results of this research indicate negative relationship between firm size and leverage. But, firm size differently affect short-term and long-term leverage. The relationship between firm size and short-term leverage is negative but not statistically significant in all observed years. The relationship between firm size and long-term leverage is positive in all observed years but is not statistically significant, except one year. These results suggests that larger Croatian SME's are mostly more profitable and use more retained earnings to finance their business. This finding is consistent with the pecking order theory which predicts a negative relationship between firm size and the leverage.*

**Key words:** capital structure, firm size, leverage, small and medium-sized enterprises

#### SAŽETAK

*Jedna od ključnih determinanti strukture kapitala poduzeća je veličina poduzeća. Veća poduzeća uglavnom su bolje pozicionirana i prepoznatljivija na tržištu, raznolika i manji su im izgledi da propadnu. Stoga, u literaturi je determinanta veličine poduzeća prepoznata kao pokazatelj ili obrnuta mjera rizika propadanja poduzeća. Cilj ovog rada je istražiti utjecaj veličine poduzeća na strukturu kapitala malih i srednjih poduzeća u Hrvatskoj. Većina prethodnih istraživanja pokazala je pozitivnu vezu između veličine poduzeća i strukture kapitala, no neki autori utvrdili su i negativnu vezu između veličine poduzeća i strukture kapitala. Istraživanje za ovaj rad provedeno je na uzorku od 500 malih i srednjih poduzeća u Hrvatskoj u razdoblju od 2005. do 2010. godine. Za poduzeća u uzorku na raspolaganju su bili godišnji financijski izvještaji poduzeća u obliku računa dobiti i gubitka te bilance. Da bi se ispitala veza između veličine poduzeća i strukture kapitala korišten je Pearsonov koeficijent korelacije. Rezultati istraživanja potvrdili su negativnu vezu između veličine*

*poduzeća i strukture kapitala hrvatskih poduzeća. No, s obzirom kako je mjerena struktura kapitala poduzeća, veličina poduzeća različito utječe na kratkoročnu i dugoročnu zaduženost poduzeća. Ukoliko je struktura kapitala mjerena odnosom kratkoročnih obveza i ukupne imovine poduzeća tada je veza između veličine poduzeća i zaduženosti poduzeća negativna, no nije statistički značajna u cijelom promatranom razdoblju. Ukoliko je struktura kapitala mjerena odnosom dugoročnih obveza i ukupne imovine poduzeća tada veza između veličine poduzeća i strukture kapitala je pozitivna i nije statistički značajna u cijelom promatranom razdoblju, osim u prvoj godini. Takvi rezultati ukazuju na zaključak dasu veća poduzeća i profitabilnija te koriste zadržanu dobit za financiranje poslovanja. Veća poduzeća se manje zadužuju. Rezultati istraživanja u potpunosti podupiru hijerarhiju financiranja teorije postupke slaganja.*

**Ključne riječi:** *struktura kapitala, veličina poduzeća, zaduženost, mala i srednja poduzeća*

## **1. Introduction**

Capital structure can be define as the proportional relationship between equity and debt. Decisions concerning capital structure and it is way of financing is the most important issue for managers and owners of the enterprises. However, it is not an easy job because it involves the wise proportional selection of debt and equity which includes different costs and benefits in balancing between debt and equity. A wrong decision in the selection between the funds may lead the firm to financial distress and eventually to bankruptcy (Andrei, 2013)<sup>1</sup>. The process of financing takes a very important place in firm management because it must ensure financial continuity necessary for growth and maintaining competitiveness in their environment. This is especially evident in transition economies, where due to underdeveloped capital markets debt remains the main source of financing.

Capital structure theories offer a number of determinants that are responsible for various impacts on capital structure, while the empirical literature tend to find evidence that firms behave in accordance with the theoretical predictions (Shamshur, 2010)<sup>2</sup>. Mostly they focus on those determinants which are more likely to have a major role on leverage decisions. Although there have been various studies analysing capital structure, it is still debated what the determinants of capital structure are and how they impact capital structure decisions. Since Modigliani and Miller published their seminal paper in 1958, the issue of capital structure has generated great interest among researchers. From the theoretical point of view, existing empirical studies widely used two models of capital structure: the trade-off theory and the pecking order theory. Trade-off theory implies that a company's capital structure decisions involve a trade-off between the tax benefits of debt financing and the costs of financial distress. The pecking order theory points out that there is a certain order in financing, starting from retained earnings as a primary source of internal financing, then moving to debt and using equity only as the last resort. Each of these theories suggests how certain determinants affect capital structure. According to theories, researchers found various impacts of determinants on capital structure depending on the country they are analysing.

Many studies are focused on providing empirical evidence on the relationship between firm's specific determinants and capital structure. This study is focus on providing empirical evidence on the relationship between firm size and capital structure of Croatian small and medium enterprises. Firm size has been used as a determinant of firm's capital structure in

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<sup>1</sup> Andrei, P.R.(2013), Determinants of capital structure: An empirical study of firms in manufacturing industry of Romania, <http://www.dafi.ase.ro/revista/7/PopescuRadu.pdf> (accessed 20 January 2015)

<sup>2</sup> Shamsur, A., (2010), "Access to capital and capital structure of the firm", CERGE-EI WP No.429, <http://dx.doi.org/10.2139/ssrn.1721455> (accessed 20 September 2014)

most of empirical studies on capital structure and is not uncommonly among the most significant variables. But, theoretically the relationship between size and leverage is not clear (Panigrani, 2011)<sup>3</sup>. The relationship depends how firm size is measured. Most studies use log of sales, total sales or average turnover as the measure for firm size. The trade off theory predicts positive relationship between the firm size and leverage, because size is assumed as a proxy for earnings volatility and by Fama and French (2002)<sup>4</sup> larger firms are more diversified and show less volatility. According to Singh and Kumar (2008)<sup>5</sup> pecking order theory predicts a negative relationship between firm size and leverage because large firms are mostly more profitable and need more retained earnings. Kuhnhausen and Stieber (2014)<sup>6</sup> argued that firm size is one of the key determinants of leverage. Larger firms are usually more established in their markets, diversified and less likely to fail. Therefore, it has been argued that size can be seen as an inverse measure of bankruptcy risk. Singh and Kumar (2008)<sup>7</sup> argued that costs between issuing equity and debt seems to reduce with the firm size. These arguments are reasons why focus of this study is on firm size. It is important to see whether firm size is in function of debt or equity, and whether the hypotheses supports the pecking order theory or the trade of theory.

This paper adds to the existing literature by examining the relationship between firm size and the capital structure of small and medium enterprises in Croatia. These enterprises represent important parts of all economies in terms of both their total number and their job offer and job creation. One of the major topics that has been analysed in previous studies is how SMEs finance themselves. Financing is an essential part of operating any business. Without adequate access to financing potential the growth of a firm is jeopardized. In reality, obtaining finance and other banking services has never been easy for small and medium sized enterprises. According to Degryse et al. (2010)<sup>8</sup> large companies are more aware of better financing methods, since they employ more financial and administrative staff and may have a stronger bargaining position towards lenders. Croatia is a country in transition and a new member of the European Union, and as such it is an interesting case study. In a country like Croatia private equity market is poor and the financial system is bank-based, so the role of debt is fundamental. It is important to analyse whether there is a positive or negative correlation between the capital structure and firm size of Croatian small and medium-sized enterprises. According to the existing empirical studies and results of the researches, the research hypotheses of this paper is: there is a negative relationship between firm size and leverage. By increasing sales revenue, small and medium size enterprises are more financed by internally generated funds and are less leveraged. Larger companies have larger volume of fixed assets, larger the sinking funds and the bigger self-financing (Riportella, C.C. et al, 2006.)<sup>9</sup>

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<sup>3</sup> Panigrani, A.K. (2011), Firm size and capital structure:evidence from Indian corporate, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2342488](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2342488) (accessed 20 January 2015)

<sup>4</sup> Fama, E.F., French, K.R., (2002), Testing trade-off and pecking order predictions about dividend and debt, *Review of financial studies*, Vol 15, No 1, pp 1-33

<sup>5</sup> Singh, P., Kumar, B., (2008), Trade Off Theory or Pecking Order Theory: What Explains the Behavior of the Indian Firms?, <http://ssrn.com/abstract=1263226> , (accessed 11 September 2014)

<sup>6</sup> Kuhnhausen, F., Stieber, H. W., (2014), Determinants of capital structure in non-financial companies, <http://pubman.mpg.de/pubman/faces/viewItemOverviewPage.jspx?itemId=escidoc:2071758> (accessed 18 January 2015)

<sup>7</sup> Singh, P., Kumar, B., (2008), Trade Off Theory or Pecking Order Theory: What Explains the Behavior of the Indian Firms?, <http://ssrn.com/abstract=1263226> , (accessed 11 September 2014)

<sup>8</sup> Degryse, H.,Goeij, P., Kappert, P., (2010): The impact of firm and industry characteristics on small firms capital structure, *Small Bus Econ*, No. 38, pp 431-447

<sup>9</sup> Riportella, C., C., Papis, L. C. (2006), How Theory Meets Practice: An Analysis of the Capital Structure of Spanish SMEs, *Journal of Entrepreneurial Finance and Business Ventures*, Vol 11, No 2, pp 73-94, <http://digitalcommons.pepperdine.edu/jef/vol11/iss2/5> (accessed 18 January 2015)

This article is organized as follows: Section 2 reviews the relevant theoretical and empirical literatures how firm size influence capital structure. Section 3 presents a description of the methodology that includes description of data and variables, and methods applied in the research. Sections 4 and 5 present results, discussion and conclusions.

## 2. Literature review and previous studies

In previous studies firm size is indicated as a significant determinant of capital structure (Mokhova and Zinecker, 2013)<sup>10</sup>, although theoretically the relationship between firm size and leverage is not clear. Degryse et al. (2010)<sup>11</sup> expected firm size to be positively correlated with leverage. They found strong support that larger firms exhibit higher leverage. According to them larger firms are more aware of better financing methods, since they employ more financial and administrative staff and have a stronger bargaining position toward lenders. Their results showed that larger firms rely more on long term finance and less on short term finance. Psillaki and Daskalakis (2008)<sup>12</sup> investigated the capital structure of Greek, French, Italian and Portuguese small and medium sized enterprises. They argue that larger firms are more diversified and they are expected to go bankrupt less often than smaller ones. They found a positive relationship between firm size and leverage, but significantly only for France, Greece and Portugal enterprises. Koksal et al. (2013)<sup>13</sup> investigated the factors that determine the capital structure choices in Turkey. One of the major findings in their analysis is that what matters most for a firm's capital structure is not firm's age or industrial membership but rather its size. They provide evidence that leverage is positively correlated with size. According to their results, larger firms have higher long-term leverage but lower short-term leverage than small firms. They also concluded that young and small manufacturing firms have the highest level of short-term indebtedness. Cole (2008)<sup>14</sup> in his study found problematic to measure the size of privately held firms. He used three alternative variables which are used in the finance and entrepreneurship literature to measure the size of such firms: total assets, annual sales revenues and total employment. His focus was on total assets. He found that firm size is inversely related to firm leverage, in other words, larger firms use significantly less debt in their capital structure. Deari and Deari (2009)<sup>15</sup> analysed which determinants influence companies' leverage. They selected two samples. The first one was made up of Macedonian companies registered on Macedonian Stock Exchange, and the second sample consisted of Macedonian small and medium businesses. They found that size has positive impact on leverage but is not significant at listed and unlisted companies. They claimed that because size is not significant, it doesn't have significant role for deciding the capital structure decisions. Song (2005)<sup>16</sup> in his paper analysed capital structure determinants of 6000 Swedish firms from 1992 to 2000. He concluded that Swedish firms are on average very highly leveraged

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<sup>10</sup> Mokhova, N., Zinecker, M., (2013), The determinants of capital structure: the evidence from the European union, *Acta Universitatis Agrariae et Silviculturae Mendelianae Brunensis* Vol 59, No 7, pp 2533-2546

<sup>11</sup> Degryse, H., Goeij, P., Kappert, P., (2010): The impact of firm and industry characteristics on small firms capital structure, *Small Bus Econ*, No. 38, pp 431-447

<sup>12</sup> Daskalakis, N., Psillaki, M. (2008), Do country of firm explain capital structure? Evidence from SMEs in France and Greece, *Applied financial Economics*, No. 18, pp. 87-97

<sup>13</sup> Koksal, B., Orman, C., Oduncu, A., (2013.), Determinants of capital structure: evidence from a major emerging market economy, <http://mpr.uab.uni-muenchen.de/48415/> (accessed 23 January 2015)

<sup>14</sup> Cole, Rebel, A. (2008), What do we know about the capital structure of privately held firms? Evidence from surveys of small business finance, <http://papers.ssrn.com/>, (accessed 20 January 2015)

<sup>15</sup> Deari F., Deari M. (2009), The determinants of capital structure: evidence from Macedonian listed and unlisted companies, <http://ideas.repec.org/a/aic/journal/y2009v56p91-102.html>, (accessed 20 January 2015)

<sup>16</sup> Song, H-S. (2005), Capital structure determinants: an empirical study of Swedish companies, <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A565199&dswid=-8097>, (accessed 20 January 2015)

and that short-term debt comprises a considerable part of Swedish firm's total debt. His results revealed that size is a significant determinant of leverage. His results showed that size is positively related to total debt and short-term debt ratio, but is negatively correlated with long-term debt ratio. Heyman et al. (2007)<sup>17</sup> examined the determinants of debt-equity choice and the debt maturity choice for a sample of small, privately held firms in a creditor oriented environment of Belgium. They hypothesized a positive relation between firm size and leverage. According to them larger firms have a high debt ratio. But their results contradicts with their hypothesis, because they found that leverage is negatively related to size. Ramlall (2009)<sup>18</sup> analysed the determinants of capital structure for non-listed firms in Mauritius. He found that size have negative impact on leverage. Meaning theta larger firms tend to be self-sufficient in funds. La Rocca et al. (2009)<sup>19</sup> examined the strategic financing choices of small businesses through the lens of the business life cycle. Their results revealed that size is a significant determinant of leverage. The positive relationship between size and debt, according to authors, indicated that the larger the firm the higher the leverage ratio is which they are able to achieve and to maintain. But the effect of size on leverage was greater for young small firms than for older, larger ones. This supports the authors suggestion that the ability of young firms to use debt depends on their size. Forte et al. (2013)<sup>20</sup> researched the determinants of the capital structure of small and medium enterprises over 19000 Brazilian firms and spans 13years of data. They found weaker evidence that size is positively related to leverage, which they interpreted as evidence that larger firms have more access to outside financing in general and credit market in particular. Kouki and Said (2012)<sup>21</sup> examined the theoretical and empirical determinants of firms' capital structure choice. Their analysis was conducted on a sample of 244 French listed companies over the period 1997-2007. They found significant negative relation between firm size and leverage. Akdal (2011.)<sup>22</sup> in his study examined the capital structure determinants of 202 listed companies in UK in the period of 2002-2009. Results proved that size is positively related to all forms of leverage ratios. Author's results illustrated that the bigger the company in terms of sales, the larger amount of debt it has in its capital structure. His finding is consistent with trade-off theory.

### 3. Methodology

For the purposes of this research a data sample consisting of Croatian firms was selected. The sample contains small and medium sized enterprises as defined in the Accounting law. A small enterprise has an average of up to 50 employees and an annual income of up to HRK 65 million. A medium enterprise has an average of up to 250 employees and an annual income of

<sup>17</sup> Heyman, D., Deloof, M., Ooghe, H., (2007), The financial structure of private held Belgian firms, *Small business economics*, Vol.30, No.3, pp 301-313

<sup>18</sup> Ramlall, I.( 2009), Determinants of capital structure among non-quoted Mauritian firms under specificity of leverage: looking for a modified pecking order theory, *International research journal of finance and economics*, No. 31, <http://www.eurojournals.com/finance.htm>, (accessed 20 January 2015)

<sup>19</sup> La Rocca, M., La Rocca T., Cariola A. (2009), Small business financing. Financial preferences throughout the life cycle of a firm, [http://www.efmaefm.org/OEFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2009-Milan/papers/EFMA2009\\_0476\\_fullpaper.pdf](http://www.efmaefm.org/OEFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2009-Milan/papers/EFMA2009_0476_fullpaper.pdf) (accessed 11 September 2014)

<sup>20</sup> Forte, D., Barros, L.A., Nakamura, W.T. (2013), Determinants of the capital structure of small and medium sized Brazilian enterprises, *Brazilian Administration Review*, Vol 10, No 3, pp 347-369

<sup>21</sup> Kouki, M., Said, H.B., (2012), Capital structure determinants: new evidence from French panel data, [http://www.google.hr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.ccsenet.org%2Fjournal%2Findex.php%2Fijbm%2Farticle%2Fdownload%2F11314%2F9751&ei=Uio7VfGABcLZarrmgHA&usq=AFQjCNHAXIsJx2m59niBdSa\\_5nkTC7dl4g&bvm=bv.91665533,d.bGg](http://www.google.hr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fwww.ccsenet.org%2Fjournal%2Findex.php%2Fijbm%2Farticle%2Fdownload%2F11314%2F9751&ei=Uio7VfGABcLZarrmgHA&usq=AFQjCNHAXIsJx2m59niBdSa_5nkTC7dl4g&bvm=bv.91665533,d.bGg) (accessed 20 February 2015)

<sup>22</sup> Akdal, S. (2011), How do firm characteristics affect capital structure? Some UK evidence, <http://ssrn.com/>, (accessed 11 September 2014)



up to HRK 260 million. They are randomly selected from the database Financial Agency. The sample consists of 500 Croatian SMEs for the period between 2005 and 2010. The year 2005 is the reference year, and the number of SMEs decreased or stayed the same in other years, depending on whether SMEs survived and submitted financial statements to the Financial Agency every year (in 2006 the number of observed SMEs was 386, in 2007 447 SMEs, in 2008 425 SMEs, in 2009 380 SMEs and in 2010 366 SMEs ). Some enterprises appear twice or three times, while others appear for all six years which makes the dataset unbalanced. The sample included enterprises from all industry sectors in accordance with the National Classification of Activities, except enterprises in public administration and defence, the insurance industry and pension funds. Financial statements in the form of balance sheets and income statements were available for all SMEs in the sample. Different measures of leverage are used in past papers and each leverage measure is defined in a different way. In general, two most common proxies of leverage exist such as calculated at book value of equity and at market value of equity (Loof, 2004)<sup>23</sup>. The most commonly used measure for leverage is defined as total debt over total assets. I also consider the short-term and long-term debt ratio separately. Debt is measured by its book value. Market values are not known for SMEs. Managers have to base their financing decisions on book values. Following Degryse et al. (2010), in this research the leverage of a company is calculated as the ratio of total debt to total assets, long-term debt to total assets and short-term debt to total assets.

Research papers offer many different measures for size. For instance, log (natural) of sales (revenue), number of people or total assets. Song (2005) used log of sales and log of number of people as a measures for size. Koksal (2013), Psillaki and Daskalakis (2008), Akdal (2011.) and Deari and Deari (2009) defined size as natural logarithm of total sales. Cole (2008), Degryse et al. (2010), La Rocca et al. (2009) and Ramlall (2009) measured firm size by the natural logarithm of total assets. According to the authors mentioned before, in this paper firm size is measured as natural logarithm of sales.

Descriptive statistics consist of the mean and the standard deviation. The mean deviation represents the average of the sample. The standard deviation measures the amount of variation or dispersion from the average. In order to examine the relationships between variables and to test the hypothesis set out in the study, the Pearson correlation coefficient, which determines the degree to which two variables covary, is used.

#### 4. Results

Descriptive statistics of the used ratios are given in table 1. Numbers in the *mean* column represent mean values of each ratio calculated for all 500 firms in the sample. Numbers in the *standard deviation* column represent *standard deviation* values of each ratio calculated for all 500 firms in the sample.

**Table 1** Descriptive statistics of ratios used in research

Variable	Year	Mean	Standard deviation
Size	2005	13,23	2,06
Natural logarithm of sales	2006	13,36	2,16
	2007	13,58	2,16
	2008	13,71	2,12

<sup>23</sup> Loof, H., (2004.), Dynamic optimal capital structure and technical change, Structure Change and Economic Dynamics, Vol. 15, No. 4, pp. 449-468

Variable	Year	Mean	Standard deviation
	2009	13,65	2,1
	2010	13,48	2,17
	2011	12,36	2,11
L1 = Ratio of liabilities and assets (total liabilities/total assets)	2005	0,74	0,36
	2006	0,74	0,39
	2007	0,72	0,42
	2008	0,7	0,4
	2009	0,69	0,41
	2010	0,7	0,42
	2011	0,72	0,4
L2 =Ratio of long term liabilities and assets (long term liabilities/total assets)	2005	0,06	0,12
	2006	0,13	0,26
	2007	0,13	0,25
	2008	0,13	0,27
	2009	0,13	0,26
	2010	0,13	0,24
	2011	0,14	0,26
L3 = Ratio of short term liabilities and assets (short term liabilities/total assets)	2005	0,58	0,39
	2006	0,6	0,39
	2007	0,59	0,42
	2008	0,57	0,4
	2009	0,57	0,43
	2010	0,57	0,42
	2011	0,58	0,41

Source: Author's` calculation

It is interesting to notice that Croatian SMEs have more short-terms loans than long-term loans (they are high short-term levered around 58%). But generally Croatian SMEs are highly levered (around 70% in observed period).

In order to examine the relationship between firm size and leverage, correlation coefficients between the firm size and leverage ratios are calculated. The aim is to examine whether the larger the firm is the less leveraged is or vice versa. Results are presented in table 2.

**Table 2** The correlation coefficients between firm size and leverage ratios

Average leverage ratios for 2005-2010	2005	2006	2007	2008	2009	2010
Total debt/Total assets	-0,004 (0,943)	-0,065 (0,238)	-0,005 (0,924)	-0,025 (0,657)	-0,045 (0,452)	0,012 (0,842)
Long-term debt/Total assets	0,226 (0,000)	0,053 (0,319)	0,012 (0,815)	-0,019 (0,725)	0,025 (0,669)	0,025 (0,668)

Average leverage ratios for 2005-2010	2005	2006	2007	2008	2009	2010
Short-term debt/Total assets	0,014 (0,781)	-0,078 (0,156)	-0,014 (0,791)	-0,002 (0,977)	-0,045 (0,437)	-0,024 (0,685)

Note: Figures in parenthesis indicate statistical significance of the correlation coefficient

Source: Authors' calculation, \*statistically significant at the 5% level of significance

The results of this research indicate negative relationship between firm size and leverage. But, firm size differently affect short-term and long-term leverage. The relationship between firm size and short-term leverage is negative but not statistically significant in all observed years. The relationship between firm size and long-term leverage is positive in all observed years but is not statistically significant, except one year. These results suggests that larger Croatian SME's are mostly more profitable and use more retained earnings to finance their business. This finding is consistent with the pecking order theory which predicts a negative relationship between firm size and the leverage.

## 5. Conclusions

Previous studies that were analysing determinants of capital structure confirm the existence of a significant impact of size on capital structure. Financial theories suggests two different explanations. According to trade off theory, size has a positive impact on capital structure because size is considered as a proxy for bankruptcy cost, the larger the company, the lower is bankruptcy risk. Within pecking order theory, debt should be in decreasing function of size. The larger the company, the easier access to capital market and financial assets has. As companies are smaller, it is more difficult to issue debt so they prefer internal financing. Many authors have suggested the positive relation between firm size and capital structure. Only few of them found significant negative relation between firm size and capital structure. The results of this paper showed significant differences between short-term, long-term and total debt ratios.

The results illustrated that the bigger the company in term of sale, the smaller amount of debt it has in its capital structure. Meaning that larger companies financed them self first with internal generated funds. According to results companies tend to employ more long-term debt then short-term debt, which is in opposite that Croatian small and medium enterprises are more short-term leveraged. All of this leaves space for further detailed analysis between size and capital structure.

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**PARADIGM OF DIGITAL COMMUNICATION: THE POTENTIAL OF  
MULTIPLE SCIENCE SCRIPT**

**PARADIGMA DIGITALNE KOMUNIKACIJE: POTENCIJAL PISMA  
VIŠESTRUKÉ ZNAKOVNOSTI**

**ABSTRACT**

*The information age is characterized by interactivity in the production and consumption of digital information, leading to the dominance of interactive media, which have been developing at an increasingly high speed and introducing new communication rules, strategies and routines. Due to fast exchange of information, messages have become shorter and new communication signs have been developed (e.g. emoticons), thus making communication even faster. By designating the Glagolitic script as intangible cultural heritage (Decision of the Ministry of Culture dated 7 February 2014), it officially became the medium of "other media", i.e. the source of creative ideas for both science and art. Based on the above, the authors of this paper examine the semiotic potential of the Glagolitic script categorising it: a) as the potential of the script which conveyed three messages (graphemic, numeric and symbolic) with a single sign, b) as the potential of the script, which, in itself, is "the script with a message" (of Christianity). The authors have proposed the hypothesis that the Glagolitic script holds a certain media potential that could be interesting to the modern media as a source of new cultural products (literature, music, movies, etc.) or a source of communication experiences for introducing new digital media communication trends. The aim of this paper is to identify the characteristics of the Glagolitic script, as intangible cultural heritage, on which the information age media (and thus communication) can rely as a source.*

**Keywords:** *Glagolitic script, media, mediamatics, information age, communication, emoticons, product of cultural industry*

## SAŽETAK

*Informacijsko doba odlikuje interaktivnost u stvaranju i konzumiranju informacija proizvedenih digitalnom tehnologijom. Upravo zbog ove osobine dominiraju interaktivni mediji koji se (tehnološki) razvijaju sve brže i donose nova komunikacijska pravila, strategije i rutine. Zbog brzine razmjene informacija skraćuju se dužine odaslanih poruka, usustavljaju se novi komunikacijski znakovi (npr. osjećajnici) i na taj se način dodatno ubrzava komunikacija. S druge strane, proglašavanjem glagoljice nematerijalnim kulturnim dobrom (7. 2. 2014. po Rješenju Ministarstva kulture), glagoljica je i službeno postala medij „drugih medija“, odnosno, izvorište za crpljenje kreativnih ideja kako u znanosti tako i u umjetnosti. Polazeći od navedenog, autori ovoga rada razmatraju semiotički potencijal glagoljičkog pisma te ga raščlanjuju dvovrsno: a) kao potencijal pisma koje je jednim znakom prenosilo tri poruke (slovnju, brojevnju, simboličku), b) kao potencijal pisma koje je samo po sebi „pismo s porukom“ (kršćanstva). Autori postavljaju hipotezu kako je glagoljica pismo koje posjeduje medijski potencijal atraktivan medijima novog doba bilo da je korišteno kao izvorište novih kulturnih proizvoda (književnih, glazbenih, filmskih itd.) bilo da je korišteno kao izvorište komunikacijskih iskustava kojima se inoviraju komunikacijski trendovi digitalnih medija. Cilj rada jest iznaći one karakteristike glagoljice – nematerijalnog kulturnog dobra – na koje se u svojstvu izvorišta mogu nasloniti mediji (a time i komunikacija) informacijskog doba.*

**Ključne riječi:** glagoljica, mediji, medijamatika, informacijsko doba, komunikacija, osjećajnici, proizvodi kulturne industrije

### 1. Introduction

The onset of the information age is associated with the digital revolution, which began in the late 20th century with the invention of microprocessor. It has affected all segments of society, in terms of manufacturing and any other aspect as supported by Marshall McLuhan's assertion that: 'The American stake in literacy as a technology or uniformity applied to every level of education, government, industry, and social life is totally threatened by the electric technology.' (McLuhan 2008: 21)

Throughout 5,000 years of human literacy, the alphabet system has developed from pictograms and ideograms to the contemporary system of Latin letters. The simplification of primary pictograms and their transformation to ideograms followed the major goal of written communication – to transmit thoughts and ideas. Besides, written communication has enabled preservation of knowledge, and that has generated the expansion of information and its availability today.

The authors of this paper have examined the Glagolitic script (designated as Croatian cultural heritage) as a medium of the information age. In doing so, they have taken into account that communication is two-sided and that the media are an integral part of communication. The authors have observed the media as 'transmitters' of communication processes, i.e. a means for conveying messages and the basis for mediation between communication partners. Written expressions are today the most intensive and subtlest form of marketing communication aimed at creating the desired associations and experiences in target market groups (Cvitić et al. 2014: 42). According to Tavassoli and Han (2001), the script is the fundamental and the commonest identity and identification component of marketing communication.

A group of authors (Nadrljanski et al. 2007: 529) examined the media in a broader context as important institutions of society and listed their characteristics as follows:

- Media are not merely communication channels suitable for transmitting a system of signs. They are also organizations, i.e. 'functional social systems', and indeed quite complex. These systems have had a great impact on all social strata. 'They are also institutions that play a role within a social system'.
- 'For a communication process to be implemented there needs to be a medium, i.e. representation of linguistic signs being conveyed. The media format depends on the type of the system of signs being used as well as the type of social contact between communication partners'.

Rapid development of the communication media suggests that the haphazard nature of this evolution will need subsequent explaining. The above is supported by McLuhan's reflection highlighting the need to have knowledge of the old media. 'A cool medium like hieroglyphic or ideographic written characters has very different effects from the hot and explosive medium of the phonetic alphabet. The alphabet, when pushed to a high degree of abstract visual intensity, became typography. The printed word with its specialist intensity burst the bonds of medieval corporate guilds and monasteries, creating extreme individualist patterns of enterprise and monopoly. But the typical reversal occurred when extremes of monopoly brought back the corporation, with its impersonal empire over many lives. The hotting-up of the medium of writing to repeatable print intensity led to nationalism and the religious wars of the sixteenth century. The heavy and unwieldy media, such as stone, are time binders. Used for writing, they are very cool indeed, and serve to unify the ages; whereas paper is a hot medium that serves to unify spaces horizontally, both in political and entertainment empires. Any hot medium allows of less participation than a cool one, as a lecture makes for less participation than a seminar, and a book for less than dialogue. With print many earlier forms were excluded from life and art, and many were given strange new intensity. But our own time is crowded with examples of the principle that the hot form excludes, and the cool one includes.' (McLuhan 2008: 25-26) Ivaš and Zaja (2003) claim that, in principle, the new media do not suppress, but rather include the old media. In view of that claim, they see the Internet as a new medium, which primarily includes the old medium of script, inheriting its linearity, but losing the feature of simultaneousness and globality of speech.

The aim of this paper is to identify the characteristics of the Glagolitic script, as intangible cultural heritage, on which the information age media (and thus communication) can rely as a source. The assumption is that, in its communication structure, the Glagolitic script conveyed three messages (graphemic, numeric, and symbolic one) with a single sign, and that, in itself, it was 'the script with the message' (of Christianity). The reason why the authors of this paper have decided to revisit this script as a source can be found in McLuhan's premise according to which '... the man in a literate and homogenized society ceases to be sensitive to the diverse and discontinuous life of forms. He acquires the illusion of the third dimension and the 'private point of view' as part of his Narcissus fixation, and is quite shut off from Blake's awareness or that of the Psalmist, that we become what we behold. Today when we want to get our bearings in our own culture, and have need to stand aside from the bias and pressure exerted by any technical form of human expression, we have only to visit a society where that particular form has not been felt, or a historical period in which it was unknown.' (McLuhan 2008: 23)

Taking the above into account, the authors will consider briefly the cultural context of the Glagolitic script to identify those elements that hold a certain media potential, which could be interesting to the modern media as a source of new cultural products (literature, music,




movies, etc.) or a source of communication experiences for introducing new digital media communication trends.

## 2. Mediamatics – Communication System of the Digital Age

In the digital age, new digital media emerge every day. Using them requires new communication rules based on resolving communication disputes. In this paper, digital media are understood to be electronic media used for the transmission of digital information (Nadrljanski et al., 2007: 528), and communication disputes are examined in the context of new technologies. Information and communication technologies have been developing at twice the rate of the global economy development over the last decade (Nadrljanski et. al., 2007: 540). The largest growth rate has been recorded in the field of international computer-mediated communication. Computer has become the universal medium of our time, which is used as a computer, a mobile phone, and a television set at the same time. Figure 1 shows the impressive (daily) consumption data for selected media.

**Figure 1:** (Daily) consumption statistics for selected media



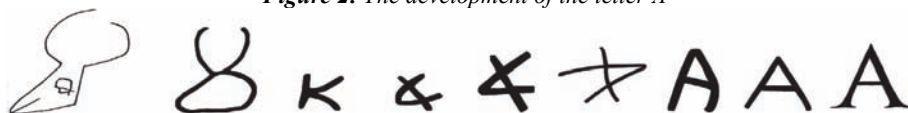
815,286	New book titles published <a href="#">this year</a>
442,715,506	Newspapers circulated <a href="#">today</a>
576,632	TV sets sold worldwide <a href="#">today</a>
4,442,826	Cellular phones sold <a href="#">today</a>
\$ 161,391,726	Money spent on videogames <a href="#">today</a>
2,963,371,531	Internet users in the world
181,738,131,108	Emails sent <a href="#">today</a>
3,037,003	Blog posts written <a href="#">today</a>
526,456,920	Tweets sent <a href="#">today</a>
3,325,424,573	Google searches <a href="#">today</a>

Source: <http://www.worldometers.info/hr/> (accessed on 30 April 2014)

Plenković (2012) notes that the present level of development of the global society in terms of media and communications is such that more than 400 million people have direct broadband Internet access (from 10 Mbps up to 100 Mbps) capable of delivering new media content with high-tech resolution (720p or 1080p).

Each phase in the development of a script of different nations and cultures included some preliminary stages (Frances, 1906) involving long-lasting selection of ideograms, phonograms and signs to represent particular sounds. The transition from pictorial scripts to phonetic alphabets led to the reduction of signs, and thus faster and more efficient use of writing space. For example, instead of drawing the entire ox head (the meaning of the letter A, i.e. *alefa*), in time, people began to draw only its outline (Figure 2) (Danesi, 2004). Eventually, writing became faster, making it possible to record more and more content. Consequently, the shapes evolved and were further simplified. Over time, the strokes were separating and shifting; they were becoming shorter, longer or disappeared; they curved and connected with the next stroke. This caused the change, i.e. resulted in different shapes of a sign representing the same image (Yardeni, 2003).

**Figure 2: The development of the letter A**



Source: Sack, D., *Letter Perfect, The Marvelous History of our Alphabet from A to Z* (2003)

One of the biggest controversies of the digital age is the collapse of communications oligopolies primarily because mobile telephone service has become a field of convergence and (in)directly nestled itself in the production of computers, television sets, and many other digital products. Even the reality itself, both 'real' and 'virtual', is shared by communication strategies which bring about communication disputes that can be considered the result of the following: '...electric speed mingles the cultures of prehistory with the dregs of industrial marketers, the nonliterate with the semiliterate and the postliterate. Mental breakdown of varying degrees is the very common result of uprooting and inundation with new information and endless new patterns of information.' (McLuhan 2008: 20)

Undoubtedly, Latin letters are codes that have been successfully used to express ideas and thoughts for millennia. The meanings of the letters have changed together with the new social and cultural trends and the Latin alphabet is still developing. In a world of global capital, new signs, derived from the Latin alphabet, are being created. Efforts to convey as much information as possible in a shortest possible period are a result of new communication features and technologies (Cvitić et al, 2014: 52).

At the same time the 'mental breakdown' occurred, a new communication system called *mediamatics* emerged on the world scene as a result of technical, economic and political trends of digitization, liberalization, convergence and globalization of the communications industry. Nadrljanski et al. (2007: 540) note that 'within Europe, at various national levels, strategies and policy measures have been designed to further the development of the information society. This primarily concerns the liberalisation of telecommunications, establishment of a clear legal framework for e-commerce and support for research and development in key industries. The key objectives of *eEurope* initiative are *to bring every citizen, home and school, every business and every administration into the digital age and online and thus create a digitally literate Europe and ensure that the whole process is socially inclusive* (Council of Europe, 2000).'

In addition to the fact that almost every form of communication is taking place via the media (with the exception of traditional 'face to face' communication), the communication itself has become more complex as a result of globalization propelled by the Internet. This is supported by the fact that new systems of symbols are created and permeate the communication space almost on a daily basis. Emoticons are just one example of such complexity resulting from the need to make a message as short as possible, and thus sent faster. The development of emoticons is associated with the advent of computer-mediated communication and their basic characteristic is the intention to convey a message using non-alphabetic characters on a keyboard, i.e. punctuation marks such as :-)) and :-(.

The number and complexity of emoticons have been constantly growing, both in terms of the scope of their application and their complexity, as supported by one of emoticon browsers providing this publicly accessible list (Figure 3).

**Figure 3: List of emoticons<sup>i</sup>**

To send this:	Type this:		
Smile	:-) or :)	Open-mouthed	:-D or :d
Surprised	:-O or :o	Tongue out	:-P or :p
Wink	;-) or ;)	Sad	:-( or :(
Confused	:-S or :s	Disappointed	:-  or :
Crying	:(	Embarrassed	:-\$ or :\$
Hot	(H) or (h)	Angry	:-@ or :@
Angel	(A) or (a)	Devil	(6)
Don't tell anyone	:-#	Baring teeth	8o
Nerd	8-	Sarcastic	^o)
Secret telling	:-*	Sick	+o(
I don't know	:^)	Thinking	*-)
Party	<:o)	Eye-rolling	8-)

Source: <http://cool-smileys.com/secret-emoticons-for-msn-messenejer> (accessed on 1 March 2014)

Viewing emoticons as a communication syndrome of the new media is in line with McLuhan’s reflection that ‘...any medium has the power of imposing its own assumption on the unwary. Prediction and control consist in avoiding this subliminal state of Narcissus trance. But the greatest aid to this end is simply in knowing that the spell can occur immediately upon contact, as in the first bars of a melody.’ (McLuhan, 2008: 19) In other words, new communication media have been following the trend of creating new signs and emoticon dictionaries – or ‘pictionaries’ (similar to alphabet books used for teaching the alphabet).

As indicated earlier, these emoticon dictionaries can be found, as expected, on the digital media. Evidently, the modern age has been seeking to find a communication system in which one sign (in the case of emoticons a punctuation sign) conveys multiple messages. According to Cvitić at al. (2014: 52) *companies create new signs in response to the challenges brought by new technologies and thus new forms of communication. Considering Zipf’s Law (Danesi, 2004) and a growing number of meanings that have been attached to letters, there is a possibility that the current alphabet system will develop into a more complex communication code in which letters will not be just an abstract representation of the sound. In addition to that, they will acquire symbolic meanings adapted to the current time, which will be used and modified by the consumer depending on the needs he/she wants to meet.* In view of the proposed hypothesis, the authors of this paper turn to the Glagolitic script, dating back to the 9th century AD, which conveyed three messages (graphemic, numeric and symbolic one) with a single sign. By examining the semiotic potential of the Glagolitic script, the authors will contemplate it as a medium.

### 3. Semiotic potential of the Glagolitic script (script as a medium)

*The medium is the message.*  
Marshall McLuhan

Since 7 February 2014, the art of reading, writing and printing in the Glagolitic script has had the status of intangible cultural heritage of the Republic of Croatia. The relevant decision, issued by the Ministry of Culture, reads as follows: ‘The Glagolitic culture has left a

significant mark on literacy in medieval Croatia, in a variety of civilizational aspects, such as liturgy, law, art and private lives. The Glagolitic script is the oldest Slavic script, which, in the opinion of most scholars, was created by Constantine the Philosopher for the purpose of Christianisation of Moravian Slavs in the late 9th century. The Glagolitic script spread throughout Slavic territories owing to liturgical and biblical books written in Old Church Slavonic. Croats first came into contact with the Glagolitic script in the 9th century in the Byzantine Dalmatia, through which 1150 years ago (in 863) brothers Constantine Cyril (827 - 869) and Methodius (815 - 885) travelled on their way from Constantinople to Thessaloniki via Durres and further to Venice by sea, from where they took the Amber Road to Moravia. The next encounter with the Glagolitic script occurred in 874 when their disciples were fleeing to that area after the collapse of the Slavic mission in Pannonia. Croats encountered the teachings of the Holy Bishop Methodius in the Byzantine territories when he travelled to Constantinople in 882. After Methodius' death, his teaching was spread by his disciples in exile. The Old Church Slavonic liturgical books were considered inferior to the Latin liturgical books, and as a result, vanished from Slavic countries by the 12th century, except in Croatia. In the 14th century, Croatian Glagolitic priests were invited to the Czech monastery Emmaus to revitalize the Glagolitic tradition, which was then transposed to the Polish Holy Cross Monastery, where it was upheld until the end of the 15th century.'

It is clear from the above Decision that the Glagolitic script was devised for the purpose of Christianization of predominantly illiterate people. This leads to the conclusion that the Glagolitic script had two communication objectives:

- a) introducing literacy through conversion (to Christianity)
- b) Christianization by means of introducing literacy

This *perpetuum mobile* of the semiotic communication using the Glagolitic script (Lukić and Horvat, 2013) confirms McLuhan's assertion that 'the medium is the message' (McLuhan, 2008: 13), which clarifies that one is 'in the world of the structure and of configuration' at 'the moment that sequence yields to the simultaneous' and that happens when 'specialized segments of attention have shifted to total field and one can now say quite naturally: The medium is the message.' (McLuhan, 2008: 17).

It should therefore be pointed out that it was the Glagolitic script, and some other ancient scripts (e.g. Hebrew and Greek), that had the ability to convey three messages at the same time. More specifically, each Glagolitic sign represented a grapheme, a number and a symbol in parallel and, as in the case of emoticons, users of the script were able to express themselves in several ways with a single sign. Scheme 1 shows the basic characteristics of the Glagolitic script that clarify the above premise.

**Scheme 1: Basic characteristics of the Glagolitic script (angular Glagolitic script)**

Graphic form of the sign	Numerical value of the sign	Name of the sign (symbol)	Pronunciation	Meaning of the symbol
a	1	azъ	a	azъ, mene, mbnê pron. – I
b	2	buky	b	buky, bukъve <i>f</i> – letter; reading, written text, handwritten charter (God)
v	3	vêdê	v	vêdъ, <i>-i f</i> – knowledge vêdê v. vêdêti, vêdênie, <i>-ê s</i> – knowledge vêdêti, vêmbъ (vêdê), vêsî, vêsъtъ – know, have knowledge of, be aware of
g	4	glagoljо	g	glagolъ, <i>-a m</i> – word; speech, conversation; thing; event glagolati, ljо, <i>-leši</i> – speak, talk; call, lilo glagolati – chat; glagolati na kogo – speak against sb., complain about sb.; vъprêky protivо glagolati – object to, oppose; prêzde glagolati – predict; strъmъ glagolati – talk in a quarrelsome, uncompromising manner; maly glъgolati – reticent, sparing of words
d	5	dobrê	d	dobrê adv. – well
e	6	estъ	e/je	estъ – present, 3 p. sing. of the verb to be byti ( <i>impf</i> )
ž	7	živêti	ž	živêti, vljо, <i>-viši</i> – live; cf. <i>- exist</i>
&	8	žêlo	dz	žêlo adv – very (honorably)
z	9	zemi	z	zemlê, <i>-e f</i> – earth, land, ground
·	10	îže	i/ĵ/ji	îže, êže, eže pron. Accusative case of singular masculine gender <i>i</i> – which; who; whichever; whatever; îže aĉe – whoever, whichever; imъže obrazomъ – how; îže itъ – which also
i	20	(i)	i	<i>i</i> conj – and; also i, ê, e pron, after preposition always comes with prefix <i>n-</i> (отъ nego, k nemu); Nominative case of singular masculine gender is not confirmed – this; that; which; cf. îže, êže, eže
j	30	đerv	j	-
k	40	kako	k	kako adv. – how, as; isn't it; kako ... kako li – as... so... kakovъ, kakova, kakovo / kakъ, kaka, kako pron – which, that; some
l	50	ljудie	l/lj	ljудie – <i>ii m, pl</i> – people; cf. ĉovêkъ
m	60	myslite	m	mysliti, mysljо, myslîši – think, reflect, intend myslъ, <i>i f</i> – thought, consciousness, mind, reason; intention myslъnъ adj. – meant; soulful, reasonable, clever, spiritual
n	70	našъ	n/nj	našъ, naša, naše pron – our
o	80	опъ	o	опъ, ona, ono third-person pronouns – he, she, it; опъ polъ – the other (opposite) bank
p	90	pokoî	p	pokoî, <i>-ê m</i> – peace, rest
r	100	гъci	r/ri	reĉi, rekо, reĉeši, <i>imp</i> . гъci, гъcête – say, mention; reĉi na kogo – accuse (sb); blago reĉi – praise; reĉi sę – call oneself
s	200	slovo	s	slovo, slovese, slovesi <i>s</i> . – word, speech, reason; Holy Bible, homily
t	300	tvгъdo	t	tvгъdo adv. – firmly, consistently, reliably, safely; tvгъdo besêdovati – claim, assert
u	400	ukъ	u	
f	500	фгъtъ	f	
h	600	hêгъ	h	
w	700	отъ	o	отъ prep. with genitive case – from, because of
ć	800	šta	št/šĉ/ć	
c	900	ci	c	
č	1000	ĉгъvъ	č	ĉгъvъ, <i>-i m</i> – worm
š	2000	ša	š	

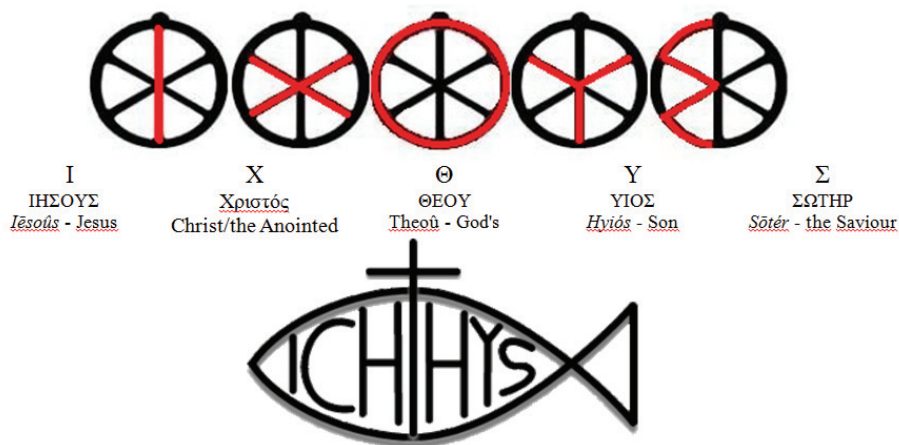
Source: Scheme created based on Damjanović et al (2004), Mali staroslavensko-hrvatski rječnik, Zagreb (Short Old Church Slavonic – Croatian dictionary), Matica Hrvatska.

The first nine letters of the Glagolitic script (azbuka), by George of Slavonia could be interpreted as follow:

- 1, A Me (Christian)
- 2, B Letter
- 3, V Know
- 4, G Talk
- 5, D Well
- 6, E Is
- 7, Ž Live
- 8, □ Very
- 9, Z Earth

Besides communicating by means of the shape of graphemes (letter/sign), the Glagolitic script also communicated by means of a letter module – the shape from which graphemes are created. In this case, the module has a shape of a rosette, i.e. a circle, divided into eight equal sections, which, for centuries, had been considered to be the monogram of Christ used during the persecution of Christians in the Roman Empire, as a recognition symbol, the same as that of a fish. The monogram of Christ is actually ‘an acronym of the Greek word fish, which both symbolically (a sketch of a fish) and according to letters composing it stood for the Chris.’ (Žagar, 2013: 110)

**Figure 4:** Symbolic meaning of a rosette – letter module into which Glagolitic graphemes were inscribed



*Source: authors*

The same author states about this form: ‘Although dating back to pre-Christian times, it has been consistent in symbolizing God’s and human values. It was found etched on the ruins of Ephesus, and it is assumed that it was used to mark the places where Christians gathered. It is interesting that there is a mosaic of the same shape in front of the parish church in Vrbnik, on the island of Krk, which had a strong Glagolitic tradition.’ (Žagar, 2013: 110)

By correlating the above-mentioned characteristics of the Glagolitic script, the authors have concluded that it holds a semiotic potential, which has been observed in the following:

- a) one sign conveys three messages (graphemic, numeric, and symbolic one)

- b) the script conveys ‘the message’ of Christianity by means of:
  - a. the letter module in the form of a rosette, i.e. a circle with eight sections (just like a fish, a rosette has been a symbol for identifying early Christians);
  - b. symbolic meanings of signs – with their order and different variations, signs convey the message of the gospel;
  - c. the graphic form of signs that integrate Christian iconography;
  - d. the symbolism of numbers associated with each sign.

Communication efficiency of semiotics integrated in this manner is confirmed by the long existence of the Glagolitic script, helping it to remain on the Croatian cultural scene until the 19th century as the dominant script in the area. The Glagolitic script engendered an entire culture that incorporated the philosophy of its spirituality into the script with which a large (and ever-growing) number of literate people identified. The above is supported by McLuhan who explains why ‘the pleasure of being in a crowd is a mysterious expression of delight in the multiplication of number’ (McLuhan 2008: 100). McLuhan has acknowledged that ‘...The statistical aggregation or crowding of numbers yields the current cave-drawings or finger-paintings of the statisticians’ charts. In every sense, the amassing of numbers statistically gives man a new influx of primitive intuition and magically subconscious awareness, whether of public taste or feeling.’ (McLuhan 2008: 100)

#### 4. The Glagolitic script and the media of the information age

*The content of any medium is another medium.*

Marshall McLuhan

The media of the information age (television, the Internet, mobile media, etc.) have changed the production of information, their distribution, and decoding (Torlak 2013), and, on a wider social platform, have led to the creation of new communication systems such as mediamatics. Marshall McLuhan noted that the invention of typography provided the first uniformly repeatable commodity, and the first mass-production of the press allowed the first uniform and repeatable product and the first mass production (McLuhan, 1964), but also that ‘the content of any medium is always another medium’ (McLuhan, 2008: 13). McLuhan asserts that the content of writing is speech, the content of print is the written word, and the content of the telegraph is print.

If the hypothesis that *the content of any medium is always another medium* is not rejected, this leads to a new research question: to what extent do today’s scripts contain the experience of the ancient scripts (as media)? In other words, the question is whether it is possible to fill the ‘semiotic gap’ in the Latin alphabet, in which a letter represents only a letter (‘A’, for example, is just an ‘a’), with additional meanings following the example of well-known scripts that have been proven to function. This research question could be formulated as follows: *If the content of any medium is always another medium, can one learn from the experience of the older media?*

In this instance, the term ‘older media’ means both language and script. Lozić and Tomelić (2006) use the term *language* to mean ‘a generally accepted system of signs’ pointing out that each language is an important ‘type of relationship called mimology. It implies the notion that there is a relation of reflective analogy between ‘word’ and ‘thing’ that motivates, or justifies, the choice of a particular word instead of another. In the same way, a script can be conceived as an imitation of objects that it denotes.’ (Lozić and Tomelić 2006: 177)

The creation (and the existence) of emoticons and other communication signs of the digital age, hints at a mimology in the process of using the new media, which is the result of creating new communication signs. Scientific understanding of this mimology happens subsequently and is often subordinate to the dominant role of producers of new media; the process of ‘learning’ from ‘the old media’ is for the most part absent, and, as a result, communication complexity threatens to become a barrier to global understanding. Due to the speed of communication, new signs are created, along with controversies for which McLuhan states: ‘... we have confused reason with literacy, and rationalism with a single technology. Thus in the electric age man seems to the conventional West to become irrational.’ (McLuhan, 2008: 19)

As a result, the authors of this paper are of the opinion that it is important to gain an insight into and shed some light on the experience of ‘the old media’ (such as the Glagolitic script) in the context of new communication horizons. They also find that the contribution of ‘the old media’ cannot be integrated into today’s communication experiences straightforwardly, but rather through a multidisciplinary scientific dialogue by evoking (their communication features), testing (the capacity of each sign individually and all the signs in a particular sequence to communicate multiple messages) and adapting (the potential of the modern age media).

It was indicated in the Decision of the Ministry of Culture (2014) that ‘many associations, institutions, cultural events and activities foster the Glagolitic heritage. Inspired by the Glagolitic culture, a significant number of entrepreneurs, designers and artists promote the Glagolitic script, i.e. the Glagolitic component of the Croatian culture, with their products, clothing, music, etc.’ The Decision listed only some of them (Table 1):

**Table 1:** *Examples and methods of promoting the Glagolitic script and culture*

<b>Method of promoting the Glagolitic script</b>	<b>Name of the person promoting the Glagolitic script</b>	<b>Personal information</b>
Clothing	Nenad Bach	Croatian rock musician, singer-songwriter who lives and works in New York City
The novel ‘Az’	Jasna Horvat	university professor, Croatian writer and theoretician of culture
Clothing and souvenirs	Vesna Milković	designer, owner of Mara ethnic boutique
Font	Filip Cvitić	M.A. in Design, author of the project ‘Fabula Croatica’
St Peter’s Glagolitic path	Svetko Ušalj	designer of the <i>Park Glagoljice</i> (Park of the Glagolitic script) in Gabonjin on the island of Krk
Furniture	Ksenija Tomić	architect, furniture designer
Glagolitic letters	Verica Kovač	painter and ceramicist
Clothing, scarves, Glagolitic alphabet books, greeting cards, prayers, etc.	Julija Vojković	Layout editor and designer
Paintings	Zlatko Kovač	painter who uses Glagolitic letters as a motif
Paintings	Vjera Reiser	painter
Glagolitic singing	Katarina Livljanić	musicologist, singer



Method of promoting the Glagolitic script	Name of the person promoting the Glagolitic script	Personal information
Clothing	Ivica Kostelić	Croatian alpine skiing champion
Publishing	Tatjana Sabljak	publisher of Villa Sybilla (paintings, booklets on the Glagolitic script, flyers, postcards, castings, interior design)
Unicode	Erasmus Naklada d.o.o.	Glagolitic script became part of the Unicode standard (standard for exchange of data on character representation across multiple languages, computer programs or platforms)

*Source: created and extended by authors based on the Decision of the Croatian Ministry of Culture*

## 5. The potential of semiotical communication in the Information Age

As opposed to the Glagolitic script – created in the 9<sup>th</sup> century for the purpose of Christianization and the spreading of literacy (Lukić and Horvat, 2013) and whose creator, purpose and mission are known, the Latin script<sup>ii</sup> is a much older script whose character order is called *alfabet*, and which, in its most distant form, often unknown to those who use the script in everyday life, is the story of a bull (alef) and his qualities.

**Alphabet**, a system of written characters (letters) in which one character is assigned to one sound (phoneme). The fundamental principles of the alphabet were established in the 3<sup>rd</sup> millennium BC in Ebla (today's Tel-Mardih in Northern Syria), on the basis of Mesopotamian syllabic cuneiform script. The script has developed from syllabic, through alphabetic syllabic and consonant syllabic to the true alphabet. It seems that prototype characters were a schematic graphic of a consonant type, and that the West Semitic alphabet appeared in the beginning of the 2<sup>nd</sup> millennium and that it derived from some cuneiform characters with some added characters. The script spread quickly, and since there were no strong political and cultural ties among city-states, variations of the proto-alphabet were created. There were two groups of scripts in XVI/XV centuries BC: South Semitic and North Semitic. In the XVth century BC the Ugaritic script was created on the basis of the North Semitic script. In the XIIIth century BC, due to changes in the phonological system in northern central languages, there appeared a markedly simpler Phoenician script. Since it is generally accepted that the Greek script has derived from the Phoenician script, the Phoenician script would then be the source of all alphabetic scripts in the world, except Korean, Armenian and Georgian (the latter two are adapted from Aramaic and Greek; the Glagolitic script and Cyrillic script are also derived from the Greek script). However, it is thought that the Greek script did not derive directly from the Phoenician script and that there were many influences, such as interactions with the alphabets of Asia Minor, which have also derived from Semitic alphabets. From the Greek script also sprung the Etruscan script and some other scripts of ancient Italy, and from the Etruscan script arose the Latin script. The Aramaic script is a branch of West Semitic scripts. From it - in the Vth century BC – the Hebrew script arose, as well as the Middle Persian script Pehlevi, Farsi, Sogdian, Khwarezmian and other scripts. From the Aramaic script sprung the Indian script Brahmi which gave birth to other Indian scripts. The Arabic script is also of Aramaic origin. <sup>iii</sup>

Thus today's letter *a* initially represented the head of a bull (aleph<sup>iv</sup>), which has been reshaped over the course of time and laid sideways ( $\alpha$  – alpha) to be finally turned upside down and put ‘on its horns’ in the Latin script (A), but the knowledge of its origins is lost and today's spelling books commonly match it with a picture of an automobile or an airplane. In light of what has been said, a need arises for a comparison of communication qualities of the Glagolitic azbuka and Latin alphabet to establish whether the communication basis of a letter system has changed. We should bear in mind that the Glagolitic azbuka is ‘older’<sup>v</sup> than the Latin alphabet and could in itself have corrected possible deficiencies of the Latin alphabet.

**Table 2:** Comparison of communication qualities of Glagolitic and Latin scripts

	Glagolitic script	Latin script
Background story	The story of God Christ.	The story of the bull god.
Familiarity of the story	Extreme	Rare
Communicativeness		
Of the letter module	Extreme	Nonexistent
Of the letter code	Extreme	(forgotten)
Of the number code	Extreme	Nonexistent or imbalanced
Of the symbolic code	Extreme	In formation

*Source: authors*

Without going into a broader discussion, and on the basis of what we see in Table 2, it is possible to conclude that the Latin alphabet, when compared to the Glagolitic azbuka, contains fewer active communication transgenerators. For the purpose of quick adoption and further dissemination, the Glagolitic script has used ‘the story of God Christ’ which was, as shown, imprinted in its letter module and all three communication codes of Glagolitic graphemes (letter, numeral, and symbolic). The Latin alphabet of today does not use any of the mechanisms (except the letter code) that were initially present in old scripts. With that being said, we are inclined towards the conclusion that the communication potential of the Latin script is not being sufficiently used, which in turn opens up a space for future multidisciplinary discussions.

The Information Age brings new rules of communication and simultaneously creates new symbols which influence the efficacy of the communication process. New symbols (eg. emoticons) that have been studied in this work show that in their combining of text and picture (eg. when communicating on Facebook, ICQ and other platforms for social networking and communication) there are «similarities to some earlier ways of combining symbols of different meaning systems. In ‘serious’ or elite communication this is exemplified by poetic calligrams, while in mass and popular communication we have comics and rebuses. If we look deeper in the past, we find similarities in early endeavours to record messages in less transient mediums than speech. The first scripts, pictograms, were sequences (comics) of schematized pictures in which a natural (motivated) connection between a designator and designated was still strong, but in the course of time, and further schematization, that connection became weaker and conventionality took over. This led to a type of script – ideograms – and gradually to syllabic and, finally, phonemic script. However, the image of historical ‘development’ is disturbed by periodical renovations of old solutions in new media (Ivas and Žaja, 2003: 90).

The Glagolitic characters (graphemes) with their variations in arrangement within a meaningful unit, as opposed to letters of the Latin script, also realize communication through their position by forming ‘a symbolic sentence’ (by an arrangement assigned to them in a

character sequence) and by their graphemic-phonemic meaning when they are read and interpreted as a 'word' which is a constitutive part of a language. In this way, Glagolitic characters distinguish themselves among old scripts, especially compared to the Latin script, and affirm once again that a 'new medium quickly replaced old ones' but 'with usual communication contents and old communication solutions. This process of usualization of the unusual was followed by the process of unusualization, which derived mainly from the particularity of a new medium'. (Ivas and Žaja, 2003: 91)

No matter the technological advancements that occur in science, communication among individuals is imperative to progress in science. The field of communication has always emphasized the future. In an attractive and challenging piece of research the authors designate communication solutions and actions similar to those of older media which are included in the new medium, but which also possess elements of innovation.

## 6. Discussion

The premise of this paper is contained in McLuhan's dictum *the content of any medium is another medium* 'which draws attention to the practice of any new medium to incorporate an old medium as its content, but also the inability of an interpreter to grasp the meaning of the medium by reading the content' (Peović Vuković 2012). Yet again, the authors turn to McLuhan's reflections on the subject expressed in the following passage to support the above premise: 'Automation or cybernation deals with all the units and components of the industrial and marketing process exactly as radio or TV combine the individuals in the audience into new interprocess. The new kind of interrelation in both industry and entertainment is the result of the electric instant speed. Our new electric technology now extends the instant processing of knowledge by interrelation that has long occurred within our central nervous system. It is that same speed that constitutes 'organic unity' and ends the mechanical age that had gone into high gear with Gutenberg. Automation brings in real 'mass production', not in terms of size, but of an instant inclusive embrace. Such is also the character of 'mass media'. They are an indication, not of the size of their audiences, but of the fact that everybody becomes involved in them at the same time. Thus commodity industries under automation share the same structural character of the entertainment industries in the degree that both approximate the condition of instant information. Automation affects not just production, but every phase of consumption and marketing; for the consumer becomes producer in the automation circuit, quite as much as the reader of the mosaic telegraph press makes his own news, or just is his own news.' (McLuhan 2008: 310)

Media experts create and standardize new communication implementation models for new media technologies.

Marketing communication is a process involving two or more sides, in which messages and ideas are exchanged by targeted exchange of symbols. Cvitić et al. (2014) mentioning some elements of this definition:

- communication is an intentional process (real effort is made by the initiator of the communication process in order to obtain a response from target interlocutors),
- communication is a transaction process (all participants are involved in the process),
- communication is symbolic (words, images, sounds and other stimuli are used for conveying ideas, i.e. messages).

To be successful, modern marketing communication needs original concepts, which will be transformed into symbols that can successfully convey a message or an idea. Torlak notes: 'Considering that human communication has changed over the centuries, it is easy to see that

it is necessary for a language to change in these circumstances. The way language has become simpler is also interesting. Once a complex system of symbols, letters, words, sentences and rules, has been reduced, in some respects, by the print media, radio, TV and the Internet, to what it used to be at the beginnings of literacy: drawing to represent meaning.' (Torlak 2013: 367). Unlimited social, hardware, software and technological values of communication on these new platforms, available to all, open up and herald new (unpredictable) future of the media. In other words, radio, television, mobile technology, media convergence, pay-per-view, e-learning, internet protocols (IP), information and communication sciences open up new possibilities for implementation of the media and media technology in science, education and daily life (Plenković 2012). The emergence of emoticons is only one signal that the space for sign-mediated communication is expanding and often overlapping, and that communication, due to increasing speed of conveying messages, requires rethinking of the structure of signs.

The scale and speed of changes in communication leaves less and less space for a thorough dialogue that would include science with its communication experiences based on knowledge of 'the old media', i.e. scripts that simultaneously communicated at the graphemic, numeric and symbolic level. One of such scripts is the Glagolitic script, a Croatian cultural heritage, whose long existence and communication efficiency have been engraved in many cultural heritage monuments, but also studied and written about in the field of humanities.

Based on the above, the authors of this paper examine the semiotic potential of the Glagolitic script categorising it: a) as the potential of the script to convey three messages (graphemic, numeric and symbolic one) with a single sign, b) as the potential of the script, which is 'the script with the message' (of Christianity). The hypothesis of the paper was that the Glagolitic script holds a certain media potential that could be interesting to the modern media. It has been shown that the semiotic potential of this script is attractive for digital communication, and that emoticons (and other pictorial signs) are bringing the sign-mediated communication back to the original characteristics of the Glagolitic script (the ability to convey multiple messages with a single sign and the ability to communicate the main ideas of Christianity by creating signs and combining them). The proposed hypothesis was not rejected as the research confirmed that the Glagolitic script was a medium that communicated simultaneously in different ways, and, as such, it does hold the potential to be 'the medium of the new media'. Moreover, the Glagolitic script has inspired entrepreneurs, designers, and artists in different ways, thus becoming a medium for promoting the Croatian culture. The authors conclude that an intangible cultural heritage, i.e. the Glagolitic script, is a medium that can be a source for numerous media of the modern age, and thus also for communication in the information age. The authors recommend further multidisciplinary research of the Glagolitic script's media potential as a basis for new insights in economics, semantics, information sciences, methodology and other disciplines. The work shows that the Glagolitic script successfully realizes semiotical communication, which is why it is observed as a model for a new paradigm of potentials for the Latin script and other written characters in communication processes in the Information Age.

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<sup>i</sup> <http://cool-smileys.com/secret-emoicons-for-msn-messenger> (accessed on 1 March 2014)

<sup>ii</sup> The Latin script 1. General designation for every script derived from ancient Roman Latin script (eg. *Croatian Latin script*). 2. Group designation for all such scripts. (<http://proleksis.lzmk.hr/7885/>, accessed 7. April 2014.)

<sup>iii</sup> (<http://proleksis.lzmk.hr/7885/>, accessed 7. April 2014.)

<sup>iv</sup>  - aleph

<sup>v</sup> The year 863 AD is thought to be the year of creation of the Glagolitic script.

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**ICT – A LEVER OF ECONOMIC DEVELOPMENT  
OF THE SLAVONIA AND BARANJA REGION**

**ICT - POLUGA RAZVOJA GOSPODARSTVA SLAVONIJE I BARANJE**

**ABSTRACT**

*Information and communication technology (ICT) is the technology area with the fastest knowledge doubling and this sector is the most propulsive of all human activities. At the same time ICT is an infrastructure support for all business, scientific and other public and social activities, thus it influences the technical progress and business development of all of these human activities. This paper compares data on ICT literacy in Croatia with those in EU countries. The focuses is on thorough exposition of the ICT sector in the region of Slavonia and Baranja compared with Zagreb and overall ICT sector in the Republic of Croatia that is growing over 7% in the long-term period. The measures are proposed for improvement of operations and better development of ICT sector in the Slavonia and Baranja region. The model is feasible for other Croatian regions.*

**Keywords:** High tech, Human resource, Efficiency, Industrial development

**SAŽETAK**

*Informacijske i komunikacijske tehnologije (ICT) su područje u kojem se znanja najbrže udvostručavaju te je ovaj sektor najpropulzivniji u sveukupnoj ljudskoj djelatnosti. U isto vrijeme ICT je i infrastrukturna djelatnost koja se koristi u svim poslovnim, znanstvenim i drugim javnim te društvenim djelatnostima te tako ona utječe i na tehnički napredak te na poslovni razvoj u svim tim ljudskim djelatnostima. U ovom radu se uvodno uspoređuje ICT pismenost hrvatske populacije sa zemljama EU. Fokus rada je detaljno razmatranje struktura ICT sektora na području regije Slavonije i Baranje što se uspoređuje s gradom Zagrebom i ukupnim ICT sektorom u Republici*

*Hrvatskoj koji ima predviđen dugoročni rast veći od 7%. Predlažu se mjere za unaprijeđenje poslovanja i kvalitetniji razvoj ICT sektora u slavonsko-baranjskoj regiji, kao model izvediv i za druge hrvatske regije.*

**Ključne riječi:** *Efikasnost, industrijski razvoj, ljudski resursi, visoke tehnologije*

## **1. Introduction**

Information and communication technology (ICT) is the area in which knowledge doubles most quickly and the most propulsive sector in overall human activity.[5] [7] [8] At the same time, ICT is forms an infrastructure that is used in all business, scientific and other public and social activities, and so it affects the technical progress and business development in all of these human activities. ICT supports the development of other industries and society; it has an inherent trait of rapid development and fierce market competition, as well as the rapid abandonment of previous technical solutions. ICT is certainly one of the most innovative industries and the expansion of new technologies from highly urban centres to virtually every home is another feature of this industry. We are witnessing a relatively good initial development of ICT in Croatia.

The aim of this analysis is to point out the development trends of ICT in Eastern Croatia, specifically comparing this high-tech area with the situation in Zagreb, which through various indicators shows significant business ties with ICT stakeholders in the Eastern Croatia. The concluding section will seek to make a positive and developmental trend and propose models for business improvement and rapid development of this sector in the region of Slavonia.

Data for this paper were obtained from Statistics [1] by activities:

- J61 - Communications,
- J62 - Computer programming and related activities,
- J582 - Software publishing,
- C262 - Production of computers and IT peripherals,
- J631 - Information service activities.

## **2. Croatian ICT economy**

The Croatian ICT economy is inseparable from Europe and the world; every day and operational reasons for the increased efficiency of the whole society, when using ICT, led to practically equalizing the habits of its users in most countries of Europe. Therefore, these considerations should start by comparing the situation of the ICT sector in the Republic of Croatia with the EU countries.

### **2.1. Comparisons of the major factors of ICT - Croatian and EU**

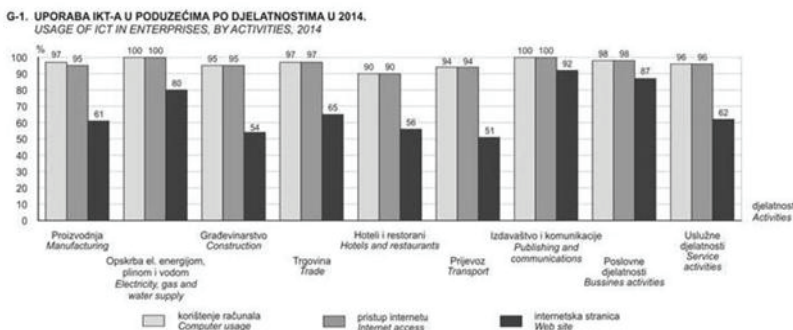
According to Eurostat data for 2013 and 2014 [3] more business and social characteristics of behaviour in Croatia the show same level of adopted ICT as in EU countries.

- Purchases over the Internet during three-month intervals in Croatia comprises 22%, in Italy 15% and in France 47% for persons 17-74 years of age;
- Employment in high-tech fields, which entails the use of ICT in Croatia, covers 3.3% and, for example, in Lombardy 3.4% of the workforce;
- Higher education in the population of Croatia has reached 34.5%, just as in Italy: 34.5%;
- The share of new products in companies in Croatia is 10.5% - in Italy 14.9%;
- Fast growing companies (with an increase of more than 10% per year with more than 10 employees) - Croatia has 42,954 (approximately 2.78%), and Italy 768,320 (approximately 3.65%);
- Mastery of basic computer skills in Croatia is 20%; in Italy it is 12% of people aged 16-74 years.
- Mastery of Internet usage in Croatia is 29%; in Italy 19% of the population.

## 2.2. Global data on Croatian ICT industry

The Croatian ICT sector employs more than 25,000 workers - with a gross turnover of nearly 3 billion Euros, or 4.1% of Croatian GDP. Much more than that number of ICT employees is in the same or similar jobs in other industries where ICT is a necessity. The entrenchment of this technology is shown in Figure 1 - stating the percentage of ICT use in economic activity in 2014.

**Figure 1** The use of ICT in the main economic sectors [2]



It should be noted that employees in the Croatian ICT sector are highly educated, qualified for the tasks they perform and are productive and motivated, which are important preconditions for more rapid entry into the technology and business trends of the world.

## 3. ICT economy of Slavonia and Baranja

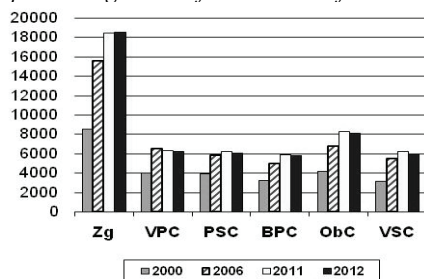
ICT in Eastern Croatia was developed in large companies and state institutions. Most experts are educated beyond. Since the opening of study at the University of Osijek, primarily the Faculty of Electrical Engineering, in 1991, over 1000 engineers and graduate engineers have completed their studies of electrical engineering, mechanical engineering, computing and telecommunications, offering strong support to employment in eastern Croatia.

### 3.1. The share in the Croatian economy

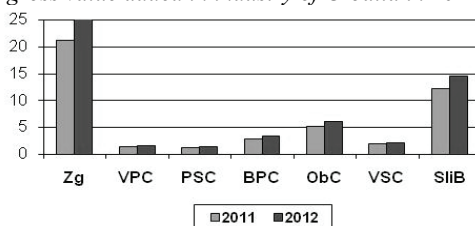
Gross domestic product (GDP) for the five counties of eastern Croatian and the city of Zagreb. is given in graph 2. Share of gross value added of industry of Croatia in 2011 and 2012 g. (%) is given on graph 3.



**Figure 2** GDP per capita in Zagreb and five counties of Slavonia and Baranja (€) [1]



**Figure 3** Share of gross value added in industry of Croatia in 2011 and 2012 (%) [1]



### 3.2. The growth of ICT in the region of Slavonia and Baranja

Example of activity J62 – computer programming - is characteristic for growth of ICT in Slavonia in the period from 2008 to 2013. The number of companies has increased from 56 to 83, the number of employees from 227 to 311. Total income has increased from 63 to 83 million USD and export from 4 to 26 million USD. Net wages have risen from 4013 to 4988 HRK. The added value has increased from 29 to 44 million EUR, and the share of value increased from 46% to 53% (the average of the group is 20%). The consolidated financial results have increased from 2.49 to 8.31 million EUR (334%).

### 3.3. The situation in the telecommunications sector

Total revenues in the telecommunications (J61) for 2010 and 2013 are shown in Table 1.

**Table 1** Total revenues in the telecommunications area for 2010 and 2013 (HRK)

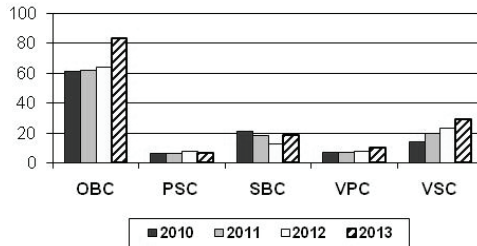
County	2010	2013
Vukovar	961 942	2 396 978
Osijek	555 683	867 385
Sl. Brod	1 298 106	133 885
Virovitica	...	...
Požega	10 000 262	1 438 114
Zg. county	25 929 108	49 243 538
City of Zagreb	15 051 845 069	12 787 380 156
Croatia	15 295 240 075	13 142 541 889

Source: [1]

### 3.4. Number of ICT companies in the Slavonia and Baranja

The number of ICT companies in Slavonia and Baranja by counties shown in Graph 4. The number of companies in the communications sector J61 in 2010 and 2013 is shown in Table 2.

**Figure 4** Number of ICT companies in Slavonia and Baranja - by county [1]



**Table 2** Number of companies in the communications sector J61 in 2010 and 2013

County	2010	2013
Vukovar	3	5
Osijek	2	4
Sl. Brod	3	2
Virovitica	0	0
Požega	12	8
Zg. county	10	15
City of Zagreb	126	133
Croatia	219	246

Source [1]

### 3.5. Number of employees in the ICT industry

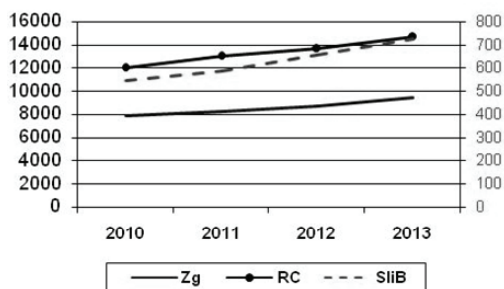
The number of employees in communication companies (J61) is given in Table 3 and the number of IT companies in Slavonia and Baranja, the City of Zagreb and Croatia for 2010 and 2013 is shown in Figure 5.

**Table 3** Number of employees in communications sector J61

County	2010	2013
Vukovar	4	13
Osijek	4	7
Sl. Brod	6	2
Virovitica	0	0
Požega	112	5
Zg. county	32	43
City of Zagreb	9 190	8 266
Croatia	9 705	8 786

Source: [1]

**Figure 5** Number of employees at ICT companies in Slavonia and Baranja, City of Zagreb and Croatia [1]



### 3.6. Trends and comparisons of income

Consider the data on net wages and salaries for the sectors of information and communication for the 2010 and 2013 year in Tables 4 and 5, and the activity J61 (communication) in Table 6.

**Table 4** Net wages and salaries in the IT in 2010 (HRK)

County	J62	J631	J582	C262	Uk.sektor
Vukovar	822 868	156 967	799 271	506 323	2 285 429
Osijek	10 773 522	1 698 630	118 485	145 336	12 735 973
Sl. Brod	2 760 851	2 882 568	185. 264	372.937	6 201.620
Virovitica	211 305	0	0	56.109	267 414
Požega	1 524 831	98 404	0	0	1 623 235
SliB	16 093 377	4 836 569	1103 020	1 080 705	23 113 671
Zg. county	11 185 195	1 517 862	2.769 108	3 487 140	18 959 305
City of Zagreb	460 774 399	49 464 559	41320 475	108 897 923	660 457 356
Croatia	614 525 328	87 867 567	48 824 112	130 047 274	881 264 281

Source: [1]

**Table 5** Net wages and salaries in the IT in 2013 (HRK)

County	J62	J631	J582	C262	Uk sektor
Vukovar	2 387 330	0	796 531	220 612	3 404 473
Osijek	18 613 804	1 772 201	59 137	101 524	20 546 666
Sl. Brod	4 247 778	6 043 458	294 445	382 190	10 967 871
Virovitica	543. 101	443	0	59 692	603 236
Požega	1 456 961	54 618	0	63 560	1 575 139
SliB region	27 248 974	7 870 720	1 150 113	827 578	37 097 385
Zg. county	17 246 094	1 783 735	1 617 226	3 386 955	24 034 010
City of Zagreb	606 433 738	70 936 939	429	89 431 652	807 319 758
Croatia	819 972 463	140 580 904	52 837 210	107 156 856	1 120 547433

Source: [1]

**Table 6** Salaries and wages for communication sector J61 for the 2010 and 2013 year (HRK)

County	2010	2013
Vukovar	159 954	374 714
Osijek	119 873	140 146
Sl. Brod	180 075	42 161
Virovitica	0	0
Požega	2 841 440	167 861
Zg. county	1 624 854	1 785 665
City of Zagreb	882 846 130	828 572 227
Croatia	909 362 417	853 947 154

Source: [1]

## 4. Main achievements

### 4.1. Solutions at the national level in practice

The Croatian ICT sector is very successfully involved in the development of e-government; they have created and implemented information systems in the sectors of health care (with IT support in the entire chain of health care from prevention to emergency services); real estate registration and cadastre and in educational system of primary, secondary and higher education [1].

### 4.2. Solutions in the real sector

Complex solutions have been implemented in the banking and insurance sectors, telecommunications, wholesale trade and agriculture. Especially prominent solutions include professional services in key infrastructure maintenance, information management and documentation, systems management, geographic information systems, security management and human resource management. Specialized application areas include: tourism, intelligent cities, smart energy, flexible payment, entertainment and innovative personal solutions. [1].

### 4.3. Croatian ICT solutions abroad

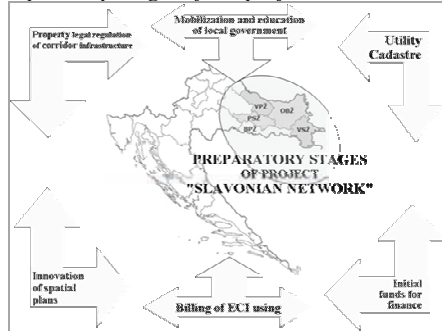
It should be noted that there are Croatian ICT companies in a number of EU countries and the OECD and other countries implementing their ICT solutions and so securing a place on foreign (European and global) markets. An example is the development of information systems in education for Turkey. [1]

### 4.4. The project "Slavonian network"

Broadband access is to be an integral part of ICT and at the same time is an effective technological and communication link between all actors in the business, scientific, and social sector and public services. Because of its importance the European Commission set an ambitious plan in 2010 for the development of broadband access in all EU countries through the Digital Agenda for Europe.[4]. The Faculty of Electrical Engineering has launched the "SLAVONIAN NETWORK project – the development of broadband access in the five counties of Slavonia and Baranja", in the framework of the strategy of broadband development in the Republic of Croatia from 2012 to 2015. The number and density of connections of broadband Internet users in Croatia is significantly below the average in EU member states, and in the five counties in the Slavonia region, except for the city of Osijek, it is below Croatia's average. This state of affairs in prevents social and economic development, effective functioning of the public administration and the inclusion of the region in modern communication and faster development of modern telecommunication services within the

country and the EU [13]. Project team members from the Faculty of Electrical Engineering in Osijek and Panon think tank for strategic studies in Osijek are preparing this project and have analysed conditions in which the project will be realized and have set up special models of implementation; Figures 6, 7 and 8. Here they cite as an illustration a good approach to development as well as a model that could be adapted for ICT development in Croatia and the region [9] [10].

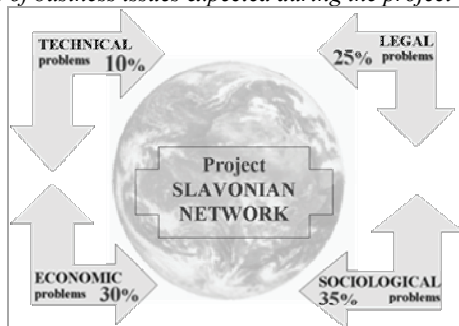
**Figure 6** Preparatory stages of the project "Slavonian network". [9]



**Figure 7** Implementation of the project "Slavonian network" [9]



**Figure 8** The structure of business issues expected during the project "Slavonian network" [9]



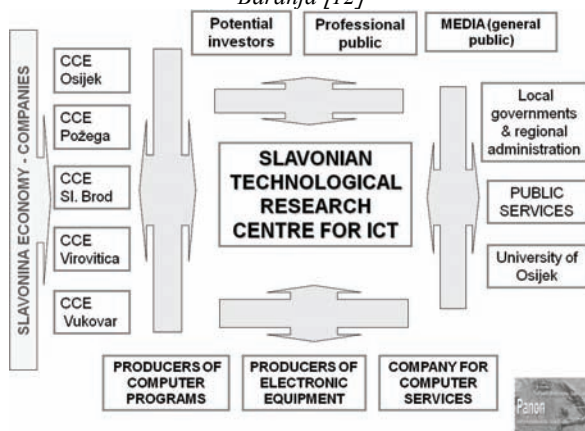
## 5. Discussion

The ICT industry produces sophisticated services and products for which tools the software license holders are regularly burdened with relatively high costs. The market for this industry is mostly state-owned companies or external contracting for computer and the local populace and the public sector for communications services. The main feature, which is very rapid adaptation to new techniques, seeks exceptional commitment and the reaction rate of this industry. The conclusion on the basis of accounting data does not reveal specific items such as investment in development - that level of this industry is at the basis of development activities itself. The main levers of the economy, however, created a synergy of the ICT industry and other business activities of producers. For Slavonia and Baranja it is agriculture, storage and the processing of food, energy and ecology. Bringing fast Internet service is therefore of paramount importance for the harmonic development of the economy of Slavonia and Baranja, but also the ICT industry as an export-oriented economic activity.

In this analysis data on investment in ICT in Croatia are not presented. These investments in Zagreb are more significant than in other regions, with the area of the five county Slavonia region in recent years having not seen an investment of even one (HRK) kuna [12].

Slavonian ICT companies have achieved notable successes in the market - but the overall ICT development and application of ICT in the economy and the public sector in the region is not designed nor directed on the basis of scientific and technical analysis. It is therefore necessary to unite potentials and resources available, and initiate a serious design development of ICT in the region in the coming period. This suggests establishing a specialized professional body SLAVONIAN TECHNOLOGY-RESEARCH CENTRE FOR ICT - which would be organized by the Chamber and connect business, higher education, local ICT companies and potential investors [12], Figure 9.

*Figure 9 Proposed model for to guide the development of ICT in the region of Slavonia and Baranja [12]*



## 6. Conclusion

Slavonia and Baranja have very good growth potential for ICT with the expectation of growth above 7%, and connections with other parts of Croatia, especially with Zagreb, provide additional opportunities for fast placement.

Education level, cultural and economic traditions and relatively long IT traditions give preference to local ICT resources in developing new and high quality IT solutions.

Implementation of ICT in the region on specific products is a key lever of development in Eastern Croatia. The infrastructure of this development, however, is the development of fast communication infrastructure with the help of EU funds.

An important assumption of the rapid expansion of ICT in the region is consistent implementation of the project "Slavonian Network - development of broadband access in the five counties of Slavonia and Baranja", with the support of EU funds.

The manufacturing and service sectors of ICT in the region should help science, business and local and state administration in answering the challenges. In this sense, we propose discussion within the CCE and the University of Osijek on the proposed model to guide the development of ICT in the region of Slavonia and Baranja and its urgent application in practice.

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**THE ANALYSIS OF MERGERS AND ACQUISITIONS BASED ON  
THE EXAMPLE OF A CHOSEN COMPANY IN EASTERN CROATIA**

**ANALIZA SPAJANJA I STJECANJA PODUZEĆA NA PRIMJERU  
ODABRANOG PODUZEĆA ISTOČNE HRVATSKE**

***ABSTRACT***

*External growth of a company is one of fundamental aims and strategies of modern business. Different forms of business combinations, such as acquisition, contribute to better financial and business performance. Eastern Croatia, like other parts of Croatia, has in the last decade been facing economic crisis. Economic inefficiency leads to more complex ways of doing business and demands innovative financial techniques and instruments. The aim of this paper is to identify the importance of mergers and acquisitions in improving business and financial performance of the acquiring and target companies based on the example of the Agrokor Group's acquisition of Belje PLC (together with PIK Vrbovec meat industry). As a result of this acquisition, new products are developed, new markets are entered, new suppliers and distributors are reached and the companies are becoming more competitive in the market. Various quantitative and qualitative methods were used. Both scientific and technical literature and financial reports were analysed. Data synthesis has emphasized the importance of acquisition. By comparing statistical and financial reports before and after the acquisition conclusions on the effects of acquisition were reached. The results show that this acquisition was risky; nevertheless, it was a good business call, good investment and a great step forward for the Agrokor Group. However, the positive effects of the acquisition are a result of changes in management and organization, the use of new technology and knowledge, whereby the key role was played by a change in the market strategy and conducting a new business philosophy. It is predicted that the two corporations will become recognisable force in the Croatian market and will become a serious competitor. Expanding the Agrokor Group into eastern Croatia by acquisitions has proved to be a great external business growth strategy also for entering foreign markets.*

**Key words:** *Concern, Merger and acquisition, Business combinations, Financial and business performance, Eastern Croatia*



## SAŽETAK

*Eksterni rast poduzeća predstavlja jedan od temeljnih ciljeva i strategija suvremenog poslovanja. Različiti oblici kombiniranja poduzeća, a time i akvizicija doprinose poboljšanju ukupnih financijskih i poslovnih performansi poduzeća. Kao i ostale regije Hrvatske, istočna Hrvatska se u zadnjem desetljeću suočava s financijskom krizom koja ima za posljedicu iznimno nepovoljna gospodarska kretanja. Ekonomska neefikasnost u cjelini dovodi do kompleksnijih i složenijih oblika poslovanja primjenom inovativnih financijskih tehnika i instrumenata. Cilj rada je prikazati na primjeru ulaska Belja d.d. (zajedno s PIK Vrbovec mesnom industrijom) u okvir Agrokor koncerna, značaj udruživanja i stjecanja poduzeća u poboljšanju poslovnih i financijskih učinaka akvizitorske i ciljane/ih tvrtki kao posljedice razvijanja novih proizvoda i ulaska na nova tržišta, pristupa novim dobavljačkim i distribucijskim kanalima, veće stabilnosti i konkurentnosti te ostalih relevantnih činitelja akvizicije. U svrhu izrade rada koristilo se više metoda kvantitativnog i kvalitativnog istraživanja. Analizira se dostupna znanstvena i stručna literatura te financijska izvješća na temelju kojih se sintezom relevantnih podataka naglašava relevantnost akvizicije. Komparacijom statističkih i financijskih izvješća poduzeća prije i poslije ulaska u akviziciju donose se zaključci o konkretnim učincima akvizicije. Rezultati istraživanja pokazuju da je ulazak u navedenu akviziciju na samom početku bio iznimno rizičan, međutim u konačnici provedena akvizicija bila je znatan dobitak za Agrokor koncern kao rezultat dobre poslovne odluke i aktivnih investicija. Međutim, pozitivni učinci akvizicije rezultat su većinom promjene načina upravljanja i organizacije te primjene novih tehnologija i znanja, pri čemu je ključna bila promjena cjelokupne tržišne strategije i provođenje nove poslovne filozofije. Prema predviđanjima, organizacija poslovanja ove dvije korporacije dugoročno će stvoriti prepoznatljivu snagu na hrvatskom tržištu kojoj će se teško moći konkurirati. Širenje Agrokor koncerna na istočnu Hrvatsku putem akvizicije pokazalo se odličnom strategijom eksternog rasta poduzeća kao oblika nastupa i na inozemnom tržištu.*

**Ključne riječi:** *Koncern, Udruživanje i stjecanje, Poslovne kombinacije, Financijske i poslovne performanse, Istočna Hrvatska*

### 1. Introduction

Entrepreneurship in eastern Croatia today is poorly developed; it is the least developed of Croatia's regions. It has a particularly small number of entrepreneurs and the employed, low incomes and negative consolidated financial results, a small number of investors and few investments in fixed assets and generally negative financial performance. Economic inefficiency leads to more complex ways of doing business and demands innovative financial techniques and instruments. Different forms of business combinations, mergers and acquisitions in particular, enable competitiveness in the market, adaptation to market conditions, and other advantages for the acquiring and for the target company.

The aim of this paper is to identify the importance of mergers and acquisitions in improving business and financial performance of the acquiring and target companies based on the example of the Agrokor Group's acquisition of Belje Public Limited Company [Belje PLC]. Scientific and professional sources, financial reports and other relevant sources have been analysed for this purpose. On the basis of synthesis of available data and comparison of statistical and financial reports before and after the acquisition, a conclusion has been drawn regarding the effects of acquisition.

### 2. Mergers and takeovers – acquisitions

When analysing mergers and acquisitions it is necessary to define the basic terms, such as acquisition. We need to examine the difference between mergers and acquisitions, fusion and

consolidation and the acquisition of assets and the acquisition of property. The cost of and the motive for acquisition, synergistic effect, and other relevant advantages of acquisitions are extremely important for its implementation.

### **2.1. Defining the basic terms**

The term acquisition can be defined as a takeover of a company or a part of a company by acquiring a control package of its shares or by acquiring its property. The term also refers to combining two or more business entities into one business entity. An acquisition can occur when two or more companies join together because of some common interests or when one company takes over another or more companies. The acquiring company can purchase the majority ownership interests or the property of the target company. When it comes to mergers, we can differentiate fusion and consolidation. Fusion refers to combining two business entities into one business entity by merging their ownership interests completely, while consolidation refers to merging the companies into one completely new company. An acquisition, therefore, can be carried out by purchasing a company (its property or a control package) for cash or by means of an exchange for the acquiring company's shares (Orsag and Gulin, 1996, 25-30).

### **2.2. The motive for and the cost of acquisition**

The driving force and prerequisite for an acquisition is the synergistic effect, i.e. the value of two companies combined should be greater than the value of each company before the acquisition. Synergy can be mathematically represented as follows (Orsag and Gulin, 1996, 84-85):

$$V_{AB} > V_A + V_B, \text{ whereby } \Delta V = V_{AB} - (V_A + V_B)$$

$V_{AB}$ - the company's value after acquisition

$V_A$  i  $V_B$ - the companies' values before acquisition

$\Delta V$ - synergistic value

Combining and merging companies can be financed by using different financial instruments and cash flows, including: cash payment, issuing securities in domestic and foreign markets, taking loans from financial institutions and corporations or issuing shares (where the shares of the acquiring company are exchanged for the shares of the target company). Regardless of the type of acquisition, it is important to set the price of shares, i.e. the company's value. The cost of an acquisition includes the market value of the target company and an acquisition premium. The existence of a premium is very important in order to motivate the majority of shareholders to sell their shares, i.e. to subordinate to the acquiring company (Orsag and Gulin, 1996, 93).

### **2.3. The importance of acquisitions in business**

The basic prerequisite for economic growth and development is the openness of the economy. Entrepreneurs have to be familiar with all the ways of performing in the international and domestic market in order to survive and adapt to market changes. Without mutual cooperation and various arrangements with other companies it would be impossible to be competitive in today's market. This way, we can achieve some benefits, such as unit costs reduction, economy of scale, technological excellence, better research and development infrastructure, and human resources.

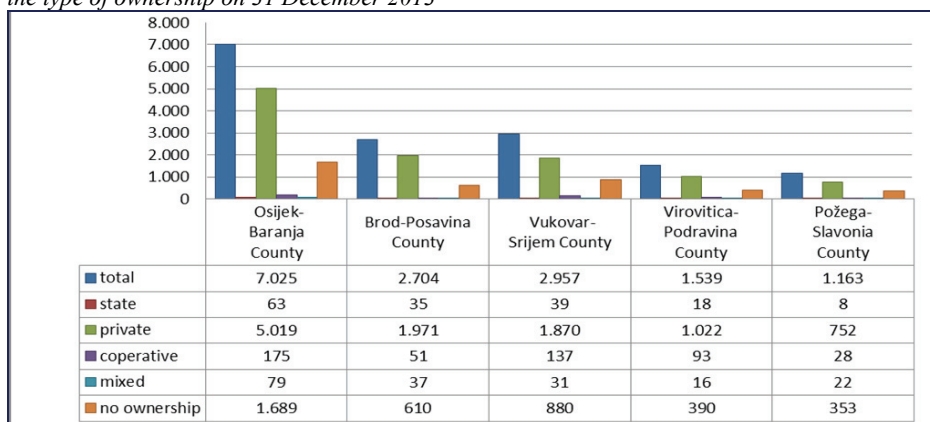
Pervan (2005, 1) emphasizes the following advantages of mergers in relation to internal growth of companies:

- faster growth (since it eliminates the time needed to obtain building and other permits, construction of facilities, procurement and installation of equipment, training of staff and the initial market penetration);
- immediate cash revenues from the acquired company (since the acquired company is already operating in the market and is generating revenues and inflows);
- economy of scale (larger amounts of procurement result in a better bargaining position and inputs procurement at lower prices);
- financial economy (better negotiating position can result in a lower cost of financing);
- reduced business risk (acquiring an already established company is a less risky investment compared to independent market penetration, especially if it is a new and unfamiliar market);
- diversification of business risk (if they acquire companies from other sectors).

### 3. Entrepreneurs' characteristics and their development in eastern Croatia

According to the Financial Agency ([FINA], 2013, 7) there were 8,351 entrepreneurs in eastern Croatia in 2012, which made only 8.6% of all entrepreneurs in Croatia, significantly less than in Continental Croatia (52%) and Adriatic Croatia (39%). According to the Croatian Bureau of Statistics' (2014) data there were 15,388 active legal entities in eastern Croatia in 2013. The analysis of legal entities in eastern Croatia showed that the largest number of legal entities was recorded in the Osijek-Baranja County with a total of 7,025 legal entities, while the Požega-Slavonia County had the smallest number of legal entities, only 1,163. According to type of ownership, the most common type was private ownership and it amounted for 69.1%, the percentage of entities in cooperative ownership was 3.1%, in mixed ownership 1.2%, in state ownership 1.1%, and for 25, 5% of legal entities there were no records. The National Classification of Activities 2007 data showed that the most common activity was wholesale and retail.

**Table/Chart 1:** The structure of active legal entities in the counties of eastern Croatia according to the type of ownership on 31 December 2013



Source: Processed by the authors according to the data obtained from the Croatian Bureau of Statistics (2014)

Financial reports on the profit of entrepreneurs of eastern Croatia for 2012 showed that these entrepreneurs generated the least revenues and profit of all Croatian regions, they accounted for only HRK 9.6 billion or 8% of the total revenues, i.e. HRK 1.6 billion or 4.6% of the total profit of the entrepreneurs with positive business results. They also accounted for HRK 3.3 billion or 11% of the total loss of all the companies which had made losses. Consolidated data showed negative financial results – net loss of entrepreneurs of eastern Croatia amounted to HRK 1.7 billion. The number of investors and the amount of investments was the lowest in eastern Croatia than in any

other Croatian region. Less than 8% of investors invested in production capacities in eastern Croatia, only HRK 3 billion or 9% of all investments were made here (FINA, 2013, 8-9). As seen from the aforementioned indicators, eastern Croatia lags behind in the development of entrepreneurship and in the context of using all relevant advantages, business combinations are certainly desirable, acquisition in particular.

#### **4. Analysis of acquisition of the chosen company in eastern Croatia**

In the framework of analysing the effects of acquisitions in the region of eastern Croatia, the Agrokor Group's (Concern's) acquisition of the enterprise Belje, a company for agricultural production, food processing and trade of goods, Darda (Belje PLC) was chosen. Financial effects of business operations of Belje PLC before and after the acquisition were analysed.

##### **4.1. Basic information on Belje PLC**

The Belje Company was founded in 1697. During the years facilities for agricultural products processing were built. In 1921 it became a state-owned company. After World War II the company was devastated, so after the liberation of Baranja great efforts were made to restore the production. Belje has changed various forms, and in 1953 it was organized as the first state farm in this region – the industrial and agricultural collective enterprise Belje (Belje PLC, 2015.). According to the data published in the Abridged Prospectus of Belje PLC (the Zagreb Stock Exchange [ZSE], 2003, 4) class A shares were issued in 1993 during the transformation of the state farm "Belje" - an industrial and agricultural collective enterprise into a joint stock company Belje PLC. However, since there was no privatization until 2002, these shares were state-owned until then. Class B shares were issued on 12 August 2002 upon the decision of the General Assembly of the Company. Due to the fact that class A and class B shares were of the same type and the same nominal value, in the transfer of shares to the depository of Central Depository and Clearing Company, they were united in one class (5,515,487 class A shares, each with the nominal value of HRK 100). In 2003 the shares of Belje PLC were listed on the ZSE with a share capital amounting to HRK 328,619 480.

##### **4.2. Financial analysis of Belje PLC before the acquisition**

Based on the data obtained from the Croatian Competition Agency ([CCA], 2005, 12-13) financial indicators of business operations of Belje PLC before the acquisition were analysed. The current ratio should always be 2.00 or higher (Žager et al., 2008, 249), and in this particular case, it amounted to 1.22 in 2003 and 0.64 in 2004, which means that there was a decrease in value, due to a significant growth of short-term obligations in comparison to short-term property. The financial stability ratio should always be under 1. If we analyse the performance indicators of Belje it becomes clear that its financial stability was significantly disrupted in 2004 when the financial stability ratio was 1.33 compared to the year before when the ratio was 0.94. The debt ratio indicates that in 2004 for every invested kuna the enterprise Belje PLC used HRK 0.62 of external assets. This is a proof of the deterioration of the relationship between total liabilities and total assets. Due to unfavourable cash flow, the debt of the enterprise was above the acceptable level (it is usually considered that the acceptable debt ratio is 0.50) and it rose by 48 per cent. The financial ratio indicated that for every unit of its own capital the enterprise used 1.63 units of external capital, which represented a significant growth in debts in comparison to 2003 (an increase of as much as 126 %). The growth of debt can also explain the growth of illiquidity.

Activity ratio indicates the velocity of circulation of property in the business process. If we want a business to be successful and less risky, it is important that the turnover ratio is the biggest possible number, i.e. that the period of bonding of total and specific asset is as short as possible. In the case of Belje PLC the turnover ratio of total assets recorded almost the same value - 0.45 in 2003 and

0.46 in 2004, while the turnover ratio of current assets decreased by 7 per cent, suggesting current assets bonding demanded more time (CCA, 2005, 12.). Furthermore, from the data gained from the CCA it is evident that the business did not meet the criteria of good business performance. The indicator recorded a value under 1 both years and, in addition, in 2004 there was a 26 per cent decline compared to 2003. From all the existing data it is evident that Belje PLC had worse business results in 2004 than in 2003. The debt and the current ratio increased, and the already bad economic situation got even worse.

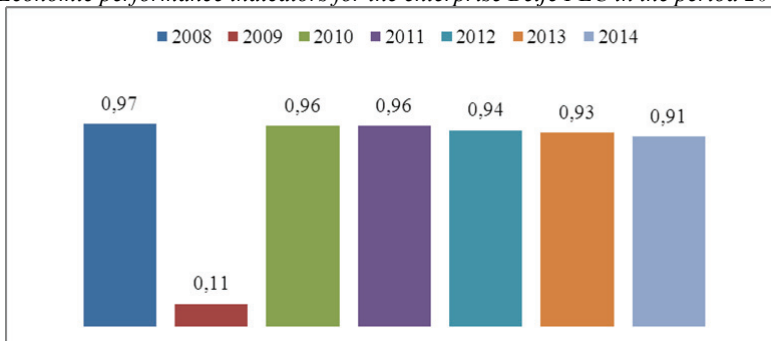
Without further investments and the support of a financially stronger enterprise, Belje PLC would become unsustainable. Business results were becoming worse every year, many years of poor business operations led to a poor market position and without significant investments it would be impossible to sustain the company in the market. The enterprise had significant financial difficulties, the production was reduced, a large number of employees became redundant, out-dated production plant and the impossibility to modernize the production became the main issues. If they had continued to do business that way, their business results would have continued to get worse, so a reconstruction of production process, new organization scheme, new products, new investments and feedback information from the consumers were necessary. In 2005 the Agrokor Concern acquired the agricultural conglomerate Belje PLC together with Pik Vrbovec meat industry.

#### **4.3. Business results of Belje PLC and the Agrokor Group after the acquisition**

The data from the Annual Financial Statement (ZSE, 2008, 3-4) shows that in 2008, after the acquisition Belje PLC became the biggest company according to property size with total assets amounting to HRK 2 billion and 392 million and with the capital of HRK 821 million. The investments into fixed assets increased by HRK 275 million. The obligations towards the banks (loans) increased by HRK 100 million. In 2008 the loan debt amounted to HRK 300 million, and the debts towards entrepreneurs amounted to HRK 814 million. The company's revenues increased significantly in the period from 2007 to 2008, from HRK 818 million to HRK one billion and 533 million, while the expenses increased from HRK 778 million to HRK one billion and 481 million. Sales incomes made the largest part of revenues, 83%. In comparison to such a revenue, the profit may seem somewhat small, only HRK 18 million in 2007. The reason for this lies in the fact that all resources were used to increase the production capacities and to expand the business.

This can be confirmed by examining the consolidated and unconsolidated annual financial statements of Belje for the period 2008-2014 (ZSE, 2015a, 2-4), which demonstrate that investments into fixed assets were made with the aim to increase production capacity and to restore old plants. There has been a large increase in revenues and expenditures, i.e. in business activities. However, liquidity is still low, at the edge of insolvency. The business comes down to constant investments in new capacities partly by using financial leverage, and partly by using their own resources, and to maintaining the minimum liquidity necessary for regular operations. By analysing the data from annual financial statements of Belje for the period 2008-2014 (ZSE, 2015a, 2-4), it is evident that both revenue and expenditure increased during the years. In 2009 total revenues of Belje declined by 14.9% in comparison to the year before (Chart 2). The decrease in revenue was influenced by the decline in market prices and the financial crisis in the world market. Economic performance indicators increased from 0.11 to 0.96 in the following year. In 2014 total revenue amounted to HRK 1,936,679,696, while total expenditure amounted to HRK 2,121,363,420. The reason for such a large expenditure is the aforementioned investment in fixed assets, i.e. investments into and expanding of production capacity.

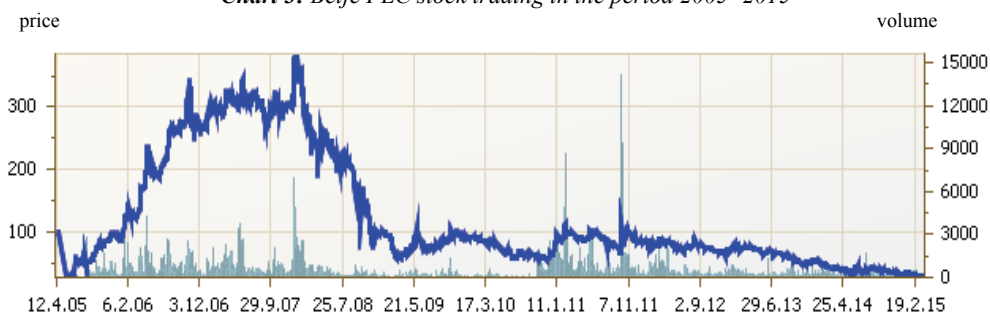
**Chart 2: Economic performance indicators for the enterprise Belje PLC in the period 2008- 2014**



Source: Processed by the authors according to the data obtained from Annual Financial Statement of Belje PLC, ZSE (2015a, 2-4)

Since joining the Agrokor Group the value of Belje shares has increased rapidly. The lowest share value in 2005 amounted to HRK 30.01, but a year later the share value grew to HRK 346.00. Shares value grew until the beginning of the financial crisis. Chart 3 shows the fall of the value of Belje shares (Moje dionice, 2015).

**Chart 3: Belje PLC stock trading in the period 2005- 2015**



Source: Moje dionice (2015)

Today Belje PLC has over 8 million listed shares on the Zagreb Stock Exchange. The majority shareholder is Agrokor Concern which owns 53.12% (ZSE, 2015b). This is the largest company in the Republic of Croatia, but also one of the strongest companies in the south-eastern part of Europe. The primary activity of the Agrokor Concern is the production and distribution of food and beverages and retail activity. The Agrokor Group records constant expansion of business through years. The reason for this is a clear vision and a clearly defined business strategy. The ability to review and modify their business calls, in accordance with the rapid changes in the market, is considered one of the main reasons for the success of Agrokor. In general, the anticipation of changes in the environment and the ability of quick adaptation to changing conditions are the basis for success of any business. These abilities are necessary in order to stay on the market and to grow, partly due to the size of the Croatian market, which is basically very small, and partly due to competitive pressure.

In 2006 the Agrokor Group signed a long-term loan in the amount of EUR 40 million with the International Finance Corporation [IFC], the World Bank member responsible for the financing of investments in the private sector (the Agrokor Group, 2015.) This long-term loan has enabled further investments in Pik Vrbovec and Belje. The loan provided for long-term funds needed to

refinance the debt as well as to secure additional investments, thus giving support to continue restructuring and expansion plans, such as: investments in the quality of production, expansion of capacity, efficiency, productivity, and improvement of the cost structure of both companies.

According to the already mentioned data from the financial analysis it can be concluded that thanks to the acquisition some positive results were also achieved for Agrokor. In the first six months of 2005, Agrokor achieved consolidated revenues which were 15 per cent higher than the revenues in the same period a year before, what is primarily a result of increased sales in the retail sector, which makes almost 70 per cent of total sales revenues and other operating revenues. Such revenue growth was primarily caused by the significant growth of retail trade, opening of new stores and external growth of the Agrokor Group by acquiring Belje and Pik Vrbovec.

## 5. Conclusion

The conducted analysis of financial and economic performance indicators of Belje PLC shows that before the acquisition the enterprise delivered negative financial performance. Financial indicators of liquidity, debt, economic performance revealed a downward trend. Production capacities and the number of employed people were being decreased continually, production plant was inadequate and out-dated, there were no new investments, and the enterprise was losing its competitiveness and its market share. In this context, a support from a financially and economically stronger entrepreneur was indispensable.

After the Agrokor Group's acquisition of Belje PLC, production capacities were increased, old plans were renovated, revenues and expenditures grew, as well as business activities. New investments into fixed assets were made, and all resources are now being used for the expansion of production capacities and business expansion. As a result, profit isn't very high. However, share value grew until the financial crisis emerged. By entering the Agrokor Group, Belje PLC was able to adapt to quick market changes and became one of the biggest Croatian production capacities in food industry. Today they produce a wide range of food and agricultural products from cheese and meat products to wine, flour and animal feed. The enterprise is extremely important for the local and regional economy, in particular for employment.

Expanding the Agrokor Group into eastern Croatia by this acquisition has proved to be a great external business growth strategy also for entering foreign markets. The analysed acquisition indicates some advantages of this kind of business combination, such as the increase of the value of the target company after the acquisition.

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**ATTITUDES ABOUT SHOPPING HABITS OF CITIZENS IN THE FUNCTION  
OF SOLVING THE MAIN SOCIO - ECONOMIC PROBLEM OF MAN AND  
SOCIETY**

**STAVOVI O KUPOVNIM NAVIKAMA GRAĐANA U FUNKCIJI  
RJEŠAVANJA GLAVNOG EKONOMSKO-DRUŠTVENOG PROBLEMA  
ČOVJEKA I DRUŠTVA**

**ABSTRACT**

*Economic and wider social development are having the purpose of better meet the natural and historically formed human needs (individual and collective). All economic discipline on the basis of findings from its areas of research are trying to help more efficient and equitable socio-economic development of a country and thus contribute to the resolution of the main economic and social problems of man and society once, today and tomorrow. Main objective of the research was twofold; first, create a whole picture of Croatian population about attitudes in shopping, preferences in shopping and second, acquaint perceptions of Croatian population in terms of small shopping habits (up to 200 kunas). Additional research through brand pyramid has been conducted in order to crystallize which shopping chains satisfies entirely shopping habits of Croatian population.*

*In order to answer the research question of meeting key human needs i.e. shopping habits a survey was conducted on a random sample of Croatian citizens in two waves of measurement (2013 and 2014); n = 8079 respondents. The dominant motives of the respondents in terms of the frequency of purchase, place of purchase, the selection criteria of purchase, total consumption, purchase via online shops are differ among the given observed socio - demographic characteristics of the sample. The economic dimension of individual and social life is the most important dimension because it seeks opportunities and ways to meet the numerous and constant need, and without which there is no survival or future development. Throughout, economically, as part of a wider social development, individuals and companies increase their own production potential and the level of individual and social productivity, but also the level of available consumption of which depends on the quality of meeting the needs.*

**Key words:** *human needs, socio-economic development, shopping habits, economic goods*

## SAŽETAK

*Ekonomski i širi društveni razvoj za svrhu imaju bolje zadovoljavanje prirodnih i povijesno nastalih ljudskih potreba (individualnih i kolektivnih). Sve ekonomske discipline na temelju spoznaja iz svoga područja istraživanja nastoje pomoći efikasnijem i pravednijem društveno-ekonomskom razvoju jedne zemlje te na taj način pridonositi rješavanju glavnog ekonomsko-društvenog problema čovjeka i društva nekad, danas i sutra.*

*Glavni je cilj istraživanja bio dvostruk; prvo, stvoriti cjelovitu sliku hrvatskog stanovništva o stavovima i kupovnim navikama i drugi, upoznati percepcije stanovnika Hrvatske u pogledu malih kupovnih navika (do 200 kuna). Dodatna istraživanja kroz brand piramide je provedena kako bi se detektiralo koji trgovački lanci u potpunosti zadovoljavaju kupovne navike hrvatskog stanovništva. Kako bi se odgovorilo na istraživačko pitanje o zadovoljavanju ključnih ljudskih potreba tj. kupovnim navikama građana provedeno je istraživanje na slučajnom uzorku građana Republike Hrvatske u dva vala mjerenja (2013. i 2014. godine); n=8079 ispitanika. Dominantni motivi ispitanika u pogledu učestalosti odlazaka u kupnju, mjestu kupnje, kriterijima odabira mjesta kupnje, ukupnoj potrošnji, kupnji putem internet trgovine međusobno se razlikuju obzirom na promatrane socio-demografske karakteristike uzorka. Ekonomska dimenzija individualnog i društvenog života je najvažnija dimenzija jer se u njoj traže prilike i načini za zadovoljavanje brojnih i stalnih potreba, a bez čega nema opstanka niti budućeg razvoja. Kroz, ekonomski, kao dijela šireg društvenog razvoja, pojedinci i društva povećavaju vlastiti proizvodni potencijal i razinu individualne i društvene proizvodnosti, no ujedno i razinu dostupne potrošnje od koje zavisi kvaliteta zadovoljavanja potreba.*

**Ključne riječi:** *ljudske potrebe, ekonomsko-društveni razvoj, ekonomska dobra*

### 1. Introduction

The economic dimension of individual and social life is the most important dimension because it seek opportunities and ways to meet the many and permanent needs, and without which there is no survival or future development. Through economic, as part of a wider social development (which includes in addition to economic and other dimensions of development - eg. the political and moral-ethical), individuals and companies increase their own production potential and the level of individual and social productivity, but also the level of available consumption of which depends on quality of meeting the needs (Vranjican, 2007.). With the increasing production and consumption possibilities in principle (not always and necessarily) also strengthen and grow the moral and democratic potential of the individual and society. Economic development through history has enabled the gradual reduction of labor and production aimed at satisfying the needs of naturally occurring, thereby increasing labor and production aimed at satisfying the needs of historically incurred (Waligorski, 2006.). Today's most developed economy and society not only can fully satisfy all natural and many historically formed the needs of its members (which does not mean that in these societies there are no poor, ie. those who cannot meet even the minimum needs of their own), but encouraged and all faster and more comprehensive formation and development of completely new needs. The emergence and spread of new and different needs contributes to the development of demand for products (goods and services) that will meet those needs, as well as the rise of direct consumption of such goods and services. The increase in the number of needs, because of increased demand for products and consumption of different types of products to meet the growing needs, positively affects the development of the productive forces (caused by the positive reactions to the new producer or widespread need) a society and increase its productivity. Still, many historically, in the meantime created the need have little or nothing to do with the true needs of man, moreover, their acceptance and attempts to satisfy them cause

many dangerous and damage free, psychological and general health of the individual, orderliness and stability of society and the preservation of the natural environment .

## **2. Human need in the era of socio-economic development**

Great American psychologist Abraham Maslow (2011) said that our needs ascend the hierarchy of the physical to the emotional and spiritual (the path that scientist Jacob Bronowski described as "the rise of man"), (Barton, 1993). Our most important needs is for air, water and food; when they met a hostile environment, then shelter and security. Then come our social needs for belonging, the needs of our 'ego' for love and attention, and finally our need for personal development and intellectual research. When each of these needs meet, people are becoming more aware and more desirous of following, more. When you meet their physical needs, some seek emotional pleasure, and few seek intellectual comply. Andrew Curry et al. (2006) from the Henley Centre in London says that the needs of consumers in the OECD (ie. in industrialized countries) have changed markedly in recent decades, functional and practical things to feelings of well-being and personal fulfillment. In 1998, more than 50 percent of expenditures went towards consumers 'lifestyle' and 'entertainment'. Paul Saffo from the Institute of the Future in California says that there is a hierarchy of consumer desire with amusement at the top (Figliuolo, 2011). We should not be surprised if people that are material needs largely met and who have a high level of disposable income overturn their ambitions and start to highly appreciate the things of the mind. You should not be surprised if the market develops to meet those needs. Already takes place several different processes. On the supply side, automation in manufacturing and, to a lesser extent, in services, reducing the need for manual work, so that young people have to look for work elsewhere. Many are turning to creative industries, which can provide an attractive way of life and above average economic fees.

Market economy skillfully meet consumer needs, especially in the field of entertainment, where those needs are so fervent and non-permanent. Suppliers have become adept at charging pleasure. On the demand side, economic product continues to grow, leading to an increase in purchasing power; to increase the budget for leisure; and to the increasing focus on the Leisure activities. British, Americans and Japanese are spending more on their own leisure than on clothes or health care (and most of the clothing is selected equally for pleasure and usefulness). Economization or rationalize the use of economic goods is carried out in two basic ways: prices (which is a product or rarer it is difficult to produce a team becomes more expensive and therefore consumer demand for it automatically decreases) and legislation (eg. prohibits the over-cutting of rare tree species ). In our world of scarcity, as if it already is not enough, our economic problems and worries increases (Howkins, 2003): i) the necessity to continually meet the needs for their perpetual renewal, ii) an increase in the number and types of human needs, and iii) continuous increase (at least for now) the number of members of our species (which grows and the total amount needs to be satisfied). Although scientifically explained, it is somewhat ironic that the number of inhabitants on our planet's fastest growing in those areas of the world where living conditions are the most difficult, and the needs of the poorest are met.

## **3. Consumer attitudes and shopping behaviour**

Shopping behaviour of consumers and their habits depend on numerous factors: degree of development of the country, presence of various sales chains, but also culture and tradition of the country and consumers. Type of shopping behaviour varies from country to country, but also "levelling" of consumer characteristics is noticeable. Globalization affects presence of global brands, presence of global sales chains, as well as global campaigns (less and less adjusted to local consumers). On a personal level, shopping habits are determined by demographic variables: age, education, income, gender, place of residence. All these categories also determine lifestyle of an individual, so type of

shopping behaviour is an important characteristic of life style (Klopčič, Kuipers, Hocquette, 2013). In the same study authors (Klopčič et al. 2013) stated that types of locations where consumers purchase food have changed over the past years following changes in lifestyle (e.g. working habits) and in what is on offer from retail sector. The rapid increase of the number of super and hypermarkets resulted in a steady growth of their market share. Preferences for supermarkets are stronger amongst younger people and people with higher education. The second most popular type of store is mini-market; however their share is slightly declining. Large retail establishments figure more and more prominently due to changes in the way of living and new customer needs. The latest development trend is moving in the direction of construction of modern shopping centres that provide different shopping services and entertainment in one place. They recreate the street ambiance with its bars, restaurants, kiosk and children playground and become privileged for socialising.

#### 4. Methodology Overview

Main goal of the paper was not only to provide theoretical framework of economic dimension of individual and social life in order to meet the numerous and constant needs without which there is no survival or future development but also to help in creating a whole picture of Croatian population about attitudes in shopping, preferences in shopping and shopping habits. For that purpose the research analysis among Croatian citizens has been conducted using backdate<sup>1</sup> of four research waves through 2 years (2013 and 2014), two waves per year, (n=8079). Data collection was done using self-completion method, and data set related to shopping habits was a part of wider research project. Sample was representative for Croatian population aged from 15 to 65 years, meaning that sample represents around 2.970.000 Croatian inhabitants. Controlled variables were gender, age, education, working status, region, settlement type, personal income and total household income. Selected segment of measurement instrument was consisted of 7 statements plus brand pyramid of the strongest shopping chain and questions related to socio-demography.

##### 4.1. Research results

First goal of the research was examining the general impression about the shopping habits among Croatian households through seven dependent variables. With the first question, *„Are you the person in your household that most often takes care of buying groceries, and generally functioning of the household, or is it another household member?“* high proportion of the examined sample (70%) were females between 40-65 years old, 68% of them with finished college, employed (54%) and divorced (74%) with the total household income up to 3 000 kunas. In the second question *„Are you familiar with the possibility of buying food for the household via the Internet?“* high proportion of the sample (58%) is familiar but not using Internet and 33% of the whole sample is not familiar with Internet shopping possibilities. Interesting data is that only 9% of those who are familiar are using it in everyday life. Deeper insight into the structure of the examined sample of „not users“ are between 20-40 years of age with college degree (70%), employed, divorces, town settlement with total household income 9000-11000 kunas. Above mentioned datas were somehow surprising since the highly educated

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<sup>1</sup> BRANDpuls is a research project of IPSOS Puls market research agency, created in Croatia in 2006 in response to advertiser and agency dissatisfaction with other offerings in the market. By early 2011, BRANDpuls was running in seven countries: Croatia, Serbia and Bosnia/Herzegovina in Europe and Egypt, the Lebanon, Saudi Arabia and the United Arab Emirates in the Middle East. BRANDpuls blends four key aspects of consumer markets in order to build a comprehensive picture of consumers: attitudes, brand analysis, demographics, and media. BRANDpuls collects data by means of self-completion surveys placed by interviewers, who train respondents how to complete the surveys. IPSOS Puls agency gave us permission to use environmental part of data for purpose of this study.

Croatian population living in the age of digitalization and information are expected to be more opened to the advantages and possibilities of saving time through internet shopping.

Similar results can be found on the other side of shopping activity, suppliers. In the research conducted by Pejić-Bach (2009) where is stated that only a small number of firms use Web pages as their delivery and selling channel. The number of Internet users in Croatia is one million (45% of the population older than 15), and the total value of e-commerce transactions was over 60 million euros in 2009. According to several researchers the typical Internet users in Croatia include people from urban areas who have access to the Internet. In contrast, this is true only for a smaller percentage of people from rural areas. Most Internet users come from the Croatian capital city – Zagreb and town on the Adriatic coast. Approximately one third of men have access to the Internet, and the same is true only for one quarter of women. Finally, the majority of the users are people younger than 35.

The last set of questions „*How often do you buy in specialized organic food/cosmetics stores ?*“, „*Do you use any of the loyalty cards when shopping?*“, „*How often do you plan your purchases based on printed catalogs you receive in your mailbox?*“, „*How often do you visit websites where you can compare offers and prices of different stores?*“ were detected high proportion of the examined Croatian citizens that never buy in that kind of stores, do not have loyalty cards, do not plan purchases based on the printed catalogs and do not compare offers on the websites.

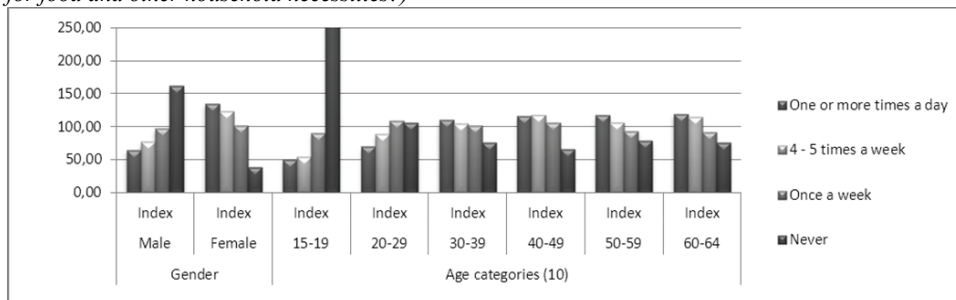
Overall Croatian Consumer Confidence Index can be found as a part of a larger survey conducted in the frame of the Nielsen Global Survey of Consumer Confidence and Spending Intentions<sup>2</sup> conducted among 58 countries out of which Croatia Global Consumer Confidence Index is ranked on 55 place with the 4 index points lower than previous year (total index is 41).

After overall general impression about shopping habits of Croatian citizens within the second goal of the research authors wanted to find out are the perceptions of Croatian population differ in terms of small shopping habits (up to 200 kunas). According to set of six questions differences between demography groups were measured through affinity index = target's affinity toward particular answer where index < 85 represents no affinity to particular answer and index > 115 represents affinity to particular answer. Regarding gender and age categories differences among question „*How often do you go to small shopping for food and other household necessities?*“ (Graph 1), female are much more involved on the need for household necessities than men. The affinity is strongest on youngest target group 15-19 years since this population group, according to the results, never do small shopping. Affinity to the answer in the domain of doing shopping „*one or more times a day*“ and „*4-5 times a week*“ has the target group between 40-65 years, mostly from Lika i Banovina and Dalmatia region with the total household income between 3000-5000 kunas.

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<sup>2</sup> The Nielsen Global Survey of Consumer Confidence and Spending Intentions was conducted between August 10 and September 7, 2012 and polled more than 29,000 online consumers in 58 countries (3 months trend) throughout Asia-Pacific, Europe, Latin America, the Middle East, Africa and North America.

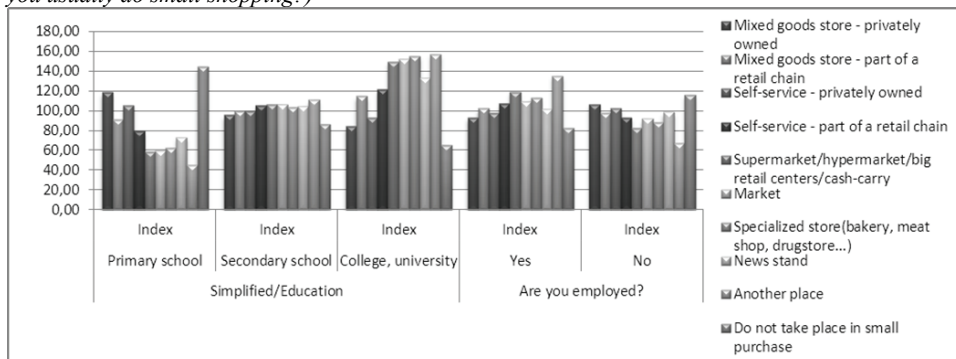
**Graph 1** Affinity index differences rates – by gender and age (How often do you go to small shopping for food and other household necessities?)



Source: Authors, 2015

Regarding second question „At which retail outlets do you usually do small shopping?“ (Graph 2) highest affinity to particular answer such as *Self-service - part of a retail chain, Supermarket/hypermarket/big retail centers/cash-carry, Market, Specialized store(bakery, meat shop, drugstore...), News stand, Another place* has been detected among employed, university educated population. Deeper insight into the affinity to above mentioned answers are particularly detected among Croatian Littoral and Istria region from urban settlements with the average household income between 9000-11000 kunas. Similar datas can be found in the research Mihić, Čulina (2006) where out of the 16 purchasing situations/cases, where the superiority of social class over income was expected, social class did prove to be a more important indicator in eight of them (e.g., theater attendance, macrobiotic nutrition, importance of furniture design, etc.).

**Graph 2** Affinity index differences rates – by education and employment (At which retail outlets do you usually do small shopping?)

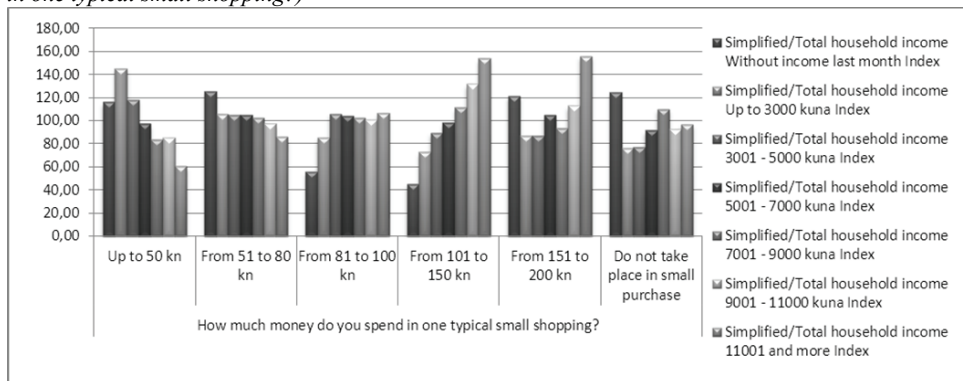


Source: Authors, 2015

In the last part of the second goals of the research there was a question *How much money do you spend in one typical small shopping?* (Graph 3) with regard to the *Total household income*. Affinity has been detected among all the multiple choices in domain of modality *Without income last month* where later affinity is also significant among answers in range of spending 101-150 kunas and 151-200 kunas in households with more than 11000 kunas. This target population shows affinity in domain of important criteria for choosing a retail outlet for small shopping in the answers: cash registers speed, different

ways of payment, well organized shelves, suitable working hours. Target population of Croatian citizens with the total income up to 3000 kunas shows affinity in close relations with the staff, frequent prize games, personnel kindness and least important criteria for choosing a retail outlet for small shopping for them are cash registers speed, reasonable prices, product freshness. One can conclude that target populations with above average national household salary tends to evaluate those intangible assets related to the functioning of the system in general while households with and below average salary give prominence to behavioral (emotional) values.

**Graph 3** Affinity index differences rates – by total household income (How much money do you spend in one typical small shopping?)

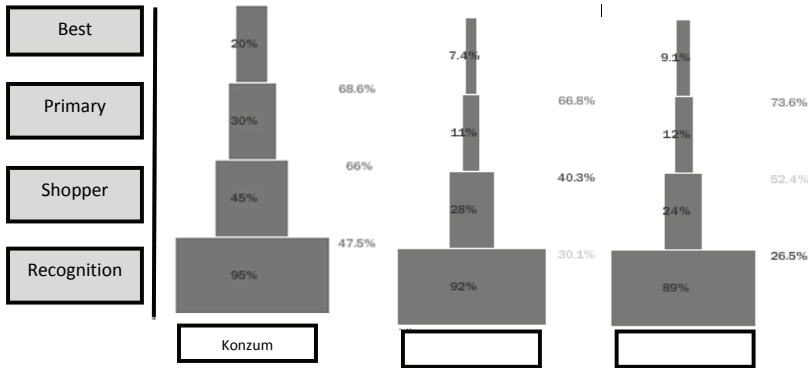


Source: Authors, 2015

In the last part of the research additional analysis has been conducted again through four waves within two years (2013 and 2014) in order to crystallize out which shopping chains satisfies entirely shopping habits of Croatian population. For that purpose Brand Pyramid has been used in order to have deeper insight into the Croatian population and their tendency to particular shopping chain. Brand pyramid (Ipsosadria.com) consist of six possible consumer attitude towards particular brand with a ratio of moving to a higher step pyramid and compare the ratio with the average category or best values achieved. Six consumers attitudes are: *Recognition* - Consumers who have heard for the brand, know that brand exists, *Experience* - Consumers who have had experience with the brand, i.e. have ever used it, *Usage* - Consumers who have used this brand last period, *Consideration* - Consumers considering when buying a brand, *Primary usage* - Consumers who most commonly used brand, *Loyalty* - Consumers who are loyal to the brand. For the purpose of this research only four out of six attitudes has been observed (recognition, shopper, primary, best). From the data from research three shopping chains: Konzum, Lidl and Kaufland are having the biggest proportion of recognition percentage among Croatian population where only in the case of Konzum (95% recognized it out of whole population) 45% of whole population will become Konzum shopper (Konzum has the biggest proportion of conversion from indicator recognition to indicator shopper, 47,5%). Primary users are 30% out of whole population (66% from the shoppers proportion will become primary users) and finally best buyers among whole population is 20% but viewed from proportion of primary users 68,6% of them will be best (loyal) users (Picture 1). Situation for Lidl and Kaufland is somehow different especially in terms of moving consumers to a higher level of the pyramid, from recognition to became a shopper. This situation indicates small proportion of those consumers who will, after having experience in using the brand, consider it again in the future shopping (Lidl – 30,1% out of 92% population knowing that this brand exists and Kaufland – 26,5% out of 89% of population knowing that this brand exists). In the

case of Lidl and Kaufland, big proportion of consumers who commonly use this brands becomes loyal to this brands.

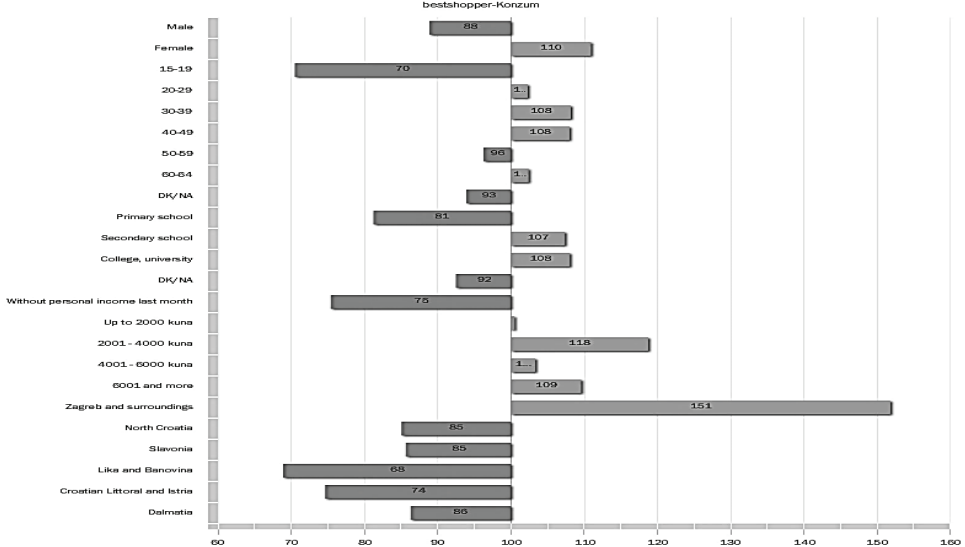
**Picture 1** Brand pyramid of three shopping chains in Croatia for small shopping: Konzum, Lidl, Kaufland



Source: Authors, 2015

In order to get a better overview and insight into the profile of best shoppers of Konzum between demography groups were measured through affinity index = target's affinity toward particular answer (null point = 100, affinity reference - total sample).

**Picture 2** Affinity index – by gender, age, education, personal income, region



Source: Authors, 2015



Picture 2 represents profile of Konzum best shoppers through two observed years (four waves of measuring). Regarding gender differences of Konzum shoppers females (55,86%) are much more involved in buying than men (44,32%). When comparing age categories affinity to Konzum products have been detected in age between 30-50 years (45%) with university degree and earning incomes 2001-4000 kunas, mostly from Zagreb region (39,03%).

Recent research that has been conducted in the field of shopping chains in Croatia states that 51 % of the retail market in Croatia was held by the largest retail chain, Konzum, as shown by the GfK's most recent market research. Croatian citizens prefer to shop at supermarkets and hypermarkets; they are relatively loyal to their brands, showed by results of the market research conducted by ACNielsen called 'Trends in retail and shopping habits'. Research shows that the preferred style of shopping in Croatia is the so called Mediterranean style, meaning that people still prefer to shop for fresh fruit and vegetables at open markets and grocery stores, to get their meat from butcher's and fish from the fish stores.

## **5. Conclusion**

Economic and wider social development are having the purpose of better meet the natural and historically formed human needs (individual and collective). All economic discipline on the basis of findings from its areas of research are trying to help more efficient and equitable socio-economic development of a country and thus contribute to the resolution of the main economic and social problems of man and society once, today and tomorrow. The economic dimension of individual and social life is the most important dimension because it seeks opportunities and ways to meet the numerous and constant need, and without which there is no survival or future development.

Results of the conducted research on the target group of Croatian citizens in four waves of measuring through years 2013 and 2014 indicate affinity of small shopping (up to 200 kunas) among target group of females between 40-65 years, mostly from Lika i Banovina and Dalmatia region with the total household income between 3000-5000 kunas. High proportion of the target population choose small shopping in self-service as a part of a retail chain, supermarket/hypermarket/big retail centers/cash-carry, market, specialized store (bakery, meat shop, drugstore...), news stand, out of which Konzum represents most recognisable shopping chain for the Croatian population (95%) in terms of small shopping. 20% of the whole Croatian population is best buyers of Konzum shopping chain which represents the proportion of only loyal customers; mostly middle-aged, highly educated females with earning incomes up to 4 000 kunas from Zagreb region.

Throughout, economically, as part of a wider social development, individuals and companies increase their own production potential and the level of individual and social productivity, but also the level of available consumption of which depends on the quality of meeting the needs.

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## **AUDIT OF REVENUES AND RECEIPTS OF LOCAL AND REGIONAL SELF-GOVERNMENT UNITS WITH REGARD TO TAX REVENUES**

### **REVIZIJA PRIHODA I PRIMITAKA JEDINICA LOKALNE I PODRUČNE (REGIONALNE) SAMOUPRAVE S OSVRTOM NA POREZNE PRIHODE**

#### ***ABSTRACT***

*The main goals of audit of local and regional self-government units are to verify the authenticity and credibility of the financial statements, examine the compliance of operations with acts and other regulations, analyse the realisation of revenues, receipts, costs and expenditures in accordance with the plan, as well as other goals. After performance of the audit, reports are drawn up, which are available to the public. The aim of this study is to determine the realisation of tax revenues in total revenues and receipts of local units, based on data obtained by the audit procedures. The main role of local and regional self-government units is satisfying public needs, as well as improving living and working conditions in a particular area. Through the process of decentralisation, i.e. by transferring of tasks to be provided by individual levels of government, the local interests and demands for public goods and services can be satisfied in the best possible way. It is therefore necessary to collect budgetary revenues and ensure sources of funding for performance of tasks that fall under the competence of local units. The realisation of tax revenues needs to be analysed by individual types and by counties, for a specified period. The study covers the period from 2007 to 2011, and the fiscal capacity of the counties is presented by analysing the revenues and receipts in relation to the number of inhabitants for each unit of local (regional) self-government. The presented results were analysed in order to determine the changes in shares of tax revenues in total revenues by counties, to compare the share of tax revenues in the total revenues and to show the fiscal capacity of the counties. Attention is paid to tax revenues as sources for*

*budget financing, given that their purpose is not determined by law and they are used to cover budgetary expenditures in accordance with budgetary demands. Other revenues, the ones dedicated to specific purposes, are not included in this study. Conclusions are drawn about the realisation of tax revenues within the realisation of total budgetary revenues, with regard to meeting of demands falling within the scope of local units. The conducted external audit and data from financial statements represent the basis for research and drawing conclusions on tax revenues.*

**Key words:** *audit, units of local and regional self-government, revenues, tax revenues, fiscal capacity.*

## SAŽETAK

*Osnovni ciljevi revizije jedinica lokalne i područne (regionalne) samouprave su utvrditi istinitost i vjerodostojnost financijskih izvještaja, provjeriti usklađenost poslovanja sa zakonima i drugim propisima, analizirati ostvarenje prihoda i primitaka te rashoda i izdataka u skladu s planom, te drugi ciljevi. Nakon obavljenih revizija, sastavljena su izvješća koja su dostupna javnosti. Cilj rada je, kroz podatke dobivene postupcima revizije, utvrditi ostvarenje poreznih prihoda u ukupnim приходima i primitcima lokalnih jedinica. Osnovna uloga jedinica lokalne i područne (regionalne) samouprave je zadovoljavanje javnih potreba, te poboljšanje uvjeta života i rada na određenom području. Procesom decentralizacije, odnosno prijenosom poslova koje pojedine razine vlasti osiguravaju na najbolji se način mogu zadovoljiti lokalni interesi i potrebe za javnim dobrima i uslugama. Stoga je potrebno prikupiti proračunske prihode i osigurati izvore financiranja, za obavljanje poslova koji su stavljeni u nadležnost lokalnih jedinica. Ostvarenje poreznih prihoda je potrebno utvrditi po pojedinim vrstama, te županijama za određeno razdoblje. U radu je obuhvaćeno razdoblje od 2007. do 2011., a prikazuje se i fiskalni kapacitet županija na način da su ukupni prihodi i primitci stavljeni u odnos prema broju stanovnika za svaku jedinicu područne (regionalne) samouprave. Kroz postupke analize prikazanih rezultata se utvrđuje kretanje udjela poreznih prihoda u ukupnim приходima po županijama, uspoređuje se udjel poreznih prihoda u ukupnim приходima, te prikazuje fiskalni kapacitet županija. Pozornost se obraća na porezne prihode kao izvore financiranja proračuna, iz razloga što zakonom nije utvrđena njihova namjena, te služe za podmirenje proračunskih rashoda u skladu s potrebama proračuna. Drugi prihodi, namjenski, radom nisu obuhvaćeni. Zaključuje se o ostvarenju poreznih prihoda u okviru ostvarenja ukupnih proračunskih prihoda, a u svezi s podmirenjem potreba iz djelokruga lokalnih jedinica. Provedena eksterna revizija i podaci iz financijskih izvještaja su osnova za istraživanje i zaključivanje o poreznim приходima.*

**Ključne riječi:** *revizija, jedinica lokalne i područne regionalne) samouprave, prihodi, porezni prihodi, fiskalni kapacitet.*

### 1. Introduction

Units of local and regional self-government can be observed and compared according to the total revenues and receipts realised, but also according to the total realised revenues excluding grants, according to realisation of tax revenues, and generally, according to realisation of individual revenues which make up the structure of total revenues. The realised revenues are recorded within three groups of revenues, i.e. as part of business revenues, income from the sale of non-financial assets, and receipts from financial assets and borrowing. Tax revenues are recorded under business revenues, class 6, in accordance with the provisions of the Ordinance on Budgetary Accounting and the Chart of Accounts<sup>1</sup>. Local units realise tax revenues in accordance with legal provisions and use them for purposes planned by the budget. Tax revenues differ from other budgetary revenues by the

<sup>1</sup> Pravilnik o proračunskom računovodstvu i Računskom planu, Narodne novine, broj 114/10

fact that that their purpose is not determined by law, but rather they are used for meeting the demands within the scope of cities, municipalities and counties. According to Soltani (2009, 210), external auditors play a key role in providing credibility to financial statements used by investors, creditors and other stakeholders, and he claims that, while any consideration of the effectiveness of external auditors includes various issues, for gaining the trust of the public, it is crucial that the external auditors act (and be seen as acting) in an environment which supports objective decision-making regarding issues which have significant impact on financial statements. The effect of external auditors' work is visible in revised financial statements of local units, which in this study provided the basis for analysis and drawing conclusions on tax revenues.

The objective of this paper is to present realisation of tax revenues by individual counties, both in terms of their size and structure. The making of the paper involved the use of synthetic, analytic and comparative methods and the use of data obtained through auditing procedures in the observed period, which are available on the internet. Data for the last year observed in this study pertain to 2011, as available on the internet at the time the paper was written (September 2013).

## **2. Financing of local and regional self-government**

The area of local and regional self-government is regulated by a series of legal regulations. Sources and methods of financing tasks falling in the scope of self-government of the county, municipality and town, i.e. units of local and regional self-government, are regulated by the Act on Financing of Local and Regional Self-government Units<sup>2</sup>. Revenues can be realised from own sources, shared taxes and grants from the state and county budgets.

The counties' own sources of funding include the following: revenues from own assets, county taxes, fines, confiscated property benefits for offenses that they themselves prescribe and other revenues determined by a special act. County taxes are inheritance and gifts tax, tax on road motor vehicles, tax on vessels and tax on coin operated amusement machines. County taxes may be ceded (fully or partially) to the town or municipality of the taxpayer's residence.

According to legal provisions, municipalities or cities may introduce the following taxes:

1. Surtax on income tax
2. Consumption tax
3. Tax on holiday (vacation) homes
4. Tax on uncultivated arable agricultural land
5. Tax on unused entrepreneurial real estate
6. Tax on trade name (company name)
7. Tax on the use of public land

Surtax on income tax can be introduced by the municipality or town, up to the amount of the prescribed rate. It is introduced by the decision of the municipality or town, and it belongs to the municipality or town of the taxpayer's residence. The purpose of surtax is not legally prescribed. Consumption tax is payable for consumption of alcoholic beverages. It is payable by legal and natural persons who provide catering services. It is calculated according to the selling price of drinks sold in catering facilities. The calculation and payment method, as well as the rate, are governed by the town or municipality, which issues a decision to that effect. This tax represents the revenue of the town or municipality where the sale of beverages takes place. The payment of consumption tax is controlled by the competent tax assessment authority. Tax on holiday homes is payable by legal and natural persons who are owners of holiday homes. The tax rate for holiday homes is prescribed by decision of the municipality or town, taking into account the location, age, condition of infrastructure and other factors which are important for the use of the holiday home.

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<sup>2</sup> Zakon o financiranju jedinica lokalne uprave i područne (regionalne) samouprave, Narodne novine, broj 150/02 (pročišćeni tekst), 147/03, 132/06, 26/07, 73/08, 25/12.

Tax on holiday homes belongs to the municipality or town the holiday home is situated in. Tax on uncultivated arable agricultural land and tax on unused entrepreneurial real estate were abolished by the decision of the Constitutional Court in February 2007. They were first introduced in June 2001 as local taxes, and they were collected based on a municipality's or city's independent decision about their implementation. They were supposed to serve as a stimulus to owners of acquired properties to put them to economic function or to renounce them. They were not significant in terms of realisation. Trade name or company name tax is payable by natural and legal persons who are payers of corporate income tax (profit tax) or (personal) income tax, and who are registered for carrying out certain activities. Company name tax is payable for each business unit which is in the taxpayer's system, for example store, plant, point of sale etc. A person whose activity is not actually performed is not liable for paying this tax. The tax is determined in an annual amount, by decision of the municipality or town. The upper limit of this tax is prescribed, and it cannot exceed HRK 2,000.00 per company name or trade name. The company name or trade name tax represents the revenue of the municipality or town where the business unit is situated. Tax on the use of public land is established for natural and legal persons that use public land, in the amount, manner and under the conditions prescribed by the municipality or town. The municipality or town issue a decision on what is considered to be public land.

A local and regional self-government unit also generates income from taxes that are divided among individual levels of government, as shared sources of income. Under the Act on Amendments to the Act on Financing of Local and Regional Self-government Units<sup>3</sup>, which has been effective as of January 1, 2007, shared taxes are income tax and real estate transfer tax. Income tax is divided among the state, municipality, town and county. Real estate transfer tax is divided among the state, municipality and town. Corporate income tax is revenue of the state budget, and not a shared tax anymore. As of March 1, 2012 income tax revenues has been divided as follows: share which belongs to the municipality or town is 56.5%, the county's share is 16%, share for decentralised functions is 12%, and the share of equalization grants for decentralized functions is 15.5%<sup>4</sup>. In the area of the City of Zagreb, according to the amendments, the share in income tax amounts to 72.5%, increased by the additional share in income tax, while the share of equalization grants for decentralized functions is 15.5%. Some provisions pertaining to shares have also been changed, for areas of municipalities or towns which have the status of special state concern, and for municipalities or cities on islands. By transferring fiscal revenues for some of public demands (education, health and social welfare), the tasks, the responsibilities and the financing are also transferred from the central to the regional and local self-government. These changes in the distribution of income tax have affected the amount of realised revenues from this tax by counties in the observed period. The Act on Local and Regional Self-government<sup>5</sup> prescribes the areas which are included in the scope of governance of local self-government units (municipalities and towns). Thus, towns and municipalities perform activities within their scope pertaining to the organisation of settlements and housing, physical and urban planning, municipal services, childcare, social welfare, primary healthcare, primary education, culture, physical education and sports, consumer protection, environment protection and improvement, fire protection, civil protection and transport in their territory, while bigger cities perform the tasks of maintenance of public roads, issuing of building and location permits and other documents related to construction, as well as the tasks of implementation of physical planning documents. The scope of activities of the county includes activities of regional significance and coordination of interests in terms of a balanced development of its municipalities and towns, as well as of the county as a whole, especially activities concerning

<sup>3</sup> Zakon o izmjenama i dopunama Zakona o financiranju jedinica lokalne i područne (regionalne) samouprave, Narodne novine, broj 132/06.

<sup>4</sup> Zakon o izmjenama zakona o financiranju jedinica lokalne i područne (regionalne) samouprave, Narodne novine, broj 25/12.

<sup>5</sup> Zakon o lokalnoj i područnoj (regionalnoj) samoupravi, Narodne novine, broj 33/01, 60/01, 129/05, 109/07, 125/08, 36/09, 150/11, 144/12, 19/13.

education, healthcare, physical and urban planning, economic development, transport and transport infrastructure, public roads maintenance, planning and development of a network of educational, healthcare, social and cultural institutions, issuing of building and location permits and other acts related to construction, implementation of physical planning documents and other activities in accordance with special acts.

The main task of local self-government units is improving the living standard of all its inhabitants, i.e. finding sources of financing in order for the realised revenues to be sufficient for undisturbed performance of activities falling within the scope of the local government unit. In doing so, the number of inhabitants living in the area of the municipalities, towns and counties should be taken into account. This paper covers areas of counties, including the realisations of municipalities and towns in their territory.

### **3. Tax revenues realization**

In the largest number of local units, the most important source of revenue and receipts by value is revenue from personal income tax and surtax (Crnković, et al., 2010, 303). Below is an analysis and presentation of the realisation of personal income tax and surtax, corporate income tax, real estate transfer tax, county taxes, town and municipal taxes. Total tax revenues at county level are determined, and the share of tax revenues which are used as sources of financing.

Tables 1 to 5 show the realisation of individual tax revenues and their share in total revenues and receipts for each of the counties. In order to conduct an analysis and compare data, a calculation was made for each year and for each county, followed by an analysis of the collected data.

In 2007 for eight counties and for the City of Zagreb the share of tax revenue realisation was above the average share for all counties (55.5%), whereupon a share significantly higher than the average was noted in the City of Zagreb (64.5%), Brod-Posavina County (63.5%), Krapina-Zagorje County (59.5%) and Varaždin County (59.2%), whereas a share significantly below the average was noted in the counties of Lika-Senj (41.4%) and Koprivnica-Križevci (45.8%). Based on the tax revenue realisation which is above average in some local units, it can be concluded that these local units have lower realisation shares of all other budgetary revenues, but also that these local units have more budgetary funds the purpose of which is not determined in advance. Therefore, it will be possible to achieve a better satisfying of demands in those local units, provided the generated funds are used rationally and efficiently. In the average tax revenue structure at the level of all counties in 2007, most significant were income tax and surtax revenues, real estate transfer tax, town and municipal tax revenues, as well as revenues from county taxes and corporate income tax.

In 2008 for eight counties and for the City of Zagreb the share of tax revenue realisation was above the average share for all counties (55.6%), whereupon a share significantly higher than the average was noted in the City of Zagreb (64.6%), Krapina-Zagorje County (63.1%), Karlovac County (60.7%) and Zagreb County (59.7%), whereas a significantly lower share than the average was noted in Lika-Senj County (38.9%) and Zadar County (45.1%). In the average tax revenue structure in all counties in 2008, most significant were income tax and surtax revenues, real estate transfer tax, town and municipal tax revenues, revenues from county taxes and corporate income tax.

In 2009 for five counties and for the City of Zagreb the share of tax revenue realisation was above the average share for all counties (59.1%), whereupon a share significantly higher than the average was noted in the City of Zagreb (70.6%), Varaždin County (63.7%), Zagreb County (63.1%) and Karlovac County (62.5%), whereas a significantly lower share than the average was noted in Lika-Senj County (42.8%) and Virovitica-Podravina County (45.3%). In the average tax revenue structure in all counties in 2009, most significant were income tax and surtax revenues, real estate transfer tax, town and municipal tax revenues, revenues from county taxes and corporate income tax.

In 2010 for seven counties and for the City of Zagreb the share of tax revenue realisation was above the average share for all counties (58.1%), whereupon a share significantly higher than the average was noted in the City of Zagreb (67.8%), Krapina-Zagorje County (67.6%), Zagreb County (65.3%), Varaždin County (63.4%) and Karlovac County (62.7%), whereas a significantly lower share than the average was noted in Virovitica-Podravina County (41.6%) and Istria County (46.5%). In the average tax revenue structure in all counties in 2010, most significant were still income tax and surtax revenues, real estate transfer tax, town and municipal tax revenues, revenues from county taxes and from corporate income tax.



**Table 1 Tax revenues and their share in total revenues and receipts by counties with the City of Zagreb in 2007**

County	Income tax and surtax	Corporate income tax	Real estate transfer tax	County taxes	Town and municipal taxes	TOTAL TAX REVENUES	TOTAL REVENUES	SHARE OF ALL TAX REVENUES (7/8 * 100)
	2	3	4	5	6	7	8	9
Zagreb County	760.925.952	190.036	54.511.442	15.845.729	15.693.418	847.166.577	1.472.028.382	57,6
Krapina-Zagorje County	252.775.831	73.043	9.724.530	6.310.666	6.603.813	275.487.883	462.934.692	59,5
Sisak-Moslavina County	389.055.138	259.945	9.396.341	7.579.993	4.942.134	411.233.551	732.626.030	56,1
Karlovac County	308.464.323	336.226	14.705.336	5.983.933	6.735.927	336.225.745	578.847.204	58,1
Varaždin County	379.823.290	48.126	18.118.230	8.644.770	9.916.896	416.551.312	703.111.584	59,2
Koprivnica-Krizeveci County	217.756.331	34.077	9.196.090	4.701.905	5.048.513	236.736.916	517.238.008	45,8
Bjelovar-Bilogora County	218.319.852	204.144	6.719.035	4.471.975	5.363.124	235.078.130	415.533.101	56,6
Primorje-Gorski Kotar County	893.765.408	1.522.005	98.288.176	21.485.859	46.685.126	1.061.746.574	2.331.491.663	45,5
Lika-Senj County	110.036.665	49.826	10.027.941	2.079.737	8.004.367	130.198.536	314.871.528	41,4
Virovitica-Podravina County	132.289.723	73.766	5.272.797	2.788.109	2.185.592	142.609.987	291.616.022	48,9
Požega-Slavonija County	102.915.498	38.768	5.381.939	2.621.898	2.489.199	113.447.302	213.743.963	53,1
Brod-Posavina County	251.184.197	3.712.087	12.846.020	5.118.580	5.433.232	278.294.116	438.420.016	63,5
Zadar County	353.662.042	220.256	58.194.044	8.287.714	23.996.880	444.360.936	929.007.124	47,8
Osijek-Baranja County	595.326.878	25.293	19.807.551	11.779.400	9.683.597	636.622.719	1.158.023.727	55,0
Šibenik-Knin County	235.734.400	17.401	39.159.778	4.874.281	15.932.392	295.718.252	515.146.439	57,4
Vukovar-Srijem County	302.144.004	53.455	6.206.928	6.167.505	5.038.154	319.610.046	689.789.174	46,3
Split-Dalmacija County	1.047.796.968	613.266	97.331.702	20.786.115	50.207.859	1.216.735.910	2.385.062.577	51,0
Istra County	593.356.297	507.967	86.032.158	16.314.929	54.346.053	750.557.404	1.574.526.218	47,7
Dubrovnik-Neretva County	353.719.282	242.765	40.767.739	6.676.995	16.357.766	419.764.547	821.637.871	51,1
Medmurije County	181.461.661	33.980	6.897.830	6.023.952	5.133.307	199.530.730	363.093.870	55,0
City of Zagreb	4.177.611.657	2.008.891	233.389.389	96.099.111	38.288.730	4.547.397.772	7.050.604.402	64,5
TOTAL	11.860.125.391	10.265.323	841.974.996	264.643.156	338.086.079	13.315.094.945	23.959.353.596	55,5
SHARE (%)	49,5	0,0	3,5	1,1	1,4	55,5	100	55,5

Source: author's calculations based on data: Report of the State Audit Office in 2008., <http://www.revizija.hr/izvjesca/2009-rr/1-izvjesce-o-radu-za-2008/izvjesce-o-radu-2008.pdf> (10.10.2014.)

**Table 2 Tax revenues and their share in total revenues and receipts by counties with the City of Zagreb in 2008**

County	Income tax and surtax	Corporate income tax	Real estate transfer tax	County taxes	Town and municipal taxes	TOTAL TAX REVENUES	TOTAL REVENUES	SHARE OF ALL TAX REVENUES (7/8 * 100)
	2	3	4	5	6	7	8	9
Zagreb County	864.078.133	34.645	55.664.718	16.984.806	16.441.294	953.203.596	1.597.257.836	59,7
Krapina-Zagorje County	284.672.723	0	10.355.018	6.805.348	6.767.528	308.600.617	488.715.232	63,1
Sisak-Moslavina County	411.156.022	1.089.723	1.110.825	7.633.453	5.063.392	436.048.415	786.338.479	55,5
Karduvac County	325.099.469	602.199	9.523.877	6.184.726	7.233.829	348.643.839	573.953.894	60,7
Varaždin County	410.832.665	0	15.844.433	8.484.665	11.055.076	446.216.830	781.692.882	57,1
Koprivnica-Križevci County	233.045.290	0	6.812.376	5.149.053	4.843.082	249.849.801	536.355.380	46,6
Bjelovar-Bilogora County	237.643.229	5.358	8.891.978	4.631.876	5.522.779	256.695.220	446.611.459	57,5
Primorje-Gorski Kotar County	977.806.784	1.593.141	122.224.897	22.881.961	49.165.486	1.173.672.269	2.404.721.068	48,8
Lika-Senj County	106.920.948	0	10.100.751	2.143.282	8.069.283	127.234.264	327.453.656	38,9
Virovitica-Podravina County	140.380.498	0	3.166.972	2.692.134	2.382.337	148.621.941	309.958.414	47,9
Požega-Slavonija County	112.619.865	16.240	3.174.189	2.816.185	2.630.715	121.257.194	251.271.697	48,3
Brod-Posavina County	266.544.985	4.006.480	12.750.188	5.548.990	5.254.243	294.104.886	506.913.346	58,0
Zadar County	377.627.215	9.800	48.787.323	9.169.977	25.679.234	461.273.549	1.022.620.479	45,1
Osijek-Baranja County	654.866.461	0	30.329.863	12.744.439	10.349.980	708.290.743	1.270.351.000	55,8
Šibenik-Knin County	248.419.519	0	34.228.832	5.066.324	16.647.103	304.361.778	527.174.903	57,7
Vukovar-Srijem County	325.024.668	0	8.386.236	6.068.504	4.762.947	344.242.355	694.652.348	49,6
Split-Dalmacija County	1.152.353.206	36	138.435.516	22.615.280	51.312.513	1.364.716.551	2.823.940.968	48,3
Istria County	642.739.143	0	98.491.770	15.629.000	53.031.548	809.891.461	1.725.735.180	46,9
Dubrovnik-Neretva County	380.445.497	0	32.022.704	7.244.428	17.141.333	436.853.962	852.501.090	51,2
Međimurje County	201.774.351	0	6.060.982	5.840.026	5.123.932	218.799.291	410.436.910	53,3
City of Zagreb	4.472.153.734	0	259.353.553	106.133.246	39.662.623	4.877.303.156	7.545.860.738	64,6
TOTAL	12.826.204.405	7.357.622	925.711.701	282.467.703	348.140.257	14.389.881.688	25.884.516.959	55,6
SHARE (%)	49,6	0,0	3,6	1,1	1,3	55,6	100	55,6

Source: author's calculations based on data: Report of the State Audit Office in 2009., [http://www.revizija.hr/izjesca/2010-rr/izjesca\\_o\\_raadu\\_2009.pdf](http://www.revizija.hr/izjesca/2010-rr/izjesca_o_raadu_2009.pdf), (10.10.2014.)

**Table 3 Tax revenues and their share in total revenues and receipts by counties with the City of Zagreb in 2009**

County	Income tax and surtax	Corporate income tax	Real estate transfer tax	County taxes	Town and municipal taxes	TOTAL TAX REVENUES	TOTAL REVENUES	SHARE OF ALL TAX REVENUES (7/8 * 100)
	2	3	4	5	6	7	8	9
Zagreb County	869.808.138	0	46.005.111	16.976.754	14.525.704	947.315.707	1.501.959.212	63,1
Krapina-Zagorje County	281.290.752	0	6.446.303	6.321.148	6.052.443	300.110.646	481.830.874	62,3
Sisač-Moslavina County	412.774.365	411.022	8.622.873	7.334.872	4.635.366	433.778.498	748.852.750	57,9
Karlovac County	324.744.911	0	8.359.563	5.860.129	6.670.906	345.635.509	552.673.839	62,5
Varaždin County	413.511.045	0	12.202.306	8.536.136	10.179.918	444.429.405	697.940.092	63,7
Koprivnica-Krizevci County	229.820.342	0	5.271.438	5.258.012	4.684.979	245.034.771	462.184.507	53,0
Bjelovar-Bilogora County	235.457.131	29.803	5.914.703	4.379.819	6.125.673	251.907.129	455.229.411	55,3
Primorje-Gorski Kotar County	960.914.141	19.423	85.880.322	22.111.603	48.873.643	1.117.799.132	2.198.919.072	50,8
Lika-Senj County	107.527.508	577	11.666.063	2.458.844	8.308.154	129.961.146	304.022.685	42,8
Virovitica-Podravina County	142.505.089	0	2.867.281	2.781.575	2.222.131	150.376.076	332.068.532	45,3
Požega-Slavonija County	128.315.366	12.295	2.603.160	2.401.612	2.357.922	135.690.355	242.770.603	55,9
Brod-Posavina County	275.944.971	3.417.923	7.195.895	5.569.635	4.951.707	297.080.131	529.313.742	56,1
Zadar County	382.001.448	2.810	57.190.551	8.042.708	25.758.159	372.995.676	996.967.551	37,4
Ošijek-Baranja County	656.305.715	0	22.398.701	12.523.817	10.311.337	701.539.570	1.210.201.357	58,0
Šibenik-Knin County	253.147.665	0	29.193.410	5.145.072	16.309.535	303.795.682	526.727.003	57,7
Vukovar-Srijem County	319.384.018	24.245	8.327.722	5.994.872	4.387.650	338.118.507	658.525.691	51,3
Split-Dalmacija County	1.136.038.007	133.716	122.131.686	21.990.420	49.171.645	1.329.465.474	2.574.084.177	51,7
Istra County	625.867.603	0	94.772.974	16.919.261	51.543.230	789.103.068	1.640.268.774	48,1
Dubrovnik-Neretva County	381.799.797	0	29.888.062	7.121.922	16.437.092	435.246.873	732.804.032	59,4
Mediterranean County	200.482.154	0	5.046.373	5.912.079	4.250.373	215.690.979	367.065.782	58,8
City of Zagreb	4.518.153.923	0	201.969.214	114.617.480	35.345.896	4.870.086.513	6.899.942.557	70,6
TOTAL	12.855.794.089	4.051.814	773.953.711	288.257.770	333.103.463	14.255.160.847	24.114.352.243	59,1
SHARE (%)	53,3	0,0	3,2	1,2	1,4	59,1	100	59,1

Source: author's calculations based on data: Report of the State Audit Office in 2010, [http://www.revizija.hr/izvjesca/2011-rr-2009/izvjesce\\_o\\_radu\\_2010.pdf](http://www.revizija.hr/izvjesca/2011-rr-2009/izvjesce_o_radu_2010.pdf), (10.10.2014.)

**Table 4 Tax revenues and their share in total revenues and receipts by counties with the City of Zagreb in 2010**

County	1	2	3	4	5	6	7	8	9
	Income tax and surtax	Corporate income tax	Real estate transfer tax	County taxes	Town and municipal taxes	TOTAL TAX REVENUES	TOTAL REVENUES	SHARE OF ALL TAX REVENUES (7/8 * 100)	
Zagreb County	801.706.833	0	37.591.126	18.114.538	13.931.667	871.344.164	1.334.745.897	65,3	
Krapina-Zagorje County	264.071.445	0	6.296.465	6.244.554	5.947.181	282.559.645	417.847.387	67,6	
Sisak-Moslavina County	383.076.387	781.305	6.480.045	7.355.787	4.244.578	401.938.102	705.575.689	57,0	
Karlovac County	303.423.124	0	6.855.979	5.981.796	6.200.511	322.461.410	514.274.908	62,7	
Varaždin County	382.401.546	0	11.101.769	8.498.839	9.604.719	411.606.873	649.428.773	63,4	
Koprivnica-Križevci County	218.324.540	0	4.303.785	5.113.561	4.002.501	231.744.387	484.755.957	47,8	
Bjelovar-Bilogora County	222.260.088	148.310	5.381.086	4.661.320	5.389.828	237.840.632	406.015.253	58,6	
Primorje-Gorski Kotar County	888.558.020	0	75.407.621	21.475.324	50.082.540	1.035.523.505	2.119.500.772	48,9	
Lika-Senj County	140.682.497	0	7.220.623	2.103.652	8.223.335	158.230.107	304.345.834	52,0	
Virovitica-Podravina County	133.318.115	0	2.547.249	2.618.232	2.349.935	140.833.531	338.435.857	41,6	
Požega-Slavonija County	147.325.735	11.828	3.228.995	2.511.007	2.280.439	155.358.004	264.575.373	58,7	
Brod-Posavina County	256.779.130	2.782.387	6.987.972	5.310.247	4.235.509	276.095.245	464.370.611	59,5	
Zadar County	362.269.305	0	38.309.872	8.127.209	27.202.524	435.908.910	866.955.013	50,3	
Ošjak-Baranja County	606.414.950	0	27.414.058	12.416.528	7.819.324	654.064.860	1.222.697.018	53,5	
Sibenik-Knin County	246.088.374	0	21.946.393	5.161.638	18.587.144	291.783.549	529.635.096	55,1	
Vukovar-Srijem County	319.219.716	32.996	7.036.895	6.120.548	4.314.792	336.724.947	659.995.052	51,0	
Split-Dalmacija County	1.039.474.531	0	94.243.488	22.114.989	52.981.587	1.208.814.595	2.268.638.303	53,3	
Istra County	583.172.338	0	83.953.963	16.662.754	54.670.323	738.459.378	1.588.667.086	46,5	
Dubrovnik-Neretva County	346.249.603	0	27.323.453	7.163.775	16.589.127	397.325.958	713.734.620	55,7	
Međimurje County	186.004.192	0	5.506.861	6.016.727	4.414.170	201.941.950	349.966.177	57,7	
City of Zagreb	4.101.453.695	0	168.892.000	106.051.273	34.496.532	4.410.893.500	6.510.542.935	67,8	
TOTAL	13.201.453.252	3.756.826	648.029.698	279.824.298	337.568.266	13.201.453.252	22.714.703.611	58,1	
SHARE (%)	52,5	0,0	2,9	1,2	1,5	58,1	100	58,1	

Source: author's calculations based on data: Report of the State Audit Office in 2011., <http://www.revizija.hr/izvjesca/2011-rr-2011/izvjesce-o-radu-drzavnog-ureda-za-reviziju-za-2011.pdf>, (10.10.2014.)

**Table 5 Tax revenues and their share in total revenues and receipts by counties with the City of Zagreb in 2011**

County	Income tax and surtax	Corporate income tax	Real estate transfer tax	County taxes	Town and municipal taxes	TOTAL TAX REVENUES	TOTAL REVENUES	SHARE OF ALL TAX REVENUES (7/8 * 100)
	2	3	4	5	6	7	8	9
Zagreb County	728.400.287	0	31.379.668	16.402.776	13.552.529	789.735.260	1.320.940.960	59,8
Krapina-Zagorje County	197.197.405	0	5.718.627	6.108.275	6.605.611	215.629.918	392.869.351	54,9
Sisak-Moslavina County	279.420.842	957.270	5.222.291	8.171.837	4.253.878	298.026.118	728.481.100	40,9
Karlovac County	221.742.971	0	7.551.443	6.262.402	6.405.797	241.962.613	494.579.331	48,9
Varaždin County	283.046.596	0	9.394.257	8.134.853	9.948.523	310.524.229	615.335.418	50,5
Koprivnica-Krizevci County	152.989.872	0	6.128.550	5.621.474	4.394.622	169.134.518	471.400.229	35,9
Bjelovar-Bilogora County	143.232.126	73.379	4.876.537	4.269.210	5.075.163	157.526.415	380.279.606	41,4
Primorje-Gorski Kotar County	778.563.974	0	70.941.880	21.242.015	51.991.047	922.738.916	2.015.395.127	45,8
Lika-Senj County	83.165.110	0	8.123.105	2.192.681	9.010.258	102.491.154	292.272.627	35,1
Virovitica-Podravina County	79.655.378	0	2.426.175	2.436.105	2.173.651	86.691.309	292.096.624	29,7
Požega-Slavonija County	86.024.740	3.171	4.660.113	2.410.844	2.299.666	95.398.534	243.496.015	39,2
Brod-Posavina County	157.619.605	0	3.352.824	5.080.174	4.943.232	170.995.855	459.394.735	37,2
Zadar County	257.093.487	0	44.757.190	7.761.443	32.403.172	342.015.292	962.873.597	35,5
Osijek-Baranja County	462.917.046	0	28.850.471	11.788.605	10.209.047	513.765.169	1.115.727.663	46,1
Šibenik-Knin County	168.640.310	0	19.761.763	5.255.748	18.859.876	212.517.697	488.985.220	43,5
Vukovar-Srijem County	187.327.305	1.381.130	8.784.522	5.779.432	3.799.040	207.071.429	574.739.358	36,0
Split-Dalmacija County	861.798.591	0	102.277.796	22.956.037	53.272.981	1.040.305.405	2.148.474.940	48,4
Istra County	477.040.044	0	71.063.242	17.598.411	60.629.635	626.331.332	1.518.143.603	41,3
Dubrovnik-Neretva County	276.862.726	0	22.739.203	6.942.444	17.953.264	324.497.637	751.626.305	43,2
Međimurje County	132.448.767	0	4.558.569	5.781.175	4.233.140	147.021.651	331.051.916	44,4
City of Zagreb	4.009.319.894	0	190.795.029	103.748.434	32.764.717	4.336.628.074	6.320.883.078	68,6
TOTAL	10.024.507.076	2.414.950	653.363.255	275.944.375	354.778.869	11.311.008.525	21.919.046.803	51,6
SHARE (%)	45,7	0,0	3,0	1,3	1,6	51,6	100	51,6

Source: author's calculations based on data: Report of the State Audit Office in 2012., [http://www.revizija.hr/izvjesca/2012-rr-2012/izvjesce\\_o\\_radu\\_drzavnog\\_ureda\\_z\\_a\\_reviziju\\_z\\_a\\_2012.pdf](http://www.revizija.hr/izvjesca/2012-rr-2012/izvjesce_o_radu_drzavnog_ureda_z_a_reviziju_z_a_2012.pdf), (10.10.2014.)

In 2011 for two counties and for the City of Zagreb the share of tax revenue realisation was above the average share for all counties (51.6%), whereupon a share significantly higher than the average was noted in the City of Zagreb (68.6%), Zagreb County (59.8%) and Krapina-Zagorje County (54.9%), whereas a significantly lower share than the average was noted in Virovitica-Podravina County (29.7%) and Lika-Senj County (35.1%). In the average tax revenue structure in all counties in 2011, most significant were still income tax and surtax revenues, real estate transfer tax, town and municipal tax revenues, revenues from county taxes and corporate income tax.

According to the data given in Tables 1, 2, 3, 4 and 5, the total revenues and receipts realised in 2011 in the counties, including the City of Zagreb, were lower in comparison to 2010, but also in comparison to 2009, 2008 and in 2007. The changes in tax revenues followed the changes in the total revenues and receipts realisation, which means that the total tax revenues in 2011 were lower than those realized in 2010, 2009, 2008 and 2007.

At the level of all counties, the share of income tax and surtax showed increasing significance, ranging from 49.5% in 2007 to 53.3% in 2009, which was followed by a decline in the share, where in 2011 the share amounted to 45.7% of total revenues and receipts. The share of real estate transfer tax in 2007 amounted to 3.5% and in 2008 it went up to 3.6%, only to decline to 3.0% in 2011. The share of town and municipal taxes and county taxes in 2007 amounted to 2.5% and in 2008 it dropped to 2.4%. However, in 2009 it increased to 2.6% and in 2010 to 2.7%, finally reaching a share of 2.9% in 2011. The share of income tax and surtax showed a tendency of decline, as well as the share of real estate transfer tax, while the share of town and municipal taxes and county taxes showed a tendency of increase.

For further determining of total revenues and receipts realised, both on the level of all counties and for each individual county, as well as for drawing a conclusion, it was necessary to compare the counties according to their fiscal capacity. For the execution of their function, units of local and regional self-government collect a part of their revenues according to the separation system (own revenues), while the other part is the result of participation in revenues of other (broadly and immediately superordinate) units, i.e. the central state government and local government units. The distribution of funds is carried out through vertical active financial equalisation, by distribution of tax revenues among the central state government and local government units, or through horizontal active financial equalisation, by direct transfer of funds to the local units. This way, the difference in tax capacity between local units should be reduced. This is the reason why fiscal capacity is calculated by taking into account all sources of financing, or just some, like tax revenues.

Table 6 shows the calculation of fiscal capacity by taking into account all sources of financing, i.e. the total of all revenues and receipts realised. The fiscal capacity of the counties and of the City of Zagreb is shown for the years 2007 to 2011, by analysing the total incomes and receipts in relation to the number of inhabitants for each unit of regional self-government. Calculation of fiscal capacity for 2011 was done based on data about the number of inhabitants acquired in the population census of 2011. The average total income and receipts realised per capita in 2011 amounted to HRK 5,115.00. The highest incomes and receipts per capita were noted in the City of Zagreb (HRK 8,001.00), in Istria County (HRK 7,297.00) and in Primorje-Gorski Kotar County (HRK 6,804.00), whereas the lowest were in Brod-Posavina County (HRK 2,897.00). In the analysis of fiscal capacity it was noted that the average income and receipts per capita in 2011 were realised in five counties and the City of Zagreb, while fifteen counties were below average.

**Table 6 Fiscal capacity of the Counties and the City of Zagreb from 2007th to 2011th**

County	Population (Census of population 2001.)	Population (Census of population 2011.)	Total revenues and receipts				
			2007.	2008.	2009.	2010.	2011.
1	2	3	4	5	6	7	8
Zagreb County	309 696	317 606	4.753	5.144	4.850	4.310	4.159
Krapina-Zagorje County	142 432	132 892	3.250	3.431	3.383	2.934	2.956
Sisak-Moslavina County	185 387	172 439	3.952	4.242	4.039	3.806	4.225
Karlovac County	141 787	128 899	4.083	4.048	3.898	3.627	3.837
Varaždin County	184 769	175 951	3.805	4.231	3.777	3.515	3.497
Koprivnica-Križevci County	124 467	115 584	4.156	4.309	3.713	3.895	4.078
Bjelovar-Bilogora County	133 084	119 764	3.122	3.356	3.421	3.051	3.175
Primorje-Gorski Kotar County	305 505	296 195	7.632	7.871	7.198	6.938	6.804
Lika-Senj County	53 677	50 927	5.866	6.100	5.664	5.670	5.739
Virovitica-Podravina County	93 389	84 836	3.123	3.319	3.556	3.624	3.443
Požega-Slavonija County	85 831	78 034	2.490	2.928	2.828	3.083	3.120
Brod-Posavina County	176 765	158 575	2.480	2.868	2.994	2.627	2.897
Zadar County	162 045	170 017	5.733	6.311	6.152	5.350	5.663
Osijek-Baranja County	330 506	305 032	3.504	3.844	3.662	3.699	3.658
Šibenik-Knin County	112 891	109 375	4.563	4.670	4.666	4.692	4.471
Vukovar-Srijem County	204 768	179 521	3.369	3.392	3.216	3.223	3.202
Split-Dalmacija County	463 767	454 798	5.144	6.090	5.551	4.893	4.724
Istra County	206 344	208 055	7.631	8.363	7.949	7.699	7.297
Dubrovnik-Neretva County	122 870	122 568	6.687	6.938	5.964	5.809	6.132
Međimurje County	118 426	113 804	3.066	3.466	3.100	2.955	2.909
City of Zagreb	779 145	790 017	9.049	9.685	8.856	8.356	8.001
TOTAL RH	4 437 460	4 284 889	5.397	5.833	5.434	5.119	5.115

Source: Croatian Bureau of statistics – Census of population 2001., Census of population 2011. [http://www.dzs.hr/Hrv\\_Eng/publication/2012/SI-1468.pdf](http://www.dzs.hr/Hrv_Eng/publication/2012/SI-1468.pdf), Reports of the State Audit Office in 2008., 2009., 2010. (data for 2007., 2008. i 2009.), author's calculation for 2010. i 2011.

In 2010 the average income and receipts per capita were realised by the same five counties and the City of Zagreb, while fifteen counties were below average. In 2009 the average income and receipts per capita were realised by six counties and the City of Zagreb, while fourteen counties were below average. In 2008 the average income and receipts per capita were realised again by the same six counties and the City of Zagreb, while fourteen counties were below average. In 2007 the average income and receipts per capita were realised by five counties and the City of Zagreb, while fifteen counties were below average. We see that incomes per capita differ among the counties, which is caused by different amounts of income realised, different number of inhabitants in the territory of the counties, economic inequality and other factors.

The above stated facts can be compared with the realisation of income and receipts per capita in previous years. The highest income and receipts per capita in 2003 were realised in Primorje-Gorski Kotar County (HRK 4,952.00), followed by Istria County (HRK 4,951.00) and Lika-Senj County (HRK 4,017.00), and they were significantly higher in comparison to other counties. The lowest average per capita in 2003 was noted in Brod-Posavina County (HRK 1,679.00)<sup>6</sup>. By comparing the income and receipts per capita in 2011 with the results

<sup>6</sup> For more details: Perić, R. & Mahaček, D.: *Ostvarenje poreznih prihoda jedinica lokalne i područne (regionalne) samouprave kroz podatke dobivene revizijskim nadzorom*, Pravni vjesnik (0352-5317) 25 (2009), 1.; 97-116,

from 2003, we see that Brod-Posavina County still has the lowest incomes and receipts per capita.

The fiscal capacity of some units is below average and that affects the satisfying of public demands by making some units more successful and some less successful in satisfying such demands. "Low fiscal capacity of some self-government units and their provision of the minimum standard of satisfying public demands indicates that the role of grants in financing of units of local and regional self-government is very important. The differences in fiscal capacity are characteristic, for not only towns and municipalities, but also for counties. In financing of a larger number of regional self-government units there is a great gap between the delegated public authority and the public revenues by which public expenditures are settled." (Jelčić, 2012, 245) Differences in fiscal capacity reflect on satisfying public demands, so there is a need for additional sources of financing, i.e. subsidies, which are realised from the state budget. In order for all tasks transferred to local units to be achieved, it is necessary to ensure the funds needed for financing of expenditures necessary for the realisation of these competences. The allocation of tax revenues in terms of their intended purpose is not defined by law, so they can be spent for different purposes, for example to cover expenses for employees, material expenses and other budgetary expenditures.

#### **4. Conclusion**

Based on data gathered in audits for the period from 2007 to 2011, an analysis of the total realised revenues of local and regional self-government units was conducted, with special focus on tax revenue realisation. Credible financial statements, verified by external auditors, serve the public for decision-making and for other purposes. The conclusion of this paper is that the total revenues and receipts increased in 2008 in comparison to 2007, after which a decline followed, lasting until 2011. In 2011, the realisation of total revenues and receipts was lower when compared to 2007, as well as the realisation of tax revenue. Changes in total revenues and receipts affected the changes in total revenues and receipts at the level of individual counties, so at the level of counties the total revenues and receipts in 2011 decreased when compared to 2007. The share of realized tax revenues in the total realized budgetary revenues at the level of counties became increasingly significant, and their average share increased until 2009, which confirms their greater role in satisfying public demands. In 2011 the average share decreased, which is the result of total lower realisations. The collection of tax revenues is prescribed by legal provisions and the sources of funding and method of financing of tasks from the self-governing scope of the county, municipality and city, i.e. units of local and regional self-government, are also regulated.

Based on the overview of realised tax revenues and their share in the total realised revenues and receipts at the level of all counties in the period from 2007 to 2011, it can be concluded that they exhibited a growth tendency until 2008, after which they declined both in the total sum and in the average share. Of all the tax revenues, the most significant are income tax and surtax, while other tax revenues account for a smaller share, which varies in individual counties. Total incomes and receipts per capita in individual counties deviate from the average established at the level of all counties, indicating that there are differences in the levels of development of counties. Differences in the development of counties are the result of the differences in development levels of towns and municipalities in their territory and therefore, to draw further conclusions, it would be necessary to determine the trends in incomes and receipts per capita in the towns and municipalities within individual counties. In addition to tax revenues, local units generate other revenues as well, which are used for financing of budgetary expenditures, so the possibilities of satisfying demands in the local units depend on the availability of all budgetary revenues.



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## **APPLICATIONS OF PENTA HELIX MODEL IN ECONOMIC DEVELOPMENT**

### **PRIMJENA MODELA PENTA HELIX U RAZVOJU GOSPODARSTVA**

#### ***ABSTRACT***

*The paper analyzes the application of Penta Helix model, where the diaspora is added to the Quad Helix model as the fifth component. Its role in economic development can be seen through partnerships and cooperation by engaging in business investments in opening new plants and facilities, the introduction of modern technology, to create new employment opportunities and stop the emigration of young people, who are increasingly looking to other countries in terms of quality of life and dignity for themselves and their families.*

*There are various models that are recommended for use in economic development, in order to be a successful business, and use more favorable funds from domestic sources, as well as EU funds and donor funds of international monetary institutions.*

*In the 1990s usage of the Triple Helix model was recommended for economic development, which is supposed to include the three important factors for starting businesses, namely: government, through incentives and stimulation of entrepreneurship, companies and the inclusion of the scientific sector and universities.*

*Soon, due to the need for more competitive development of companies and export to world markets, the application of Quad Helix model was recommended for the development and prosperity of a company. That means in addition to the public sector, businesses and research institution, non-governmental organizations were introduced in stimulation of development. The fourth participant proved to be necessary to include the civil sector in the preparation of analyses of the current situation in the society, making the overall development programs, as strategic documents for development, development of business plans, investment studies,*

*feasibility studies, cost-benefit analyses (CBA) and programs in accordance to propositions of the Project Cycle Management (PCM) methodology for development, in order to use funds of the European Union (EU) and resources of other international monetary institutions. With regard to the process of globalization, competition and access to the world unknown markets, the role of the diaspora is becoming increasingly important in the business world. Diaspora involvement in the economic development in the Penta Helix model assumes partnerships with existing companies, investment in new plants and existing companies with modern equipment in order to be competitive in an increasingly demanding global market. In addition diaspora is well organized around the world. Successful Croatian entrepreneurs recognized in the business world are members of the Croatian Fraternal Union (Hrvatska Bratska Zajednica)<sup>1</sup>, and members of a scientific organization in the Alma Matris Croatiae Alumni (AMCA)<sup>2</sup>. Through its already beaten track and achievements, their involvement through the model Penta Helix will add to faster recovery from the recession and boost Croatia's economic development.*

*This model is called Penta Helix which means in addition to the existing impact of the previous four components of Quad helix model, it adds a fifth component, the diaspora, as an essential element in investing and opening foreign markets to entrepreneurs, with regard to competition and the globalization process.*

*The aim of this work is to highlight the need to involve the diaspora, with the support and stimulation of the Government, involve entrepreneurs, universities and civil society, in launching the accelerated development of the Eastern Croatia region and the whole Republic of Croatia.*

**Keywords:** Penta Helix, investment, development, competition, prosperity of the company.

## SAŽETAK

*U radu se analizira primjena Penta Helix modela, gdje se kao peta komponenta na Quad Helix model za razvoj uključuje dijaspora. Njena uloga u razvoju gospodarstva, vidi se kroz partnerstva i suradnju uključivanjem u biznis investiranjem u otvaranje novih pogona i sadržaja, uvođenjem suvremene tehnologije, kako bi se zaposlilo stanovništvo i zaustavio odlazak mladih, koji sve više traže u drugim zemljama uvjete za kvalitetniji život dostojnog čovjeka, kako za sebe tako i svoju obitelj.*

*Postoje razni modeli koji se preporučuju za korištenje u razvoju gospodarstva, kako bi se uspješnije moglo poslovati, koristiti povoljnija sredstva iz domaćih izvora, ali i sredstva fondova Europske unije i sredstva donatora međunarodnih novčarskih institucija.*

*Devedesetih godina prošlog stoljeća za razvoj gospodarstva preporučalo se korištenje Triple Helix modela, koji je pretpostavljao uključivanje tri značajna faktora za pokretanje poduzetništva, a to su: vlada, kroz poticaje i stimulaciju poduzetništva, tvrtke i uključivanje znanstvenog sektora i sveučilišta.*

*Nedugo, s obzirom na potrebu za što konkurentnijim razvojem tvrtki i izvoz na svjetska tržišta, počelo se preporučavati primjena quadro helix modela za razvoj i prosperitet tvrtki. To znači osim uključivanja javnog sektora, poduzetništva i znanstvenih institucija postala je potreba za uključivanje i nevladinih organizacija u poticanje razvoja. Taj četvrti sudionik pokazao se potrebnim radi uključivanja civilnog sektora u izradu analiza postojećeg stanja u društvu, izradu programa ukupnog razvoja, kao strateških dokumenata za razvoj, izradu poslovnih planova, investicijskih studija, studija isplativosti, Cost Benefit analiza (CBA) i programa prema propozicijama Upravljanje projektom ciklusom (PCM) metodologiji za razvoj, kako bi se*

<sup>1</sup>Hrvatska bratska zajednica, <http://croatianfraternalunion.org/>

<sup>2</sup>AlmaeMatrisCroatiaeAlumni, <http://www.unizg.hr/suradnja/alumni-i-zaklada-sveucilista/alumni/>

*koristila sredstva fondova Europske unije ( EU ) i sredstva ostalih novčarskih međunarodnih institucija.*

*S obzirom na proces globalizacije, konkurenciju i izlazak na svjetska nepoznata tržišta, uloga dijaspore postaje sve značajnija u svijetu biznisa. Njena uključenost u gospodarski razvoj po modelu Penta Helix pretpostavlja partnerstva s postojećim tvrtkama, investiciju u nove pogone i postojeće tvrtke sa suvremenom opremom kako bi bili konkurentniji na svjetskom sve zahtjevnijem tržištu.*

*Osim toga dijaspora, Hrvatska bratska zajednica<sup>3</sup> uspješni poduzetnici prepoznatljivi u svijetu biznisa, znanstvena organizacija hrvatske dijaspore Almae Matris Croatiae Alumni (AMCA)<sup>4</sup>, kroz svoje već utrte staze i postignuća, omogućiti će kroz model Penta helix brži izlazak iz recesije i ubrzati gospodarski razvoj.*

*Ovaj model nazvan je Penta Helix što znači pored postojećih utjecaja svih dosadašnjih komponenti iz quadro helix modela, dodaje se i peta komponenta, dijaspora, kao bitna značajka za investiranje i otvaranje stanih tržišta za poduzetnike s obzirom na konkurenciju i proces globalizacije.*

*Cilj rada je ukazati na potrebu uključivanja dijaspore, uz podršku i stimulaciju Vlade, interes poduzetnika, uključivanja sveučilišta i civilnog sektora, u pokretanju ubrzanijeg razvoja kako regije istočne Hrvatske tako i cijele Republike Hrvatske.*

***Ključne riječi:*** penta helix, investiranje, razvoj, konkurencija, prosperitet tvrtke.

## **1. Introduction**

As an example of the Penta Helix model, by involvement of the diaspora into economic development, Croatia would attract people who have already proved themselves in the business world, and created a significant financial capital that seeks room for investment and its increase. Examples of successful entrepreneurs of Croatian origin are numerous, and fields in which they proved themselves successful are globally well-known examples.

Their willingness to return to homeland is permanent, as well as a wish to invest both in production plants and numerous tourist facilities, following the examples of developed countries. Since there are not enough favorable conditions for their return, lacking the stimulation and secure legal framework, a quality involvement of the diaspora in economy or science has not come to life. Therefore, they do not want to invest their whole earnings into insecure investment climate with unknown outcome regarding the property right warranties, varying tax obligations and manipulations.

Furthermore, Croats who are members of worldwide organizations such as the Croatian Fraternal Union (Hrvatska Bratska Zajednica) and Alma Matris Croatiae Alumni (AMCA) invite scientists to cooperation, finance scholarships and specializations at universities as well as at research institutions, in order for them to acquire knowledge through scientific work and specializations, to be able to return to homeland and engage in economic development.

There are not significant investments, not enough active tourist facilities following the examples of developed countries and their tourist offerings; there is a lack of connections between research institutions and universities in order to mutually start the development.

Without a mutual action and involvement into economic development of the Republic of Croatia, by the Government, entrepreneurs, universities and research institutions, civil sector and the diaspora, the road to exit the recession will be far longer than it could be. With the planned GDP

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<sup>3</sup> Hrvatska bratska zajednica, <http://croatianfraternalunion.org/>

<sup>4</sup> Almae Matris Croatiae Alumni, <http://www.unizg.hr/suradnja/alumni-i-zaklada-sveucilista/alumni/>

growth per capita of 0.5%<sup>5</sup> predicted by the World Bank, we will not reach in 100 years the current GDP per capita level of Germany.

## 2. From the Triple Helix and Quad Helix models to the Penta Helix development model

### 2.1. Triple Helix model

In the 1990s usage of the Triple Helix model was recommended for economic development, which is supposed to include the three important factors for starting businesses, namely: government, through incentives and stimulation of entrepreneurship, companies and the inclusion of the scientific sector and universities.

For example “In Canada government has a variety of incentive programs to finance innovation, technological improvements and product development. (SHRED, IRAP, Ives Laundry ...) One is to have university centers lead programs to assist company technological improvements and product development, where government funding is managed by the university center. This type of contract cooperation might give university patent rights. If company finances research and development of innovation program and product development internally, the company can apply for government funding and recover innovation part of a project cost. (SHRED)”<sup>6</sup>

“The concept of the Triple Helix of university-industry-government relationships initiated in the 1990s by Etzkowitz (1993) and Etzkowitz and Leydesdorff (1995), encompassing elements of precursor works by Lowe (1982) and Sábato and Mackenzi (1982), interprets the shift from a dominating industry-government dyad in the Industrial Society to a growing triadic relationship between university-industry-government in the Knowledge Society.”

Sanford University: Triple Helix Concept - [http://triplehelix.stanford.edu/3helix\\_concept](http://triplehelix.stanford.edu/3helix_concept)<sup>7</sup>

The Triple Helix thesis is that the potential for innovation and economic development in a Knowledge Society lies in a more prominent role for the university and in the hybridization of elements from university, industry and government to generate new institutional and social formats for the production, transfer and application of knowledge. This vision encompasses not only the creative destruction that appears as a natural innovation dynamics (Schumpeter, 1942), but also the creative renewal that arises within each of the three institutional spheres of university, industry and government, as well as at their intersections.

Through subsequent development, a significant body of Triple Helix theoretical and empirical research has grown over the last two decades that provides a general framework for exploring complex innovation dynamics and for informing national, regional and international innovation and development policy-making.”<sup>8</sup>

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<sup>5</sup> World bank:<http://www.tradingeconomics.com/germany/gdp>

<http://www.tradingeconomics.com/croatia/indicators>

<http://www.balkaninsight.com/en/article/world-bank-cuts-croatian-gdp-growth-predictions>

<sup>6</sup>Government of Canada:

<http://www.actionplan.gc.ca/en/initiative/canada-job-grant>

<http://www.mentorworks.ca/what-we-offer/government-funding/>

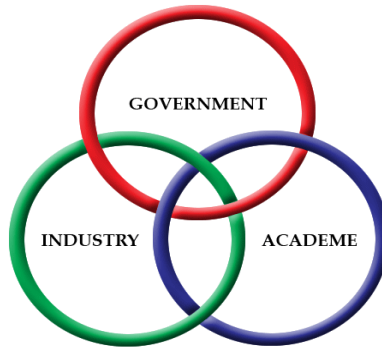
<http://www.mentorworks.ca/blog/government-funding/top-4-canadian-small-business-grants-and-loans-for-manufacturers-09-2013/>

<sup>7</sup>Sanford University: Triple Helix Concept

<sup>8</sup>[http://triplehelix.stanford.edu/3helix\\_concept](http://triplehelix.stanford.edu/3helix_concept)

### *Scheme 1 Triple Helix model*

#### THE TRIPLE-HELIX MODEL



Source: Henry Etzkowitz and Loet Leydesdorff, 2000  
Diagram: [www.techpinoytrend.blogspot.com](http://www.techpinoytrend.blogspot.com) (03 March 2011)

*Source: Henry Etzkowitz and Loet Leydesdorff, 2000 [www.techpinoytrend.blogspot.com](http://www.techpinoytrend.blogspot.com) (March 3, 2011)*

*"Triple-Helix is a model which describes the crossing of three worlds; academia, business and government. In the model, the business segment operates as the locus of production; government as the source of contractual relations that guarantee stable interactions and exchange; the university as a source of new knowledge and technology, the generative principle of knowledge-based economies." by Christer Asplund on March 22, 2012 (Ernest J. Wilson III, at the University of Southern California, **How to make a region innovative**)<sup>9</sup>*

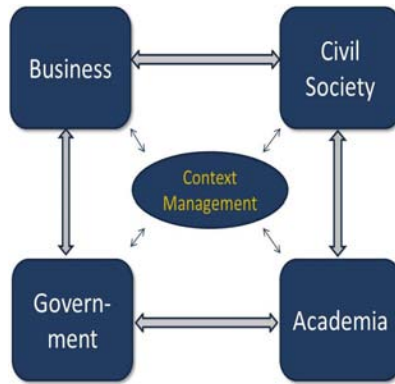
## 2.2. Quad Helix model

Due to the need for more competitive development of companies and export to world markets, the application of Quad Helix model was recommended for the development and prosperity of a company. That means in addition to the public sector, businesses and research institution, non-governmental organizations were introduced in stimulation of development. The fourth participant proved to be necessary to include the civil sector in the preparation of analyses of the current situation in the society, making the overall development programs, as strategic documents for development, development of business plans, investment studies, feasibility studies, cost-benefit analyses (CBA) and programs in accordance to propositions of the Project Cycle Management (PCM) methodology for development, in order to use funds of the European Union (EU) and resources of other international monetary institutions.

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<sup>9</sup> Ernest J. Wilson – University of Southern California: How to make region innovative <http://www.strategy-business.com/article/12103?pg=all>

*Scheme 2 Quad Helix model*



Source: <http://blog.bearing-consulting.com/2012/03/22/beyond-triple-helix-towards-quad-helix/>

*"Ernest J. Wilson underlines in his paper that especially in the context of innovative clusters it is critical to involve resourceful persons, not as representatives, but as resourceful entrepreneurs. He focuses on talented people who are open minded and capable to combine complex and disparate factors, irrespective of their heritage or birthplace. Ernest J. Wilson calls these persons "quad leaders", which we have used as the forth corner in the "Quad Helix" model, see below. The **Quad-Helix** model recognizes that the drain pipe approach is not competitive (but unfortunately common). It also illustrates the key importance of the central **context management**, connecting the civil society with talented people irrespective of their home base. The prime background is if the resourceful individuals are capable to connect diverse facts, curiosity and sometimes even economic resources of their own or via their networks."<sup>10</sup>*

It is important to have central context and Quad Helix opens an opportunity for creative talented people from internal sources, academia, government and experts from Non-Government sector to connect in innovative research and new product development.

### 2.3. Penta Helix model

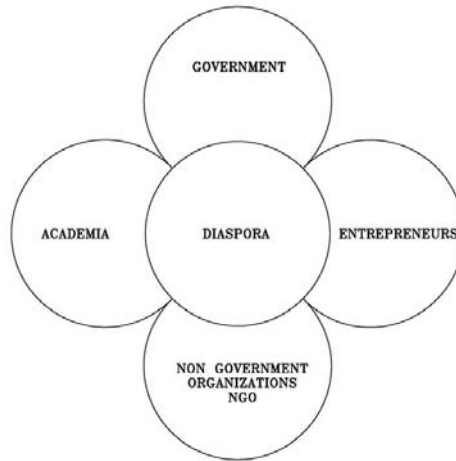
Application of the Penta Helix model presupposes the addition of the diaspora as the fifth component to the Quad Helix model, here introduced into development program of Eastern Croatia region, as well as the whole Republic of Croatia.

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<sup>10</sup>Ibidem

<http://blog.bearing-consulting.com/2012/03/22/beyond-triple-helix-towards-quad-helix/>

### *Scheme 3 Penta Helix model*



*Source: Authors*

The role of the diaspora in economic development can be seen through partnerships and cooperation by engaging in business investments in opening new plants and facilities, the introduction of modern technology, to create new employment opportunities and stop the emigration of young people, who are increasingly looking to other countries in terms of quality of life and dignity for themselves and their families.

However, application of the Penta Helix model by involvement of the diaspora into economic development primarily demands stability and security of legal framework and consistent tax obligations rules. Legal security would provide the Croatian diaspora a positive base for investments into their homeland economy, and so enable investors to gain a return on invested capital.

“In advanced nations, this formal property representation functions as the means to secure the interests of other parties and to create accountability by providing all the information, references, rules, and enforcement mechanisms required to do so.” (Mystery of Capital by Hernando de Soto)<sup>11</sup>

Regarding the economic development of Croatia, where the predicted annual GDP growth rate of 0.5%<sup>12</sup>(estimated by the World Bank) will not be enough to reach the level of developed countries even in 100 years,<sup>13</sup>a significant turn should be made in planning and stimulating development in order to come closer to developed countries economy-wise.

Since Croatia has a significant human capital in knowledge and quality approach to work, natural beauties, natural potentials for development of processing industry, unpolluted land, rural areas with rivers, lakes and forests with potential for development of game and fishing tourism, numerous tourist offerings such as rural tourism, tennis and golf courts, thermal springs for

<sup>11</sup> International Monetary Fund, <http://www.imf.org/external/pubs/ft/fandd/2001/03/desoto.htm>

<sup>12</sup> World Bank's Outlook for Croatia's Gross Domestic Product for 2015.

<sup>13</sup> Croatian GDP per capita for year 2014, US\$ 10,454

Trading Economics.com Germany GBD per capita US\$ 38,291.62



development of health tourism, if we use the Penta Helix model we will accomplish significantly faster development than the one the World Bank predicted.

By having stable legal regulations with precisely defined long-term rules, conditions are created for cooperation of the diaspora with Croatian entrepreneurs, universities, research institutions and the civil sector to achieve economic development faster than the one the World Bank predicted.

There are no reasons for Eastern Croatia, as well as the whole Croatia, not to have an economy boom, employment of all work-capable population in this region and people achieving dignifying lives.

We cannot acknowledge incompetence, entropy, collapse, hopelessness, escaping from reality and going to foreign countries where our teachers and engineers occupy low-qualification jobs, working as waiters, construction workers or street cleaners.

Penta Helix model could accelerate development of the whole Croatia in the same way Roosevelt<sup>14</sup> stopped the well-known worldwide crisis, and in 6 months from completely ruined economy, devastated banking system and unprecedented unemployment in the USA, he restored order and initiated economic development.

There is no reason for us not to do the same. The door to success and exit from recession is opened ahead of us, if we give chance to successful businessmen from the diaspora to get involved in economic development programs and if we reverse the downward trend of the curve into progress, employment and GDP increase in accordance with the achievements.

Without a mutual action and involvement into economic development of Croatia, by the Government, entrepreneurs, universities and research institutions, civil sector and the diaspora, the road to exit the recession will be far longer than planned.

### 3. Conclusion

Application of the Penta Helix model presupposes involvement of the diaspora in economic development with stable legal framework and stimulation from the Government, with precisely defined long-term rules for investors, and cooperation with Croatian entrepreneurs, universities, research institutions and civil sector in order to achieve faster economic development than the one estimated by the World Bank and International Monetary Fund.

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<sup>14</sup><http://www.u-s-history.com/pages/h1851.html>: At his inauguration in March 1933, Roosevelt declared in his lilted style, "Let me assert my firm belief that the only thing we have to fear is, fear itself — needless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance." In his first 99 days, he proposed, and Congress swiftly enacted, an ambitious "New Deal" to deliver *relief* to the unemployed and those in danger of losing farms and homes, *recovery* to agriculture and business, and *reform*, notably through the inception of the vast Tennessee Valley Authority (TVA). The New Deal effects would take time; some 13,000,000 people were out of work by March 1933, and virtually every bank was shuttered.

Ernest J. Wilson III, at the University of Southern California, How to make a region innovative, March 22, 2012;

Hernando de Soto, Mystery of Capital, 2003;

<http://www.tradingeconomics.com/croatia/indicators>

<http://www.balkaninsight.com/en/article/world-bank-cuts-croatian-gdp-growth-predictions>

The World Bank in June 2014 estimated Croatia's GDP growth that year would be minus 0.5 percent, rising to 1.2 percent growth in 2015.

Its new forecast for 2015 is more pessimistic, predicting growth of only 0.5 percent of GDP in 2015, rising to 1.5 percent in 2016 and 2017.

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**IF YOU BUILD IT - WE WILL COME**

**AKO IZGRADITE – MI ĆEMO DOĆI**

**ABSTRACT**

*This paper was inspired by the movie called "Field of Dreams" in which we see the forgotten and neglected area, and after the baseball pitch was built on it, suddenly, as in a dream, famous players appear, coming from the corn fields and starting the game. Gradually the people gathered and life in this area began again. The dream was achieved. Eastern Croatia more and more looks like a forgotten and neglected area, because there is no production (and we know that not so long ago there was), there is no organized and developed tourism, so there is no traffic. But, there are fewer people and jobs, increasing the outflow of young people to developed countries. Cities and villages remain neglected, and schools half-empty, because of the white plague. There was an idea in development plans of building entrepreneurial zones in cities and larger municipalities in order to attract investors and create modern facilities for processing of raw materials and other necessary activities, and give people jobs. To make it all come to life, the idea was to give Osijek and Eastern Croatia back the name "crossroad" and prosperity. This means, to rebuild its road and railway infrastructure by construction of Vc Corridor and improve river and air transport, and in this way connect the region with the rest of Europe. Another important component is the creation of a stimulating development program with the legal framework and guidelines that guarantee long-term security of invested capital, long-term stability in terms of taxes, contributions and all other levies. This paper will provide analysis of the situation with existing enterprise zones with special reference to the Osijek-Baranja County. The aim is to highlight current situation of built enterprise zones, and especially the need for their completion, in order to realize the initiated idea of creating conditions for development of the Eastern Croatia and present it to investors, as in the movie „Field of Dreams“ with the saying "If you build it - we will come".*

**Keywords:** Enterprise zones, Infrastructure, Investments, stimulation programs

**SAŽETAK**

*Na ovaj rad potaknuo nas je film "Field of dreams" („Polje snova,“) u kojem se na zaboravljenim i zapuštenim prostorima, nakon izgrađenog igrališta za baseball, najednom, kao u snu, pojavljuju*

čuveni igrači, koji dolaze iz kukuruznih polja i započinju igru. Postepeno su se skupljali ljudi i ponovo je počeo život u tom kraju. Ostvario se san. Istočna Hrvatska sve više podsjeća na zaboravljene i zapuštene prostore, jer nema proizvodnje (a znamo da je ne tako davno postojala), nema organiziranog i razvijenog turizma, pa nema niti prometa. Ali, zato ima sve manje ljudi i zaposlenih, sve veći odljev mladih u razvijene zemlje, Gradovi i naselja ostaju zapušteni, a škole poluprazne, jer vlada bijela kuga. U planovima razvoja svojevremeno pojavila se ideja o izgradnji poduzetničkih zona u gradovima i većim općinama kako bi se privukli investitori i otvarali suvremeni pogoni za preradu sirovina i drugih potrebnih djelatnosti, te zaposlilo stanovništvo. Da bi to sve zaživjelo, ideja je bila ponovo Osijeku i istočnoj Hrvatskoj vratiti naziv, "križišće puteva" i prosperiteta. To znači, obnoviti cestovnu i željezničku infrastrukturu izgradnjom Koridora Vc, i usavršiti riječni i zračni promet te na taj način povezati regiju s ostalim dijelom Europe. Osim toga značajna komponenta je izrada stimulativnog programa razvoja sa zakonskim okvirom i odrednicama koje garantiraju dugoročnu sigurnost uloženog kapitala, dugoročnu stabilnost po pitanju poreza, doprinosa i svakih drugih nameta. U ovom radu dat će se analiza situacije s postojećim gospodarskim zonama s posebnim osvrtom na Osječko baranjsku županiju. Cilj rada je ukazati na postojeće stanje izgrađenih poduzetničkih zona, a posebno potreba za njihovim dovršenjem, kako bi započeta ideja o stvaranju uvijeta za razvoj istočne Hrvatske bila ostvarena i predstavljena investitorima, kao u filmu „Polje snova,, s uzrečicom „Ako izgradite - mi ćemo doći“.

**Ključne riječi:** Poduzetničke zone, Infrastruktura, Investicijska ulaganja, Stimulativni programi.

## 1. Introduction

Discussing energy policy in Canada Roger Gibbins [2] reminds of the idea from the movie "Field of Dreams" (based on WP Kinsella book „Shoeless Joe“), which reads: "If you build it, he will come." Based on this idea a full range of non-governmental projects was started (construction of social and sports facilities), and later this logic was accepted in development of small and medium-sized enterprises. Jayson Myers, president of Canadian Manufacturers and Exporters Association described it in article - Enterprise Network Canada - "If We Build it ... SMEs Will Come".[6] According to the Canadian practice, this analysis of establishment of enterprise zones in Croatia, as well as in Slavonia and Baranja was done. For this (Croatian) parable it is very useful to quote the article of brothers Craig and Marc Kielburger: If You Build It, They Will Come - But Building's Not Enough.[4]

### 1.1. About Entrepreneurial Zones

It is known that enterprise zones exist in all developed countries. Their location is usually set along the transport routes, and they are equipped with the complete infrastructure, which means electricity, water, drainage, access to telecommunications, with the precisely planned scheme for certain branches of industry. Such organized and well equipped entrepreneurial zones, are usually offered to investors, with stimulation. Zones are usually parceled for certain branches of activity which is in line with the development programs of the local government, but also in line with the strategic documents of Counties and the Republic of Croatia.

Thus, stimulation of investors is consistent with the needs of local authorities and the existing needs for development of the region. Benefits to investors in certain activities are given in order to start that production which is most appropriate to the local area due to soil and climate conditions but also in demand on the world market. The investors are offered benefits for investments and high return on invested capital. Thus the strategic development projects of the region, as well as the whole country, are achieved. Unused spaces are filled, investors and residents are stimulated for certain production and processing, especially in today's growing demand for organic production while preserving the environment and sustainable economic development.[10]

## 2. Development of entrepreneurial zones in Croatia

Entrepreneurial zones in Croatia are intended as a center of economic development in each local government unit (LGU) and for balanced regional development of the entire Croatian territory. In some local areas construction of entrepreneurial zone started in the 1980s. Since 2001, through the relevant ministries, two important government programs for encouraging small economies are carried out: The Program of Entrepreneurial Zone Development 2004 - 2007 [17] and the Program for Support of Small and Medium Enterprises 2008 – 2012. [18] In July 2013, the Act on the Promotion of Entrepreneurial Infrastructure was adopted. [20]

The Program of Entrepreneurial Zone Development 2004 - 2007 set framework goals: development of enterprise zones in the vicinity of any major settlement, purpose of enterprise zones should be production, and an integral part of the zone is a center for education and advisory of companies on financing, production and business models.

In the period from 2004 to 2013, the amount of 2.03 billion kuna has been invested in enterprise zones in the territory of the Republic of Croatia. Out of that amount 823 million kuna directly from the State Budget through the ministries, and value of 1.21 billion kuna in land and real estate given. This way, 348 zones in 20 counties have been founded; the largest funds allocation of the state was in 2008 (113 mln kuna) and the smallest in 2013 (about 10 mln kuna). According to plans in the 20 counties (without the City of Zagreb) it was predicted to establish 1308 zones, but only 449 have been operating at the end of 2013 (only one third). In these active zones operated 2,674 businesses with 69,400 employees. [9]

### 2.1. Entrepreneurial Zones in the Territory of Slavonia and Baranja

In the Slavonia and Baranja region it was planned to establish 213 entrepreneurial zones. Overview of established zones in the five counties of eastern Croatia and donated land owned by the Republic of Croatia from 2004 to 2012 is given in Table 1, and we will give a short summary for all five counties.

**Table 1** Established enterprise zones in the area of five counties of Eastern Croatia and donated real estates owned by the Republic of Croatia in the period from 2004 to 2012:

N°	Counties	Number of zones	Number of donated real estates	Value (000 kuna)	Surface (ha)
1	Virovitica-Podravina C.	16	20	78,844	425.8
2	Požega-Slavonia C.	3	4	10,451	26.2
3	Slavonski Brod-Posavina C.	11	14	37,069	218.6
4	Osijek-Baranja C.	20	24	156,240	389.5
5	Vukovar-Srijem C.	10	10	28,535	224.9
6	Total Slavonia & Baranja	60	72	311,139	1,285
7	Total Croatia	157	194	1207,042	2,973
	Share of Slavonia in RC (%)	38.2	37.1	25.8	43.2

Source: [1]

#### Slavonski Brod-Posavina County

In 26 cities and municipalities in the territory of Slavonski Brod-Posavina County it was planned to establish 52 entrepreneurial zones, and by the end of 2013, there have been only 10 of them. In active zones operated 49 businesses (31 with a production profile) that employed 1,262 workers and 50 non-active businesses. 72 million was invested in the launch of these 10 zones, and 33 million kuna was invested in 16 out of 42 zones that have not been put into operation.

## **Osijek-Baranja County**

In 39 cities and municipalities of Osijek-Baranja County it was planned to establish 63 entrepreneurial zones, and by the end of 2013, there have been 33 of them in which 149 million kuna has been invested. In these zones actively operated 232 companies (51% of them with a production profile) employing 3,049 workers, and 90 inactive businesses have been recorded. Out of 30 non-active zones, for eight of them no formal decision on the establishment has been adopted, while 30 million kuna has been invested in 17 of them, some of which are constructed, but not in function.

## **Požega-Slavonia County**

In Požega-Slavonia County, in ten cities and municipalities, the launch of 30 enterprise zones was initiated, out of which there were nine at the end of 2013. In the development of active zones 67 million kuna was invested, and 47 companies operate there (22 companies engaged in production), and employ 1,147 workers. In 19 enterprise zones there is no activity, and 17 million kuna has been invested in five of these from the local budgets.

## **Virovitica-Podravina County**

Out of 34 planned zones in 15 cities and municipalities in Virovitica-Podravina County, there were 12 active zones in which 77 million kuna was invested. At the end of 2013 in these areas operated 48 companies (42 that deal with production) with 819 employees and 35 companies were inactive. Other 22 zones are not in operation; in seven zones there were no investments and in 15 of inactive zones the total of 25 million kuna has been invested.

## **Vukovar-Srijem County**

In 31 towns and municipalities in Vukovar-Srijem County it was planned to build 56 zones; at the end of 2013 there have been nine zones in which 79 million kuna was invested. 42 companies operated in these zones (16 of them manufacturing), employing 525 workers. There is a large number of inactive companies – as much as 65. There is also a large number of zones that are not in use - 47 of them are not in operation; for 24 of them a decision on the establishment has not been adopted yet, and the reason is the fact that local governments do not have ownership of the land; in 13 of them 26 million kuna has been invested so far.

Below is more detailed analysis of establishment of entrepreneurial zones in the territory of Osijek-Baranja County.

## **2.2. Entrepreneurial Zones in the Territory of Osijek-Baranja County**

Osijek-Baranja County (OBC) has adopted the County Development Strategy for the Period from 2011 to 2013, laying down the objectives and priorities in development of the County. According to this strategy the construction of economic infrastructure in seven cities and 34 municipalities was scheduled, in order to solve development problems - insufficient use of natural resources, areas under mines, above-average unemployment rate, below-average level of development and competitiveness in relation to the Republic of Croatia, insufficient development of the municipal system, inadequate system for waste disposal and waste water treatment, a large number of small farmers who are not interconnected and their low level of equipment, the non-existence of a harmonized policy of development of economic zones and attracting investors, lack of expert employees for preparation and implementation of projects.

Basic information about entrepreneurial zones in the OBC area are shown in Tables 2 - 4;

As can be seen from the table, in the period from 2003 to 2013 in building and development of

enterprise zones in the OBC a total of 179.2 million kuna has been invested. Out of that sum, LGUs have invested 68.5 mln, the County 25.9 mln, the Republic of Croatia 61.8 mln and other sources 22.9 mln kuna. But in late 2013, only 33 enterprise zones were in operation (232 companies with 3,049 employees operate, and in this zone 148.8 mln kuna has been invested, or 48,800 per employee. At the same time 30 enterprise zones were not in function, with total area of 588 ha, in which 30.49 mln kuna has been invested, that is 51,600 kuna per hectare. [1]

### **2.3. Report of the State Audit Office on Establishment of Entrepreneurial Zones**

According to the Program for Support of Small and Medium Enterprises 2008 – 2012, the main carriers in the construction of enterprise zones in LGU are the Ministry of Economy, Labor and Entrepreneurship, the Ministry of Environmental Protection, Physical Planning and Construction, the Central State Office for State Property Management, the Ministry of Regional Development, the Croatian Chamber of Economy, the Croatian Chamber of Crafts, the Agency for Export and Investment Promotion, the Croatian Agency for Small Businesses, the Development and Employment Fund and Regional Development Fund. The carrier in the implementation of co-financing of making project documentation and construction of transport and utilities infrastructure to and in enterprise zones in the LGUs on islands and in coastal areas, is the Ministry of Sea, Transport and Infrastructure.

During 2014, the State Audit Office has made an analysis of establishment and operation of entrepreneurial zones in the territory of the Republic of Croatia. To assess the effectiveness of the establishment and investments in equipment and development of enterprise zones, the criteria has been determined arising from the laws and regulations, and during the audit the evidence was collected, in order to respond to the following questions: [1]

- Did the LGUs implement projects of construction of entrepreneurial zones in accordance with the programs of the Croatian Government?
- Have the plans and programs of business and enterprise zones been adopted by the LGUs and are they compliant with the programs of the Croatian Government?
- Have the LGUs adopted appropriate decisions on the establishment of enterprise zones?
- Did the local governments use the land obtained from the Republic of Croatia for development of enterprise zones?
- Has the construction and equipping of business zones been carried out in accordance with the needs?
- Has the planned activity in the enterprise zones been achieved?
- Have the LGUs taken measures to encourage entrepreneurial activity with the aim of completing the enterprise zones?
- Is there an information system in enterprise zones?

The report of auditor cited organizational omissions regarding establishment and development of entrepreneurial zones and provided recommendations for more efficient organization of these zones. The main and most important finding is insufficient supervision of spending of the approved aid and incomplete user reports on justification of the allocated funds. Missing, according to their findings, is the coordination of government bodies dealing with the zones. Sector ministries did not have data on the number of small and micro enterprises, as well as on whether there has been any increase in the number of employees, as was scheduled in programs for development of enterprise zones. However, in our paper we also point out two important elements - which can contribute to successful marketing of commercial space in these zones with investors; these are transport and communication connections with larger (European) market.

**Table 2 Investments in entrepreneurial zones and sources of funding in the area of Osijek-Baranja County from 2004 to 2013**

N°	Cities	Name of zone	Total invest. (000 kn)	Financial source (000 kn)			
				Local gov.	County	RC	Other
1	B. Manastir	PZ Beli Manastir	14,329	1,514	1,915	10,900	0
2	Belišće	PZ uz Karašicu	4,998	3,222	327	1,450	0
3		PZ Trž. Cen. Belišće	120	120	0	0	0
4	D. Miholjac	PZ „Kod pruge“	550	0	550	0	0
5		PZ Zagajci	120	0	120	0	0
6		Ind. zona Janjevci	22,763	4,150	2,070	5,620	10,923
7	Đakovo	IPZ Đakovo	1,519	719	0	800	0
8		PZ Široko polje	84	0	84	0	0
9	Našice	Industrijska zona	15,683	3,871	2,740	9,050	22
10	Osijek	PZ Tenje	6,402	3,198	500	1,000	1,704
11		Ind. zona Nemetin	15,064	9,813	0	130	5,121
12		PZ Zapad	424	74	0	350	0
13		PZ Jug I faza	8,976	4,476	4,500	0	0
14		Sl. zona Osijek	155	155	0	0	0
15		PZ sklad i servisa	1,180	538	0	650	0
16	Valpovo	PZ u Bizov. ulici	2,844	144	0	2,700	0
17		PZ K-VI	3,931	1,181	0	2,750	0
18		PZ II u Valpovu	160	0	160	0	0
19		Zona m_privrede	3,470	0	1,450	2,020	0
20		Industrijska zona	452	86	0	367	0
Municipalities							
21	Antunovac	PZ Antunovac	15,479	13,679	1,180	620	0
22	Bilje	PZ Sjever-Bilje	8,698	3,001	2,316	3,313	68
23	Bizovac	PZ Sajmište	2,550	1.250	450	850	0
24	Čeminac	PZ Čeminac	2,950	33	967	1,950	0
25	Čepin	PZ Vinogradi	997	97	0	900	0
26	Darda	PZ m_ obrta i pod.	12,723	8,573	600	3,550	0
27	Draž	PZ Gajić	520	50	470	0	0
28		PZ Duboševica	100	100	0	0	0
29		PZ Topolje	170	150	20	0	0
30	Đurđenovac	SPZ Pašnjak PZ	42	42	0	0	0
31		Z_ m_ privrede	2,659	799	860	1,000	0
32	Erdut	PZ u Bijelom Brdu	5,135	867	400	1,000	2,867
33	Ernestinovo	PZ Ernestinovo	199	199	0	0	0
34	Feričanci	PZ Dračica 1	1,453	73	550	830	0
35	Kn. Vinogradi	Poduz. i rekre. zona	10,927	3,893	1,390	4,108	1,536
36	Koška	Zona malog gospodarstva	1,756	356	150	1,000	250
37	Marijanci	PZ Črnovci	1,846	56	200	1,590	0
38	Petlovac	B. Petrovo Selo	18	18	0	0	0
39		Petlovac	24	24	0	0	0
40	Petrijevci	Zona_ privrede	1,850	0	650	1,200	0



N°	Cities	Name of zone	Total invest. (000 kn)	Financial source (000 kn)			
				Local gov.	County	RC	Other
41	Podgorač	PZ Podgorač	852	0	552	200	100
42	Punitovci	PZ Josipovac Punitovački	121	121	0	0	0
43	Semeljci	PZ Semeljci	2,958	1,227	400	1,180	150
44		Gospodar. zona	170	171	0	0	0
45	Strizivojna	PZ Svinjarevo	442	12	230	200	0
46	Trnava	PZ Trnava	176	67	20	89	0
47	Viljevo	PZ Cret Viljevski	736	236	100	400	0
48	Viškovci	PZ Viškovci	369	139	50	0	180
	Total OBC		179,155	68,495	25,971	61,768	22,921

Source: [1]

**Table 3** Entrepreneurial zones in operation in the area of Osijek-Baranja County - at the end of 2013

N°	Cities	Name of zones	Number of companies	Number of employees	Investments (000 kn)	Invest/employ. (000 kn)
1		PZ Beli Manastir	12	111	14,329	129.1
2	Belišće	PZ uz rijeku Karašicu	7	97	4,999	51.5
3		PZ Tržni centar Belišće	22	24	119	4.9
4	Donji Miholjac	Ind.zona Janjevci	40	715	22,763	31.8
5	Đakovo	Ind.pod. zona Đakovo	36	465	1,519	3.2
6		PZ Široko polje	3	20	83	4.2
7	Našice	Industrijska zona	14	267	15,683	58.7
8	Osijek	PZ Tenje	11	93	6,402	68.8
9		PZ Zapad	2	20	424	21.2
10		Zona skladišta i servisa	5	249	1,188	4.7
11	Valpovo	PZ u Bizovačkoj ulici	6	52	2,844	54.7
12		PZ K-VI	3	33	3,931	119.1
13		PZ II u Valpovu	9	53	160	3.0
14		Zona male privrede	1	54	3,470	64.3
15		Industrijska zona	14	158	453	2.8
Municipalities						
16	Antunovac	PZ Antunovac	4	42	15,479	368.6
17	Bilje	PZ Sjever Bilje	1	9	8,698	966.4
18	Bizovac	PZ Sajmište	6	20	2,550	127.5
19	Čeminac	PZ Čeminac	1	2	2,950	1,475
20	Darda	Zona obrta,MS pod	5	177	12,722	71.8
21	Draž	PZ Gajić	1	12	520	43.3
22		PZ u Duboševici	1	25	100	4.0
23		PZ u Topolju	2	30	170	5.6
24	Đurđenovac	Zona zanat.i MP	2	8	2,659	332.2
25	Erdut	PZ u Bijelom Brdu	1	2	5,135	2,567.5
26	Kn. Vinogradi	Pod_ rekreat zona	3	51	10,927	214.2
27	Koška	Zona malog gospod.	1	7	1,756	250.8

N <sup>o</sup>	Cities	Name of zones	Number of companies	Number of employees	Investments (000 kn)	Invest/employ. (000 kn)
28	Marijanci	PZ Črnkovci	5	75	1,846	24.6
29	Magadenovac	PZ Magadenovac	1	10	0	0
30	Petrijevci	Zona male privrede	7	150	1,850	12.3
31	Semeljci	PZ Semeljci	4	11	2,958	268.9
32		Gospodarska zona	1	3	171	56.9
33	Viškovci	PZ Viškovci	1	3	369	122.9
	Total OBC		232	3,049	148,778	48.8

Source: [1]

**Table 4** Entrepreneurial zones in Osijek-Baranja County - which at the end of 2013 were not in operation

N <sup>o</sup>	Cities / Municipalities	Name of enterprise zone	Founded in	Area (ha)	Investments (000 kn)	Invest./ha (000 kn)
1	Belišće	PZ „Kod pruge“	2013	5.45	550	101
2		PZ Zagajci	...	6.12	120	19.5
3	Osijek	Ind. zona Nemetin	2006	100.98	15,064	149
4		GZ Jug I faza	2006	155.00	8,976	57.9
5		Sl. zona Osijek	2006	37.40	155	4.1
6	Valpovo	PZ u Valpovo	2010	32.86	453	13.7
7		PZ K-III ul.Lj.Gaja	...	3.39	0	0
	Municipalities					
8	Čepin	PZ Vinogradi	2003	33.00	997	30.2
9	D.Motičina	PZ Topolinka	2010	6.00	0	0
10	Draž	PZ u Batini	...	3.47	0	0
11	Drenje	PZ Dr_Aerodrom	2008	7.30	0	0
12		PZ Drenje-Ciglana	2008	2.70	0	0
13	Đurđenovac	St_p_zona-Pašnjak	2005	33.03	42	1.2
14		PZ sj-Pribiševara	2005	15.40	0	0
15	Ernestinovo	PZ Ernestinovo	2003	4.67	198,746	42.5
16	Feričanci	PZ Dračica I	2004	5.33	1,452	272
17	Gorjani	Proiz_posl. zona	...	5.55	0	0
18	Jagodnjak	PZ Jug	...	12.43	0	0
19	Marijanci	PZ Marijanci	2004	9.00	0	0
20	Petlovac	PZ Bar.Petrovo Selo	2006	1.62	18	11.3
21		PZ Petlovac	2006	5.00	24	4.8
22	Podgorač	PZ Podgorač	2006	6.42	852	132.7
23	Popovac	PZ Kneževo	...	5.94	0	0
24	Punitovci	PZ Josipovac Punit.	2008	3.36	121	35.9
25	Satnica Đak.	PZ Satnica Đak.	2011	45.16	0	0
26	Strizivojna	PZ Svinjarevo	2009	9.94	442	44.5
27	Trnava	PZ Trnava	2008	9.74	176	18.1
28	Viljevo	PZ Cret Viljevski	2004	5.70	736	129
29	Vladislavci	PZ Vladislavci	...	15.94	0	0
30	Vuka	PZ	...	0	0	0
	Total OBC		2003 - 2013	587.90	30,377	51.6

Source: [1]

### 3. Entrepreneurial zones and traffic connections of eastern Croatia

Eastern Croatia, basically has good connections with railway, river, road and air traffic. The main natural traffic routes of Eastern Croatia are: [5] [11] [12] [13] [19]

#### I. Longitudinal

1. Via Posavina.
2. Via Podravina

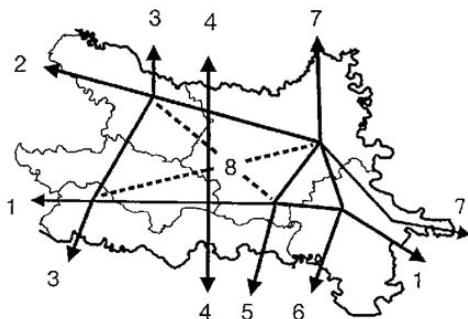
#### II. Meridional or transverse

3. Virovitica - Okučani
4. Donji Miholjac – Slavonski Brod,
5. Osijek - Đakovo
6. Osijek - Županja

#### III. By spatial orientation combined

7. Danubian route

**Figure 1** Traffic connections of eastern Croatia



Eastern Croatia, in practice, has no good connections with the world. What is missing is the completion of the construction of Vc Corridor - and not only the completion of the road, but also railway, river and air transport. Because only the connection of Eastern Croatia transport network to Europe and the world can stimulate investors to come and invest with expected faster return of capital compared to other regions and offers in enterprise zones.

International Vc Corridor is the connection of the North with the South and the port of Ploče, and East with Western Europe. Beli Manastir-Osijek-Svilaj motorway, is a part of the Pan-European Vc Corridor which was agreed upon at the Conference of European Transport Ministers in Helsinki in 1997. The most important constructions on the planned A5 motorway are the bridge over the Drava River, the overpass over the railway, and bridge over the Sava River. The A5 motorway Beli Manastir-Osijek-Svilaj has a total length of 88.6 km, out of which 72.5 kilometers are in the Osijek-Baranja County. [14] [15] [16] Motorway sections still to be built are:

- Border with Hungary – Beli Manastir; L = 5.0 km to be built
- Beli Manastir – Osijek; L = 24.6 km to be built
- Sredanci - border with Bosnia and Herzegovina; L = 3.5 km under construction

When it comes to business zones of the production profile - it is very important for them to be close to transport routes, i.e. to have a good connection and that it allows modern and technically compatible transport system with the area of Central Europe. This means to accelerate the pace of construction and completion of strategically extremely important projects of road infrastructure within the Vc Corridor, river infrastructure, railway infrastructure, through a series of actions and

measures aimed at preparing programs and projects for the withdrawal of funds from the structural funds and the Cohesion Fund of the EU.

As a revision was made of establishments and investments in enterprise zones - it would be necessary to make such a serious analysis regarding the connections of business zones with transport corridors in the region of Eastern Croatia. This is especially important for manufacturing companies in the industrial zones. Without good transport connections, foreign investors will not invest their capital in insufficiently connected areas.

### **3.1. Broadband Access and Entrepreneurial Zones in Eastern Croatia**

A similar analysis is required regarding communication links, i.e. the availability of broadband access (high speed Internet). There is no research for the area of Eastern Croatia regarding zones and their connections to modern communications, but knowing the situation in several such zones we can point out that many enterprise zones are not connected to high speed Internet. This is a condition without which there is no business, not only for foreign investors but also the local manufacturers and local service companies.

Namely, development of broadband access networks today has the same revolutionary impact as the development of transport networks or electricity grids a century ago. Modern information and telecommunication technologies are basis of economic development and the society of knowledge; Information and knowledge have become (rather than equity) a basis of individual and social growth and development. Predictions indicate that by 2020, digital content and applications will almost entirely be submitted via the Internet. The development of better, faster, more reliable and cheaper public services and operations in the public sector (operation of state bodies and local government, health and education systems, etc.) as well as economic operations and stimulating development of rural and underdeveloped areas - depends on degree of territory coverage with IT infrastructure, i.e. a network of fiber-optic cables (broadband access), which allows high speed Internet. [3]

## **4. Conclusion**

The slogan “If you build - we will come” just leads us to desire to achieve our previous development vision through completion of enterprise zones, regulation of complete infrastructure (electricity, water, drainage and access roads) with possibility of using modern IT technologies, so we expect the arrival of foreign investors and investments in modern production facilities. At the same time, certain benefits and incentives to investors are implied, through legal provisions for security of investments, long-term stability in allocation of contributions and taxes, and through it, faster return on investment.

However, foreign investors cannot be expected if we do not finish the started construction of Vc Corridor and enable rail, river and air traffic routes for the transport of cargo to planned worldwide destinations. If we do, we will enable investors the security of return on invested capital, and in that way develop the processing of our products, employ people and achieve our dream - the well-being of life for the population of Eastern Croatia, as well as the whole Croatia.

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## **AN ACADEMIC LIBRARY MODEL IN THE CREATIVE INDUSTRIES SYSTEM OF THE DIGITAL AGE**

### **MODEL VISOKOŠKOLSKE KNJIŽNICE U SUSTAVU KREATIVNE INDUSTRIJE DIGITALNOG DOBA**

#### **ABSTRACT**

*Information revolution has resulted in fundamental changes in the fields of technology, economy, science and education, politics, publishing industry, culture and arts, but also in the way people think and behave. Social awareness for more progressive education, and also the urgent response to new requirements of research community, has prompted the new way of information creation and dissemination, which is reflected in electronic publishing and scientific production in open access. The main goal of this paper is to define a model for building the academic library as the vault of organized digital collections. The digital library mission implies systematic acquisition and organization of digital collections, managing collections and ensuring long-term access for users according to pre-established rules. The future of digital libraries depends on the ability of self-organization and transformation, in order to become the main centre of knowledge and distance learning, using complex software systems and constantly developing into flexible network structures. Digitization of the existing library materials, development of institutional repository, electronic publishing and organization of collections in open access, taking into account copyright regulations, should be in the focus of building a digital library. There are many significant digital library projects worldwide, but in Croatia, they are just starting. This article explores the possibilities of developing a model of the academic digital library that will be horizontally and vertically networked with other libraries, and thereby contribute not only to its own academic institution, but also to the entire creative industry on which it relies through its innovative activities and partnership with the economy.*

**Keywords:** *academic digital library, digital repository, open access, creative industry*

#### **SAŽETAK**

*Informacijska revolucija dovela je do potrebe temeljitih promjena u tehnološkom sustavu, gospodarstvu, obrazovnim i znanstvenim institucijama, politici, nakladništvu, kulturi i umjetnosti, ali i u mislima i ponašanju ljudi. Društvena svijest o potrebi naprednijeg obrazovanja i urgentnog odgovora na nove zahtjeve znanstvene zajednice, potaknula je nov način kreiranja i publiciranja informacija kao što je elektroničko nakladništvo i znanstvena produkcija u otvorenom pristupu. Cilj istraživanja je utvrditi matricu za izgradnju digitalne visokoškolske knjižnice kao riznice organiziranih digitalnih zbirki. Misija digitalne knjižnice je sustavno nabavljanje i organiziranje digitalne zbirke, upravljanje zbirnama i dugoročno stavljanje na raspolaganje korisnicima, u skladu s unaprijed utvrđenim pravilima. Budućnost digitalne knjižnice ovisi o sposobnosti*

*samoorganizacije i transformacije u cilju postizanja središnjeg mjesta za prenošenje znanja i učenje na daljinu korištenjem složenih softverskih sustava koji se kontinuirano razvijaju u fleksibilne umrežene strukture. Uporište za izgradnju digitalne knjižnice je digitalizacija postojeće građe sukladno regulativi o autorskim pravima, razvijanje institucionalnog repozitorija, elektroničko nakladništvo i organizacija zbirki u otvorenom pristupu. U svijetu djeluju značajni projekti digitalnih knjižnica, a u Hrvatskoj su u začetku. U radu se istražuje mogućnost razvijanja modela visokoškolske digitalne knjižnice koja će biti horizontalno i vertikalno umrežena s drugim knjižnicama te na taj način dati doprinos ne samo instituciji u čijem je sastavu nego i čitavoj kreativnoj industriji na koju se naslanja kroz svoje inovativne aktivnosti i partnerstva s gospodarstvom.*

**Ključne riječi:** *digitalna visokoškolska knjižnica, digitalni repozitorij, otvoreni pristup, kreativna industrija*

## **1. Introduction**

Under the influence of technological changes of the digital age, knowledge society requirements affected the accelerated transformation of library and information systems to systems for the transmission of the organization and the transfer of knowledge to the scientific community as a user. Informatization of library management in the terms of creating and maintaining of on-line catalog is no longer sufficient for the requirements of a new generation of academic libraries users. Articulation of users' new needs has resulted in libraries necessary engagement in finding, processing, storing library materials in digital form, producing and creation of digital materials, and development of institutional repositories in open access. Libraries has begun creating new functionalities of their digital collections and making them available to users with the knowledge that the fundamental of the progress is knowledge sharing.

## **2. The goal, purpose and research methodology**

The main goal of this paper is to define a model or matrix for digital academic libraries. The purpose of this research is to encourage scientific community to collaborate with academic libraries in building digital collections according to the international and national legislative and regulatory practice, available infrastructure and its own institutions specifications. Historical methods, methods of analysis and comparison of the existence of elements of digital, virtual or hybrid academic libraries in Croatia, are used in this paper. Web sites of the National and university library, City and university library in Osijek, academic libraries of the Josip Juraj Strossmayer University of Osijek were analyzed. The analysis included two academic libraries: Faculty of economics and business in Zagreb and the Faculty of organization and informatics in Varaždin, which have significant results in the field of digital collections organization.

## **3. Concepts, terminology and architecture of libraries in digital age**

### **3.1. Concepts and terminology**

In today's practice, there are different terms in use that need to be more clarified: electronic, virtual, hybrid and digital libraries (Turčin, Valčić, 2002). **Electronic** libraries are libraries available on-line, libraries that are electronically receiving and delivering data on library materials or library materials (e-mail correspondence, book reservations, interlibrary loan, literature preparation, material acquisition etc.). These types of services are today almost indispensable in libraries, and most libraries can call themselves electronic. Most used electronic service is: "Ask a librarian".

**Virtual** libraries include collections of electronic sources of materials on the network, and provide information about materials all around the world. Thereby, available information in open access and

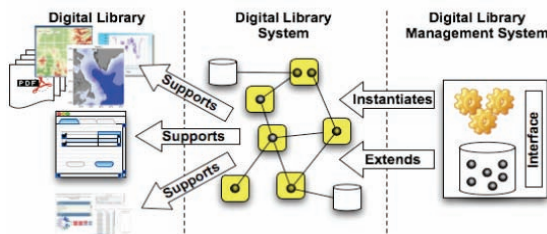
information about library materials are organized by library staff. Everything else – digital sources and electronic materials are available based on signing in the library, where users have been given the password to use organized sources which library have payment obligation to providers. **Hybrid** libraries are libraries which incorporate library materials in both, electronic and paper media, in variety of formats, encourage the use of information out of the large number of local and distant sources, using integrated system for locating and using that kind of information. The term is used in particular in Great Britain. Hybrid library combines traditional and digital library, and the most important purpose in relation to the user is to encourage them on independent finding and using information sources in different formats (Oppenheim, Smithson, 1999, 97). There is no unified definition of the digital library in the literature. The term answers to very complex ideas with a few different aspects and cannot be limited with one simple definition. It is possible to establish a wider definition: **digital** library is organization which systematically acquires digital content, manages that content, organizes it, keeps it in the long terms and makes it available in accordance with the established rules of business. Digital library should provide access to the protected papers while respecting national copyright laws and international treaties and regulations (Horvat, Živković, 2013, 7). **Digitization** (Athanasopoulos, G. et al., 2011) includes the transfer of data from analog (in case of the libraries, usually it involves paper) to digital format for computer processing, and it is a form of copying or reproducing of work to which the author, or the right holder has the exclusive right. It is a conversion of printed materials as opposed to scanning the image of the original printed document so that it looks like the original, which is commonly referred to as electronic reproduction (Živković, 2001, 8).

### 3.2. Architecture of the libraries in digital age

The infrastructure of the Internet can provide a variety of services necessary for the establishment of digital library. Digital libraries are independent systems and have independent architecture, in general. To establish and maintain digital libraries, it is needed: specialized staff, a software system for distribution and storage of digital content via internet or an intranet, and the awareness of end-users about the usefulness of creating a digital library for the society. The need to define a digital library has led to the development of „The DELOS Manifesto” (Candela et al., 2007) as the result of joint work of members of the European Union. According to the Manifesto, libraries are placed in three levels shown in Fig. 1:

1. Digital Library (DL) is potentially a virtual organization that comprehensively collects, manages and stores digital content, and offers its customers the appropriate functionality to the content, according to pre-defined rules.
2. Digital Library System (DLS) is a software system based on the specific IT infrastructure through a network that allows the use of the library and interaction with users.
3. Digital Library Management System (DLMS) is an integrated information system that allows the infrastructure for digital collections organization, management and communication with the customers, loans, returns, reservations, and prohibits copying, saving and printing of digital content.

**Figure 1** Architecture in three levels according to the roles of participants



Source: Candela, L. et al. (2007): *Setting the Foundations of Digital Libraries. The DELOS Manifesto. D-Lib Magazine, Vol. 13, No. 3-4, <http://www.dlib.org/dlib/march07/castelli/03castelli.html>, (accessed 2 March 2015)*



Building a digital library requires sources with content in a digital form, whether digitized or original digital content. The digital library is not just a software system or collection. It is not a network portal that provides digital content. Digital libraries are organizations that maintain and provide all the resources necessary for the presentation and preservation of digital objects over time for the future generations.

### 3.3. Overview of most known projects of digital libraries in a world and in Croatia

There are more and more constructed and available digital libraries in the world. Digital collections are born, usually through the digitization of collections of old and rare material, material of native collections, archives and other material that is not subject to copyright. The most important organization that supports national and international digitization strategies, as well as initiatives by individual libraries is IFLA (International Federation of Library Associations and Institutions). In a document „Manifesto for digital libraries”, IFLA encourages libraries to collaborate with other cultural and scientific heritage institutions that provide wealthy and diverse digital resources that support education and research, tourism and the creative cultural industry. Library association ARL (Association of Research Libraries) on its internet site announced projects for development of digital collections available on the internet. United States strongly promotes the digital library. There are many prominent projects of national libraries, such as American Memory of the Library of Congress in Washington, Collect Britain: putting history and place of the British library, the French Gallica project, the Dutch project Memory of the Netherlands and many others). The most important document of the European Commission is a „Digital Agenda in the Europe 2020 strategy“ (European Commission, 2014), which presents the necessity of the digital economy and announces the creation of a European digital library. There are several projects in Europe today that aim to assist and support the digitization projects of European countries.

One of the first and most known digitization projects is **Gutenberg project**, which is considered as the first digital library ever created. Gutenberg project was started by Michael Hart in 1971, by digitization of the American Declaration of Independence. Mission of the project was distinguished as encouraging the creation and distribution of e-books. The **World Digital Library** is an initiative of UNESCO and the Library of Congress in Washington, launched in April of 2009. This digital library is free and on the Internet it provides materials in multilingual form from countries and cultures around the world. It has a task in the promotion of digital resources, increasing of resources available on the internet, scientific equipment and teaching staff and other stakeholders on digital resources. The mission is the exchange of knowledge between the institutions involved. European Commission gave the initiative for the **Europeana** library, and it supports and finances the different areas of its activity. Europeana provides access to the European cultural heritage, including text, images, video and audio clips. A huge number of digital objects accessible through Europeana are dynamically increased. Digital objects are supplemented by a number of interactive and innovative collections such as “My Europeana” or “Thought Lab”.

Ministry of Culture of the Republic of Croatia brought the "National digitization program of archival, library and museum material". There are no extensive digitization projects in Croatia, and for individual and occasional projects are selected mainly material that is not protected by copyright.

The origins of digital libraries in Croatia can be found in the following libraries.

**TookBook** represents real digital library, where anyone can register and become its user. It offers books with content in Croatian language, in the number as it came out in e-editions. Anyone can read books using smartphones and/or tablets. Using the library is not free, but the monthly membership fee is just symbolic 39HRK. Membership activation provides full text access throughout the books. Registration provides free reading only for first chapters of the books on

desktop, smartphone and tablet.

**CARNET** e-library provides free access to the archives of books and magazines available for reading in an electronic format, to all members of the educational, academic and research community – pupils, students, teachers, professors and researchers. Everyone who has active electronic identity - AAI@EduHr for the academic and research community (e-mail address and password), can be registered at the library.

**Goethe** e-library allows free registration and use of electronic media in German language. This e-library is a digital version of the Library of Goethe-Institut Kroatien. This service allows the loan of digital media such as e-books, e-audio recordings, or e-paper for a limited period, so you would find them easily to download from the e-library to your computer, e-reader or mobile phone. Upon expiry of the loan period, loan file can no longer be loaded or read.

#### **4. Institutional repositories**

For a number of definitions of institutional repositories, two of them can be distinguished: institutional repositories are "stand alone systems which are intended to collect, search and retrieval of resources" (Bosnić, 2011), "institutional digital archives of intellectual work results, created by teachers, researchers and students of an institution, that are available to end users in the institution and beyond." (Vrana, 2011, 56). Institutional repositories comprehensively can be defined as the collections available in digital form, which on the websites of the relevant institutions include scientific papers, educational materials, and other types of material specified in advance the appropriate criteria founders. They are established, supported and maintained by an institution they are located in. Mostly they involve doctoral dissertations, master thesis, scientific researches, scientific projects, textbooks, manuals, scripts, presentations, articles, papers from conferences prints, audio and video content, and images. Their goal is to bring together the intellectual digital content of a community of scientists and students within the parent institution. Their task is to provide input and description of digital content, storage, organize content, durability and protection in the long run, and edit access to such facilities through authentication, enable search and view digital content on the metadata level and at the level of the full text, and dissemination of digital content from repositories on user request. In fulfilling this task they match up with the mission of academic libraries. The role of academic libraries and libraries of higher education can be seen in the connection with the repositories in terms of activating the librarians in input, maintenance of content, retrieval and provision of information to the users.

World's most known project gathering of institutional repositories is OpenDOAR - Directory of Open Access Directory of Open Access Repositories. It brings together over 2,600 repositories worldwide, and includes the following repositories from Croatia: Portal of scientific journals of Croatia HRČAK, Full-text institutional repository of the Ruđer Bošković Institute FULIR, FAMENA PhD collection, FOI digital library, University of Zagreb Medical school repository, Digital archive of the Faculty of philosophy in Zagreb. Many institutions of higher education and scientific institutions in Croatia have recognized the importance of establishing a network of available digital repository, although just few of them established that. Josip Juraj Strossmayer University of Osijek, only Faculty of humanities and social sciences in Osijek has its own institutional repository. Law on amendments to the Law on science and higher education (NN, 2013), contributed to faster development of infrastructure for a national repository. This law, in the article 40 introduced an obligation of storage of doctoral dissertations in the database of doctoral dissertations of the National and university library, and the final work and thesis in the university repositories and obligation to for their copy in a public online database of the final work of the National and university library. Librarians in academic libraries have an important role – to control papers and storage in the university repositories. The need to create these repositories initiated the creation of a single national repository system called DABAR, intended for all institutions of science and higher education. DABAR is a product of the University computing centre: SRCE,

resulted as an emerged collaboration with the academic and research community in Croatia in order to simple construction of institutional and regional repositories of all institutions in the system of science and higher education. ARA - Aggregator of Croatian repositories and archives on one web location aggregates metadata of Croatian repositories in which is stored more than 110,000 records.

#### **4.1. Open access as a condition of formation of academic library of a digital age**

In the era of universal internet connectivity, most users expect to have the information they need for their work or research. Regulation of copyright imposes as a limiting factor. The digitized material cannot be available to the public on the internet without permission of the copyright owner. Open access initiative is developed as a response to the limitations imposed by these regulations, advocating equal access to information and knowledge, by equal conditions. Open access means free, immediate and continuous online access to full-text scientific articles and data, input works in digital repositories of institutions or in special repositories for specific scientific areas permitted unrestricted distribution and use of all with recognition of authorship of all researchers. Open access increases the visibility of research results, affecting the increase in citations of work, and it has a special positive effect it on the scientific reputation of the author and the institution where he is employed. On this track, European Commission (Jones, 2013) launched the "Open Research Data Pilot", which was presented in Croatia. Data storage with the possibility of open access is required for a number of project areas in order to increase the visibility and enabling secondary analysis of data collected within the projects financed from public sources.

### **5. Trends in the development of academic libraries in the world**

Thanks to the advocacy of open access, libraries are no longer the most important intermediary in providing access to collections. They have to change their role according to users' requirements. The focus should be directed to the development of collections and services that reflect their competencies and which do not offer other organizers of knowledge. The International Committee for Research and Planning Association of Academic Library ACRL proposes each year top ten trends in academic libraries. Past year had the emphasis on: online education through partnerships with businesses in open access, continuous innovation that builds on the knowledge, services, construction of networked repositories, network guide service and assistants for data transfer (ACRL, 2014). Academic libraries should be visible and active partner in the research. Academic libraries can provide consulting services related to the research and data management, provide the infrastructure for data storage, and should support their librarians to become active members or consultants in the research teams. Entering the project teams will totally redefine the role of academic libraries and their librarians. Librarians will provide their bigger role in the creation of all kinds of digitization content, the creation of applications, the organization and the development of institutional repositories. Accordingly, librarians will need to practice long-life learning to develop new skills for creation and innovation, the entrepreneurial skills, in order to provide the contribution to their institution.

#### **5.1. Libraries in the system of cultural and creative industries**

According to the latest data (United Nations, UNDP, UNCTAD, 2013; UNESCO, 2015), cultural and creative industries belong to one of the fastest growing sectors of the world economy. In a document entitled: "Understanding creative industries" UNESCO explains creative industries as industries that produce and provide copyrighted cultural goods and services. Eight domains (artistic and monumental heritage, archives, libraries, books and press, visual arts, architecture, performing arts, audio and audiovisual media/multimedia) and six functions (preservation, creation, production, distribution, trade/sales and education) that constitute the "cultural sector", are identified at the European level (European Commission, 2010). According to the EU model of concentric circles

(Throsby, 2008) books and libraries are in the center of cultural and creative industries. The digital library is an integral part of library services that is applying new technology for providing access to digital collections. It provides resources, specialized staff for selection, structuring, intellectual access, interpretation, distribution, protection the integrity and ensuring the longevity of collections of digital works, so as to be readily and economically available to use for a defined community or set of communities (DLF, 2010). Regarding this, academic libraries transform their traditional role as an organizer of knowledge and agents in access to information into the role of creator of knowledge in synergy with other areas of the creative industries. Thus, they are contributing to innovative and evolutionary development of library and information activities, and encouraging the cultural, social and economic changes. Libraries are seemingly non-profit part of the industry, but precisely with the creation of projects such as digital content and organization of digital collections, they are engaging many other industries. Included in the global network, they directly inspire and provide support for other partners in the region. Above all, they are accelerators of the development of cities as centers of culture and science.

## **6. Models of academic and university libraries of the digital age in Croatia**

University libraries have realized significant projects of digitized materials in open access. Academic libraries are in smaller number involved in changes to the new requirements of the digital age.

National and university library in Zagreb (NSK) has significant digital collections: Sounds of the past, Digitized heritage, Old Croatian newspapers, Old Croatian magazines, Croatian web archive, Digital academic repository, Virtual collection of works by Ruder Bošković. Special collections include: Collection of manuscripts and rare books, Graphic collection, Collection of maps and atlases, Audio and music collection.

City and University library in Osijek (GISKO) has digitized the following collections: Native periodicals, Native monographs, Collections of Osijek postcards, Catalogs, Graphics, Maps, and in a 2014 it has began the project of digitizing literary heritage of Rudolph Francis Magjer, as a contribution to the national project Croatian cultural heritage.

Library of the Faculty of economics and business in Zagreb formed an e-library that includes electronic books, and gives access to national journals in newspapers on the internet.

Academic library of the Faculty of organization and informatics in Varaždin has very comprehensive digitized materials: books, newspapers, periodicals, manuscripts, postcards, bibliographies, author catalogs, and also the links to digitized collections and repositories of other institutions. This digital library is intended for users of the librarian software product METELwin. All digitized material can be used in open access. Interestingly achievement of digitization is called "Metelcity", the first virtual cultural city which combines the biggest Croatian library of digital materials "METELwin Digital Library". In addition to digitized collections, it contains the first Croatian internet book fair 'Book online', the largest and most detailed catalog of Croatian authors' biographies and all other services and products.

Almost every analyzed academic library of Josip Juraj Strossmayer University of Osijek has its own on-line catalog, links to other library catalogs, e-library service adjusted to users, and a list of databases and on-line resources in open access. The Library of the Faculty of Humanities and Social Sciences in Osijek has a digital collection of old and rare books, and library of the Faculty of Food Technology and Biotechnology in Osijek has a small collection of electronic books. The largest number of digitized materials originates from indigenous and protected collections of libraries, institutions and private libraries. At this moment, we can make a conclusion that the local university and academic libraries are a mix of electronic, virtual and hybrid library, but are not fully accepted and defined as digital libraries.

## **6.1. A matrix for a model of digital academic libraries**

With the use of the internet and sophisticated technology, in order to fulfill the role of knowledge creation and achieving education, digital libraries could easily be formed technically and organizationally. Complete knowledge spillovers are limited by copyright laws, mostly national ones. This means that protected and digitized material shall not, without permission of the rights holder be available to the public on the internet. The problem becomes even more difficult in the case of co-authored works, as it would require permission from every author represented. "Guidelines on library legislation and policy in Europe" by the Council of Europe/EBLIDA of 2000 outline the principles which should guide modern European libraries. They are even more specific and state expressly that the reproduction in libraries must be in accordance with the national law on copyright " (Horvat, Živković, 2013, 7).

In accordance with article 5(3)(n) "Directive 2001/29/ EC on the harmonization of certain aspects of copyright and related rights in the information society" (European Commission, 2001), libraries may digitize materials from their fund, but they can provide access only in specific computers in its own area, for the purpose of scientific research or for private use. It is permitted to convert material into accessible formats for handicapped persons. It is particularly important to have software solutions that prevent downloading and printing the whole publication, and allow downloading or printing a few pages of content.

A matrix for building a model of the academic library of digital age contains the following:

### **I Defining the criteria for selecting the type of material:**

1. Digital collections for which copyright has expired
2. Materials which can be digitized in accordance with regulations on copyright
3. Original electronic publications purchased as such (e-books)
4. Repositories: creating own institutional repositories and building a network of institutional repositories in open access
5. Databases as a source of information and free-access databases
6. Publications by governments and non-governmental organizations in the world, in free access
7. Gathering and organizing material in a free network access
8. Gathering and organizing materials for e-learning and distance education
9. Connectivity of digital libraries of related faculties and institutions as well as other libraries, archives and museums

### **II Selection of hardware and software solutions for the digitization of material, storage and management of digital content**

### **III Planning workflow activities and financial structure**

### **IV Defining users and ways of borrowing materials that cannot be in open access.**

Librarians have an important role in defining the criteria for selection of material for digitization, paying attention to the objectives of the institution and customer requirements, and a good knowledge of copyright and related rights. The criteria must be in accordance with the curriculum, course reading materials and national statutory and regulatory basis. Librarians initiate networking of digital repositories, thereby enabling the sharing and exchange of knowledge. Connecting collections and exchange of data of already digitized material through national or international digital matrix registers will prevent digitizing the same material unnecessarily and thus save funds. Users of digital material can be scholars, academic staff, students and other users who are allowed to access the secure network and who have received a password or other verification for legal access.

## 7. Conclusion

Digitization enables the creation of virtual collections with global connectivity of materials worldwide. Furthermore, digitization has the role of protection in case of deterioration of original documents and media. In this way, digital content is organized, preserved and available to the public in a form made possible by the development of technology. The manner of availability is decided by a particular library depending on international and national copyright regulations. Developers of digital-age libraries should consult with local communities whose tangible and intangible cultural heritage is suitable for digitization.

There is no digital library in the form of a generally accepted definition in Croatia. Insufficient number of institutional repositories and their fragmentation is also evident. A solution to this problem is the implementation of the single information and communication system of higher education and science by building a national repository DABAR for final theses and dissertation, upgrading the DAR system and establishing a network to support e-learning. A prerequisite for lifelong learning is to define quality models and build distance education systems, including course materials in open access.

Establishing a national university library system contributes to the stated goals. Ranging from national, public to academic libraries, they are not only stakeholders that create services and products for their customers, but they also provide support for the activities of other cultural and creative industries. Creativity of librarians in academic libraries provides ideas and incentives for the creation and production of knowledge to their users, gives support and training in the use of organized digital collections to all other partners, regardless of their physical or temporal distance.

An academic library of the digital age should be at the center of intellectual activity, and structured in a way that there are no physical, temporal, or personal borders or barriers. Investing in a new organization of academic libraries should be understood as investment for the future. One can assume that in the near future printed editions will gradually lose their importance and disappear, whereas library materials will be easily accessible without space and time limitations in open access in digital repositories. It is expected that e-publications will be read using e-readers, smart phones and similar devices, because their quality does not disappear with time nor does it diminish with use. The major disadvantage and problem will be the protection of material in digital form, as well as very high costs of hardware and software due to the rapidly growing new technology, which will require continuous adjustment.

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**MANAGEMENT PERCEPTION OF WILDLIFE TOURISM: THE CASE OF CROATIA**

**STAVOVI MENADŽMENTA PREMA TURIZMU DIVLJINE: STUDIJA SLUČAJA HRVATSKA**

**ABSTRACT**

*As the understanding of the importance of monitoring environmental and economic wildlife tourism aspects grows, management stakeholders face the challenge of greater responsibility in strategic decision making, as well as in achieving sustainability of this type of tourism. The purpose of this study is to determine the attitudes of the local tourist organizations' managers in Croatia towards the importance of monitoring of the economic and environmental impact of wildlife tourism. For the needs of the research, the data were gathered from the managers of 35 tourist organizations, using a mail-back questionnaire. The results of a hierarchical cluster analysis show that management stakeholders can be divided into four clusters, "Enthusiasts", "Rationalists", "Unconvinced" and "Sceptics". The profiles of four clusters show differences in attitudes, the biggest difference being in the belief that wildlife tourism could be the primary motive for the arrival of tourists. Similarities of opinions can be found in the view that the development of wildlife tourism represents an indirect incentive for generating additional income, which is an economic benefit. The results of analysis also indicate that the local tourist organizations' managers recognise the potential and are willing to actively participate in the development projects of wildlife tourism.*

**Key words:** *wildlife tourism, impacts, management attitudes, local tourist associations, Croatia*

**SAŽETAK**

*Kako shvaćanje praćenja ekonomskih i ekoloških aspekata turizma divljine raste, menadžeri turističkih zajednica suočavaju se s izazovom većih odgovornosti kod strateškog odlučivanja, kao i kod postizanja održivosti ove vrste turizma. Svrha ovog istraživanja je utvrditi odnose između stavova menadžera lokalnih turističkih zajednica u Hrvatskoj o ekonomskim i ekološkim aspektima turizma divljine. Ovo istraživanje utemeljeno je na podacima prikupljenim putem web upitnika provedenog na uzorku od 35 menadžera turističkih zajednica. Rezultati provedene hijerarhijske klaster analize otkrivaju četiri klastera, "Entuzijasti", "Racionalisti", "Uvjereni" i "Skeptici". Profili sva četiri klastera pokazuju*

*razlike u stavovima, a najveća razlika se očituje u uvjerenju da turizam divljine može biti primarni motiv dolaska turista. Sličnosti mišljenja mogu se naći u stavu da razvoj turizma divljine predstavlja neizravan poticaj za stvaranje dodatnih prihoda, što je ekonomska korist. Rezultati analize također pokazuju da menadžeri lokalnih turističkih organizacija prepoznaju potencijal i da su spremni aktivno sudjelovati u razvojnim projektima turizma divljine.*

**Ključne riječi:** turizam divljine, utjecaji, stavovi menadžera, lokalne turističke zajednice, Hrvatska

## **1. Introduction**

Natural area tourism is a major growing global industry (Rodger, Moore, & Newsome, 2007) and is becoming one of the major industries in many underdeveloped countries. Access to natural environment and the desire to experience a change from the hectic workday environment has been recognised as a key component of wildlife tourism (Buckley, 2000). Therefore, it is not surprising that understanding the interplay between local tourist organizations' managers and wildlife is gaining more attention since it is becoming increasingly important to the sustainability of this type of tourism. Humans have been fascinated by animals from time immemorial, and their desire to be linked with them in their natural environment has led to the development of a sub-sector of tourism, today known as wildlife tourism (Duffus & Dearden, 1990; Reynolds & Braithwaite, 2001; Rodger et al., 2007). Past research in the context of wildlife tourism explored primarily the residents' or tourists' perceptions (Moscardo & Saltzer, 2004), with little attention being given to management attitudes and perceptions. Understanding both the economic and the environmental aspects of wildlife tourism is essential to sustainability, and the support of stakeholders (e.g. local tourist organizations managers) is definitely key to the implementation of sustainable tourism development (Gunn, 1994). Thus, what remains to be investigated is the interplay between local tourist organizations managers' attitudes and perceptions, and both the economic and the environmental aspects of wildlife tourism.

For that reason, the main purpose of this research is to help better understand the interplay between managers' perceptions, the way they perceive wildlife tourism, and to establish whether local tourist organizations managers are aware of the potential of wildlife tourism and are willing to support it. We build upon the social exchange theory (Ap, 1992), which assumes that attitudes of tourist organization managers towards and support for tourism in their community will be influenced by their evaluations of the actual and perceived outcomes of tourism in it (Andereck, Valentine, Knopf, & Vogt, 2005). To this end, we examined their "representatives", i.e. tourist organizations, using a survey, both within two contexts – economic and environmental. This research work focuses also on methodological issues of how local tourist organizations managers can be grouped on the basis of perceptions and attitudes towards the impact of wildlife tourism. The final objectives of this research are: (1) to identify different clusters of managers of tourist organizations according to their attitudes towards wildlife tourism; (2) to describe the main characteristics of each of the previous clusters and show the differences between them; we apply one-way ANOVA analysis to detect the main variables differentiating the clusters; (3) to derive, from the cluster analysis conducted, applicable results to suggest strategies for future wildlife tourism development in Croatia; and (4) to map spatial clusters of management attitudes toward wildlife tourism.

## **2. Literature review**

As a sub-set of nature-based tourism, wildlife tourism (hereafter WT) can be defined as tourism based on interactions with wildlife, whether in its natural environment or in captivity

(Burns & Howard, 2003). It occurs in a range of settings, including artificial environments where animals are captive (e.g., zoos, aquariums and wildlife centres) and natural habitats where animals are non-captive (e.g., ecotourism experiences, national parks) (Packer & Ballantyne, 2012). The essence of wildlife tourism is promotion of ethical, non-invasive and non-disturbance behaviour, with wildlife viewing being overall an example of a non-consumptive use of wildlife (Duffus & Dearden, 1990). Broadly, wildlife tourism can be defined as tourism undertaken to view or encounter wildlife (Newsome, Dowling, & Moore, 2005); activities such as whale and dolphin tourism, birdwatching, safari tours, bear/wolf viewing and general nature-orientated tours to encompass insects and plants (Curtin, 2009) are all part of wildlife experience. According to Reynolds and Braithwaite (2001), the experiencing of wildlife by tourists has become the business of wildlife tourism. Rodger and colleagues (2007) also found support for the overlap between ecotourism, nature-based tourism and wildlife tourism. There is agreement between scholars that the goal of wildlife tourism is to raise visitors' awareness and appreciation of natural resources by alerting them to the fragile state of the environment (Turley, 1999). For the purpose of this research, the term wildlife tourism will be restricted to activities that involve non-consumptive wildlife viewing or interaction opportunities, and consumptive wildlife activities such as hunting or fishing (Moscardo & Saltzer, 2004).

Long-term conservation of the wildlife and wildlife habitats is one of the main arguments for the continuing development of wildlife tourism attractions (Newsome et al., 2005; Reynolds & Braithwaite, 2001). If carefully designed and managed, WT has the potential to influence the conservation knowledge, attitudes and behaviour of tourists and other visitors (Ballantyne & Packer, 2005; Ballantyne, Packer, Hughes, & Dierking, 2007; Packer & Ballantyne, 2012). Not surprisingly, therefore, designing engaging experiences that provide close encounters with wildlife yet still protect animals and their habitats is quite challenging (Ballantyne, Packer, & Hughes, 2009). To analyse local tourist organizations managers' perceptions and attitudes, different clustering approaches have been adopted in a growing number of research studies (Brida, Osti, & Barquet, 2010). However, little research is available that analyses and clusters the opinions of local tourist managers in a country which is more or less oriented to mass tourism and where there exists a paradox situation: a constant pressure towards more development in tourism on the one hand, and towards greater environmental protection on the other. Croatia is a rare European place where you can visit an island which is one of the last habitats of the griffon vulture in Europe, or encounter the rare Mediterranean monk seal. Wildlife tourism here involves a large range of species and a vast array of activities. Some examples of these activities are scuba diving, swimming with dolphins, or spotting birds in nature parks (e.g., Kopački Rit). In the past, these close interactions with nature used to have a different impact on wildlife and often meant death or removal of species from their natural environment (Duffus & Dearden, 1990). Today, things have changed and such activities have become less destructive and more focused on feeding, observing, touching and photographing animals (Duffus & Dearden, 1990; Higginbottom & Buckley, 2003).

### **3. Methodology**

#### **3.1. Sample**

The data were collected from managers of tourist organizations during a one-month period between September and October 2011. A random method was used to select participants. From the 256 administered questionnaires distributed by e-mail, a total of 36 usable questionnaires were obtained, of which 1 had to be excluded from further analysis due to some missing values, resulting in a total of 35 usable questionnaires (13.67% response rate). The questionnaire was composed of 12 attitude statements primarily designed to gather information on the managers' general opinion towards wildlife tourism.

### 3.2. Instrument and Measurement

One part of the questions were adopted from Enck and Decker (1997), and Tarrant, Bright, and Cordell (1997) studies on social and biological impacts of development and preservation strategies. The other questions were inspired by seminal work by Reynolds and Braithwaite (2001). A five-point Likert scale was applied to each statement, with one indicating total disagreement or total opposition and five total agreement or total support, in order to allow managers of tourist organizations to express different intensity degrees in their attitudes towards wildlife tourism. Because tourism benefits cannot be generalised (Frochot & Morrison, 2001) and are often related to a specific destination, one part of statements in the questionnaire were specific to Croatia. Wildlife tourism was defined in the questionnaire as tourism which promotes the concept of economically, environmentally and socially balanced tourism development.

### 4. Results

A descriptive analysis of the geographical analysis of the sample was conducted. The County Tourism Board system consists of city/town tourism offices, municipality tourism offices and local tourism offices. In addition, as each county has particular competence over land use, the county's economic development, infrastructure, and the development of educational and cultural institutions, it was logical to separate managers of tourist organizations according to geographical and administrative criterion. The data about the number of tourism offices and municipalities were obtained separately from the official website of each county tourism board. Of the 21 counties, 16 were included in the study, the overall response being 76.19%. The data were analysed in two steps.

First, a descriptive-statistics analysis of the collected data was conducted to explore the overall sample profile and to calculate univariate statistics such as frequencies, means and standard deviations. The second step was cluster analysis. To determine the number of clusters, we adopted a two-step clustering procedure: (a) a hierarchical cluster analysis to identify the appropriate number of clusters, and (b) Ward's linkage analysis to provide further elaborative information on the cluster membership. In the absence of an objective criterion, Hair, Anderson, Tatham, and Black (2010) suggested a trial process in which a number of cluster solutions are computed. There are two different approaches to segmentation: a priori and a posteriori, also known as common-sense or data-driven (Dolnicar & Grün, 2008). In our research, the decision for one of the alternative solutions was based on posteriori criteria, practical judgment, common sense, and theoretical foundations (Dolnicar, 2004; Hair et al., 2010). We applied *hierarchical cluster analysis* to the data, with the number of clusters initially varying from two to five. Following a review of the resulting options, we considered the four cluster configuration to be the most suitable, as the group sizes were much better than in the two-, three- or five-cluster versions, and substantial enough to show the likelihood of differences in stakeholders' attitudes. A one-way ANOVA was used to identify statistical differences between clusters in terms of all attitude statements. F-statistics were used to provide information about differences. In addition, the *Bonferroni post hoc tests* were employed to examine how each cluster differed from any one of the others. The results of the Bonferroni tests show that statistically significant differences were found within clusters, thus supporting the fact that distinct clusters had been identified. The data were analysed using Stata Statistical Software package (Release 12., StataCorp., College Station, TX: StataCorp LP., 2011).

**Table 1** Attitude statements - tourism boards

Overall rank	Attribute	Mean
1	The ticket price in WT should comprise a percentage intended for the conservation of habitats.	4.54
2	There is natural potential for this type of tourism in my area of work.	4.31
3	The development of WT projects has a potential to generate additional income in other contents of the destination (accommodation ...).	4.26
4	Introduction of WT could increase the level of destination quality.	4.20
5	WT is a long-term sustainable concept of tourism, as it preserves natural resources and strengthens the competitiveness of the country.	4.14
6	This type of tourism would extend the tourist season.	4.09
7	We are prepared to provide marketing support for this type of tourism.	4.03
8	Tourists have expressed their interest in some form of WT (e.g., bird watching in their natural habitat ...).	4.00
9	WT would promote development of accommodation (autochthonous environment).	4.00
10	WT would promote development of ecological and traditional agricultural practices.	3.54
11	WT could be the primary motive for tourists' arrival.	3.46
12	The private sector has asked for information on tourists' demand for some form of WT.	2.60

Source: Authors research

Since the number of clusters was not known beforehand, a hierarchical cluster analysis was used. Due to the exploratory nature of our research, the hierarchical approach appeared to be logical and superior to other methods, not demanding that the number of clusters be chosen a priori. The hierarchical clustering procedure with *Euclidean distance* as a similarity measure between cases was used. The *Ward method* was used to maximize within-cluster homogeneity, because it is a frequently used cluster algorithm known to produce stable and interpretable results (Hair et al., 2010). Cluster analysis has been frequently used in different studies, for example in studies of resident attitudes toward local tourism activity (Andriotis & Vaughan, 2003). When compared to other solution algorithms, such as the Single linkage, the Wards method (Fredline & Faulkner, 2000) was found to produce the best cluster solution in this study, a four-cluster solution. The solution with four clusters appeared to be the best because it relates to identification of the most meaningful and distinguishable clusters and the results are easily interpreted. Moreover, a solution with four clusters was supported by the dendrogram. The cluster analysis results are summarised in Table 2.

**Table 2** Cluster analysis results<sup>a</sup>

Attitude statement	Overall	SD	Cluster I Enthusiasts (n=13/37.14%)	Cluster II Rationalists (n=7/20%)	Cluster II Unconvinced (n=7/20%)	Cluster IV Sceptics (n=8/22.86%)	F - value	ANOVA (p)
1	4.00	1.138	4.62 <sup>acd</sup>	4.86 <sup>c</sup>	4.00 <sup>d</sup>	2.25 <sup>b</sup>	37.86	<0.0001
2	2.60	1.218	3.69 <sup>a</sup>	1.43 <sup>b</sup>	2.43 <sup>b</sup>	2.00 <sup>b</sup>	13.13	<0.0001
3	4.31	0.796	4.77 <sup>a</sup>	4.71 <sup>a</sup>	3.86 <sup>b</sup>	3.63 <sup>b</sup>	7.52	0.0006
4	3.46	1.067	4.15 <sup>a</sup>	3.57 <sup>a</sup>	2.29 <sup>b</sup>	3.25 <sup>ab</sup>	7.56	0.0006
5	4.03	0.891	4.38 <sup>a</sup>	4.71 <sup>a</sup>	3.00 <sup>b</sup>	3.75 <sup>ab</sup>	9.57	<0.0001

Attitude statement	Overall	SD	Cluster I Enthusiasts (n=13/37.14%)	Cluster II Rationalists (n=7/20%)	Cluster II Unconvinced (n=7/20%)	Cluster IV Sceptics (n=8/22.86%)	F - value	ANOVA (p)
6	4.09	0.818	4.31 <sup>ab</sup>	4.57 <sup>a</sup>	3.43 <sup>b</sup>	3.88 <sup>ab</sup>	3.43	0.0289
7	4.20	0.994	4.77 <sup>a</sup>	4.57 <sup>a</sup>	3.00 <sup>b</sup>	4.00 <sup>ab</sup>	8.93	0.0002
8	4.26	0.780	4.54	4.71	3.71	3.88	3.95	0.0170
9	0.54	0.611	4.69 <sup>a</sup>	5.00 <sup>a</sup>	4.43 <sup>a</sup>	4.00 <sup>ba</sup>	5.12	0.0054
10	4.00	0.840	4.23 <sup>a</sup>	4.43 <sup>a</sup>	3.14 <sup>b</sup>	4.00 <sup>ab</sup>	4.36	0.0113
11	3.54	1.067	4.08 <sup>a</sup>	4.00 <sup>a</sup>	2.43 <sup>b</sup>	3.25 <sup>ab</sup>	6.23	0.0020
12	4.14	0.733	4.46 <sup>a</sup>	4.43 <sup>a</sup>	3.43 <sup>b</sup>	4.00 <sup>ab</sup>	4.59	0.0090

<sup>a</sup> Means with different superscripts are significantly different (based on the *Bonferroni* test) at the  $p < 0.05$  level.

Source: Authors research

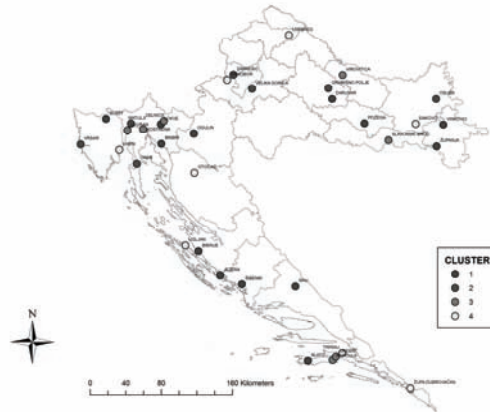
The results of comparing clusters are presented in Table 2. The first cluster, named “*Enthusiasts*” (N=13, 37.14% of the sample), assigned the highest level of importance to seven attitudes (see Table 2). This is the largest group of managers who are the most interested in participation in wildlife tourism. Examples of key motives include: “Strong potential for development of accommodation” (M=4.00), and “WT is a long-term sustainable concept of tourism, as it preserves natural resources and strengthens the competitiveness of the country” (M=4.14). The second cluster was named “*Rationalists*” (20% of the sample). Compared to other clusters, this group of tourist organization managers does not find support in “The private sector has asked for information on tourists' demand for some form of WT” (M=1.43). Instead, they seem to have in their work more positive experiences with “This type of tourism would extend the tourist season” (M=4.57), “Introduction of WT could increase the level of destination quality” (M=4.57), “The ticket price in WT should comprise a percentage intended for the conservation of habitat” (M=5.00), hence the name Rationalists. The “*Unconvinced*” cluster (20% of the sample) exhibited low interest in statements such as “We are prepared to provide marketing support for this type of tourism” (M=3.00), “The private sector has asked for information on tourists' demand for some form of WT” (M=2.43), and “This type of tourism could be the primary motive for tourists' arrival” (M=2.29). Moreover, respondents in this group are mostly neutral about the remaining motives, despite showing an opinion that there is modest potential for wildlife tourism development. The last cluster was labelled “*Sceptics*” (22.86 % of the sample) as they expressed relatively low concern for wildlife tourism. The Sceptics indicated a lower level of agreement with the statement “WT would promote development of ecological and traditional agricultural practices” (M=3.25) than the Unconvinced. Moreover, “Tourists have expressed their interest in some form of WT” was supported by Enthusiasts, Rationalists and Unconvinced alike, but not by the Sceptics (M=2.25). The managers of tourist organizations in all clusters vary significantly in their attitude towards wildlife tourism in Croatia the difference being statistical ( $p < .05$ ) in every wildlife-related question except for the interest expressed for “The ticket price in WT should comprise a percentage intended for the conservation of habitats”.

## 4.2. Geographical Distribution of Tourism Boards' Attitudes

Information on the spatial distribution of attitudes can inform managers and conservation organisations on where best to focus their interventions, thereby mitigating conflict and advancing conservation efforts (Carter, Riley, Shortridge, Shrestha, & Liu, 2014). In this part of the study we were interested to determine how clusters are distributed across the country.

As mentioned above, the difference in the influence of local tourist organizations managers can be observed from a geographical location alone. Figure 1 shows fragmentation in the northern part of Croatia, where all clusters can be found, while in the southern part of Croatia (Dalmatia), a higher proportion of cluster 1 (Enthusiasts) can be observed. Clusters of respondents were mapped and performed in ArcGIS 9.3.

*Figure 1 Spatial assessment of tourist organization managers' attitudes*



Source: Authors research

## 5. Implications and conclusion

The results of cluster analysis indicate that the managers of tourist organizations recognise the potential and are willing to actively participate in the development projects of wildlife tourism. The findings also suggest that, on the basis of their attitudes toward wildlife tourism, the tourist organization managers can be divided into four groups: Enthusiasts, Rationalists, Unconvinced and Sceptics. Based on some previous studies (Andriotis, 2005; Kavallinis & Pizam, 1994), it can be assumed that management groups will differ in their perceptions of tourism development in their community (Byrd et al., 2009). The profiles of four clusters show differences in attitudes, the biggest difference being in the received information about the tourists' interest for wildlife tourism. A significant difference is evident also in the belief that wildlife tourism could be the primary motive for the arrival of tourists, as well as in the one that this type of tourism would increase the level of destination quality. In addition to implications for wildlife tourism as derived from comparisons of tourism managers groups, our research has several managerial implications. This paper thus provides useful information to those concerned with the design and management of powerful and effective tourist experiences, like destination management organizations (DMOs), community planners, and government and non-government environmental associations.

### 5.2.Limitations and future research directions

Most managers of tourist organizations are grouped in the cluster of Enthusiasts, which accounts for 37.14% of all respondents. From the aspect of geographical criteria, no significant differences were observed. It also is interesting to note that both markedly tourist and non-tourist destinations were equally represented in all clusters. Units of local government in which there is potential for wildlife tourism were also present in all four clusters. The sample size of 35 tourism organizations (i.e. managers as their representatives) is relatively low. Another limitation of this research is also the possibility of further research.

This study focused on potential wildlife oriented tourist organizations managers without actually interviewing those who have already carried wildlife tourism oriented activities. Clustering and then comparing these clusters with the ones presented in the study could provide some insight on wildlife manager's behaviour. Future studies may investigate the perception of different stakeholder groups (e.g. residents, entrepreneurs, tourists and environmental associations).

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## **THE ACCOUNTING ROLE IN IMPLEMENTATION OF FINANCIAL POLICIES IN TRADING COMPANIES**

### **RAČUNOVODSTVENA ULOGA U PROVOĐENJU FINACIJSKE POLITIKE TRGOVAČKIH KOMPANIJA**

#### ***ABSTRACT***

*Accounting represents the inevitable activity in business performing. Cognition the accounting role stems from the 15<sup>th</sup> century by Benedict Kotruljević which was indicated on accounting importance in business managing. Through history accounting evolved from passive business role which was oriented exclusively on recording and presentation business events to the active business role in business management. The active role in business management, accounting primarily owed to the accounting choice, which offers possibility that with chosen accounting procedure and method affects the company business. Accounting choices are refer to the accounting policies adopted by company and which are defined as specific principles, rules and practices of financial reporting. Nowadays company business is marked by the dynamic and turbulent market trends within which the emphasis is on the availability of financial resources, respectively on the managing and obtaining the required financial funds and ensuring company liquidity and solvency. Exactly in the context of financial policies, companies trying to provide financial funds necessary for undisturbed business process. Terms of obtaining the financial resources are negotiate on the basis of published accounting information in the company financial statements. Starting from the fact, that companies with accounting policies choices affect the financial statement, which represent its business on financial markets and financial institutions with the aim of obtaining necessary financial resources, we put in relation the company accounting policies and costs of financial resources which arising from company financial policies. So the goal of research is to determine whether the companies which have a higher level of financial costs will try to present better business result by selecting accounting policies, which mitigates the negative impact of financial costs and improves the current business performance, with which company will ensure the attractive perception and better condition of obtaining financial resources. Research was conducted on a sample of trading companies, applying the logistic regression within statistical software (SPSS).*

**Key words:** *accounting, accounting choices, accounting policies, financial policies, cost of financial resources*

## SAŽETAK

Računovodstvo predstavlja neizostavnu aktivnost u obavljanju poslovanja kompanija. Spoznaja računovodstvene uloge proizlazi još iz 15. stoljeća od strane Benedikta Kotruljevića koji je ukazao na značenje računovodstva u upravljanju poslovanjem. Računovodstvo je kroz povijest evoluiralo od pasivnog poslovnog čimbenika orijentiranog isključivo evidentiranju i prikazu nastalih poslovnih događaja do aktivnog poslovnog čimbenika orijentiranog upravljanju poslovanjem. Ulogu aktivnog čimbenika u upravljanju poslovanjem računovodstvo duguje prije svega računovodstvenom izboru u okviru kojeg se pruža mogućnost da se izabranim računovodstvenim postupkom i metodom utječe na poslovanje kompanije. Računovodstveni izbor vezuje se uz računovodstvene politike koje je usvojila kompanija, a definiraju se kao posebna načela, osnove, pravila i praksa financijskoga izvještavanja. Današnje poslovanje kompanija obilježeno je dinamičnim i turbulentnim tržišnim kretanjima u okviru kojih se naglasak stavlja na raspoloživost financijskim sredstvima odnosno na upravljanje i pribavljanje potrebitih financijskih sredstava te osiguranje likvidnosti i solventnosti kompanije. Upravo u okviru financijske politike kompanije nastoje osigurati financijska sredstva za neometano odvijanje poslovnog procesa. Uvjeti nabavljanja financijskih sredstava dogovaraju se temeljem objavljenih računovodstvenih informacija u financijskim izvještajima kompanija. Polazeći od činjenice da kompanije izborom računovodstvenih politika utječu na prikaz temeljnih financijskih izvještaja kojim se kompanije predstavljaju na financijskim tržištima i financijskim institucijama s ciljem pribavljanja potrebitih financijskih sredstava, u odnos se stavljaju računovodstvene politike kompanije i troškovi financijskih sredstava proizašli iz financijske politike kompanije. Stoga je cilj istraživanja utvrditi da li će kompanije koje imaju veći nivo financijskih troškova nastojati prikazati povoljnije poslovne rezultate izborom onih računovodstvenih politika kojima se ublažava negativan utjecaj troškova financijskih sredstava i poboljšava prikaz tekućih poslovnih performansi kompanije, čime kompanija osigurava atraktivnu percepciju i bolje uvjete nabavljanja financijskih sredstava. Istraživanje je provedeno na uzorku trgovačkih kompanija, primjenom logističke regresije u okviru statističkog programa (SPSS).

**Ključne riječi:** računovodstvo, računovodstveni izbor, računovodstvene politike, financijska politika, trošak financijskih sredstava

### 1. Accounting role in business management

Cognition the accounting role stems from 15th century by Benedict Kotruljević which was indicated on the accounting importance in business managing. Nowadays company business is marked by the dynamic and turbulent market trends, so the company has to manage with their business in a way to meet current and anticipate future business conditions. Their existences, company justifies by exchange goods and services with the environment, but except the goods and services company with environment exchange and information's which are crucial for business managing. Information exchange is performed by the management information system which collects financial and nonfinancial information's which together represent the base for making business decision. Significant part of such information's are obtained with the accounting assistance, what indicates the information character of accounting activities. The significance of accounting as an information system is reflected by the collection, processing, production and timely distribution information's which are necessary for supporting different level of management in making business decisions. The accounting provides different information's (Ramljak, 1999, 67):

- Information's which will present the rating of company business,
- Information's which will be able to direct the future direct activities
- Information's which are necessary for making business decision.

Regarding with above mentioned information's accounting is closely connected with the process of business management. Accounting provides the necessary information's through the financial

statements. The financial statements as the final accounting product are influenced by applied accounting policies, respectively the financial statements in a certain calculation period depends of applied accounting policies (Ramljak, 2011, 1). Accounting policies represent the central link between accounting theory and practice, because they are defined by accounting theory and their choice affect the accounting practice. The choice of accounting policies provides the possibility of allocating business performance through the calculation periods. Depending of the allocating business performance through the calculation periods, the accounting policies choices can be defined as aggressive or conservative. The aggressive accounting choice applied methods and procedures by which overestimates current business performance, respectively allocates the expected future performance in the current period and thus improves the current business performance. The conservative accounting choice applied methods and procedures by which underestimates the current business performance, respectively allocates the realized performance of current period in future periods and thus smoothing business performance. Consequently, the accounting is important tool of business management.

## **2. Financial policies of the company**

Turbulent business environment puts in front of company the challenges of continuous tracking the market trends. Company ability to tracking the market trends is associated with company availability of financial resources, what implying the financial policy as significant. Financing (Starčević, 1995, 121) is the activity of obtaining and using of financial resources which are necessary for business starting and business continuity. The company financial activities are determined by financial policy. Financial policy (Starčević, 1995, 107) defines the:

- manner and intensity of capital market research,
- policy of acquiring the financial resources,
- policy of rational investment and using the financial resources,
- policy of circulation resources and maintaining the company solvency,
- policy of financial relationship with others.

Financial policy through the availability of financial resources ensures the smooth running of all business activities and tracking the market trends. Tracking the market trends requires to taking different activities which demand necessary financial resources. The using of financial resources company shows through the financial statements in form of financial costs.

## **3. The accounting role in implementation of financial policies in trading companies**

A dynamic market trends require fast reactions to the new conditions, so company for adoption to the new conditions must have available financial resources, what indicates the role of financial policy in the company. Terms of using financial resources are negotiated on the basis of the published financial statements, which are affected by accounting policies choices. With its research (Dechow, Sloan and Sweeny, 1996, 1-36) found that companies use accounting methods of revenue increasing in order to reduce cost of capital. Consequently it can be assumed that the companies which have a higher level of financial costs will try to present the better business results by applying of aggressive accounting choice. Therefore, the accounting role in implementation of financial policies in trading companies can be displayed on the basis of relationship between the level of financial cost and the aggressive accounting policies choices. Starting from the fact that companies in the choice of accounting policies have two options, the choice of aggressive or conservative accounting policies, which implies a binary dependent variable with value 0 and 1, where is the value 0 indicator of conservative accounting policies (doubled depreciation rates), while the value 1 is indicator of aggressive accounting policies (regular depreciation rates) and that the independent variable is numerical, i.e. financial costs, adequate is the application of logistics regression. Research included the depreciation rates and the absolute value of financial costs and

relative value of financial costs (their shares in total expenses) for a period of three years (2010., 2011., 2012.) Applying the absolute values of financial costs the following results have been generated and presented in the Table 1. and Table 2.:

**Table 1 Descriptive statistics**

		N	Mean	Std. Deviation
TFS 2012	0	50	6,3310	,64366
	1	78	6,7580	,71911
	Total	128	6,5912	,71911
TFS 2011	0	50	6,3952	,74002
	1	78	6,8657	,65265
	Total	128	6,6819	,72296
TFS 2010	0	51	6,2766	,75742
	1	78	6,8448	,66795
	Total	129	6,6202	,75515

Source: author's research

**Table 2 Analysis of variance**

		Sum of Squares	df	Mean Square	F	Sig.
TFS 2012	Between Groups	5,555	1	5,555	11,642	,001
	Within Groups	60,119	126	,477		
	Total	65,673	127			
TFS 2011	Between Groups	6,747	1	6,747	14,256	,000
	Within Groups	59,632	126	,473		
	Total	66,379	127			
TFS 2010	Between Groups	9,953	1	9,953	20,052	,000
	Within Groups	63,038	127	,496		
	Total	72,991	128			

Source: author's research

Based on the descriptive statistics and analysis of variance can be concluded that all variables are appropriate, in accordance with the theoretical assumptions, which associated the higher level of financial costs and choices of aggressive accounting policies, as was confirmed by previous tables from which is evident the higher level of financial costs in companies which applying the aggressive accounting choice. Consequently, the all variables are included in a logistics regression, what produces the following results in Table 3.:

**Table 3 Logistics regression**

	B	S.E.	Wald	df	Sig.	Exp(B)
TFS 2010	,955	,457	4,360	1	,037	2,599
Constant	-9,847	2,912	11,433	1	,001	,000

Source: author's research

Regarding with the variable TFS 2010 (Financial cost from 2010), odds ratio is 2,599 and is statistically significant at a significance level of 3,7%, which means that for the higher level of financial costs is higher probability of choosing the aggressive accounting policies for 159,9%

instead of the conservative accounting policies. Applying the relative value of financial costs (their shares in total expenses) the following results have been generated and presented in the Table 4. and Table 5.

**Table 4 Descriptive statistics**

/ T2012; T2011; T2010	N	Mean	Std. Deviation
TFS 2012 0	45	1,5976	1,55654
1	65	2,4491	2,98359
Total	110	2,1007	2,52620
TFS 2011 0	45	2,0200	2,29772
1	65	2,8642	2,91249
Total	110	2,5188	2,69919
TFS 2010 0	45	1,7644	1,83820
1	65	2,6115	2,05887
Total	110	2,2650	2,00698

Source: author's research

**Table 5 Analysis of variance**

/ T2012; T2011; T2010	Sum of Squares	df	Mean Square	F	Sig.
TFS 2012 Between Groups	19,281	1	19,281	3,079	,082
Within Groups	676,322	108	6,262		
Total	695,603	109			
TFS 2011 Between Groups	18,949	1	18,949	2,640	,107
Within Groups	775,185	108	7,178		
Total	794,134	109			
TFS 2010 Between Groups	19,081	1	19,081	4,907	,029
Within Groups	419,967	108	3,889		
Total	439,048	109			

Source: author's research

Based on the descriptive statistics and analysis of variance can be concluded that all variables are appropriate, in accordance with the theoretical assumptions, which associated the higher level of financial costs and choices of aggressive accounting policies, as was confirmed by previous tables from which is evident the higher proportion of financial costs in companies which applying the aggressive accounting choice. Consequently, the all variables are included in a logistics regression, what produces the following results in Table 6.

**Table 6.: Logistics regression**

/ T2012; T2011; T2010	B	S.E.	Wald	df	Sig.	Exp(B)
TFS 2010	,208	,125	2,772	1	,096	1,232
Constant	-,411	,390	1,109	1	,292	,663

Source: author's research

Regarding with the variable TFS<sub>2010</sub> (Financial cost from 2010), odds ratio is 1,232 and is statistically significant at a significance level of 9,6%, which means that if the proportion of financial costs increased for 1% is higher probability of choosing the aggressive accounting policies for 23,2% instead of the conservative accounting policies. Obtained results lead to the conclusion of significant accounting role in implementation of financial policies.

#### 4. Conclusion

Accounting role in the business managing is recognized in 15<sup>th</sup> century and has been studied by the positive approach of accounting researches, which emphasize the accounting choices and opportunities which arising from the same. Cognition the accounting role in business management resulted with whole range of studies which attempted to find connection between accounting and others business functions. Following the mentioned studies stemmed and this research with aim to give an answer on following question: which is and what is the accounting role in implementation of financial policy. The answer to this question was obtained by connecting accounting policies choices with financial costs. The obtained results indicate:

- that for the higher level of financial costs is higher probability of choosing the aggressive accounting policies for 159,9% instead of the conservative accounting policies,
- that if the proportion of financial costs increased for 1% is higher probability of choosing the aggressive accounting policies for 23,2% instead of the conservative accounting policies,

what leads to the conclusion of significant accounting role in implementation of financial policies.

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**THE APPROACH OF CONDUCTING A COST & BENEFIT ANALYSIS  
OF A RENEWABLE ENERGY INVESTMENT PROJECT**

**PRISTUP IZRADI COST & BENEFIT ANALIZE INVESTICIJSKOG  
PROJEKTA ZA OBNOVLJIVE IZVORE ENERGIJE**

**ABSTRACT**

*Compared to other investment projects whose dynamic cost-effectiveness is being measured in cash inflows generated from the commercialization of the project, investment into a solar power facility for own use is rather specific since its dynamic cost-effectiveness is being measured in savings generated over the useful life of the project. This is why a cost and benefit analysis is the most suitable technique to be applied to calculate dynamic cost-effectiveness of such a project. Another specificity of such a project is that the unit of measure used to measure generated savings cannot be unambiguously determined, and that such a price has to be corrected. Such corrected prices are another reason why the financial analysis of this investment project is based on a cost-and-benefit-analysis approach. This paper illustrates a methodological approach of a calculation of costs and benefits of an investment project. This paper proves that in case of constant electricity consumption during 24 hours a day, an investment into a solar power facility in Eastern Slavonia can create economic potential which makes such an investment profitable and cost-effective.*

**Key words:** *cost & benefit, solar power plant, dynamic profitability, electricity, methodological approach.*

**ABSTRACT**

*Investicijski projekt sunčane elektrane za vlastite potrebe specifičan je po tome što se njegova dinamička rentabilnost mjeri u uštedama ostvarenim tijekom korisnog vijeka projekta, za razliku od drugih investicijskih projekata koji svoju dinamičku rentabilnost ostvaruju u novčanim primicima od komercijalizacije investicije. Iz tog je razloga tehnika izračuna dinamičke rentabilnosti investicijskog projekta cost & benefit analiza. Investicijski projekt poseban je i po tome što jedinicu mjere po kojoj se mjeri ušteda nije moguće jednoznačno*



*utvrditi, već je tu cijenu potrebno ispraviti. Ispravljene cijene drugi su razlog zašto je u financijskoj analizi investicijskog projekta riječ o cost & benefit analizi. U radu se daje metodološki postupak izračuna troškova i koristi investicijskog projekta. Radom se dokazuje da u slučaju cjelodnevne potrošnje električne energije ovakva investicija u istočnoj Slavoniji može imati ekonomski potencijal koji investiciju čini rentabilnom.*

**Ključne riječi:** *cost & benefit, sunčane elektrane, dinamička rentabilnost, električna energija, metodološki pristup*

## **1. Introduction**

This paper comprises a conceptual framework for an investment study of a renewable energy facility for an investor (entrepreneur) who has a business which consumes electrical energy permanently on a daily basis. The investor (entrepreneur) either plans or really consumes electrical energy continuously during 24 hours a day, 7 days a week and 12 months a year. Dependent on the geographical location, the roof pitch as well as the roof position relative to the sun, the entrepreneur might generate an investment idea for a private solar power facility producing electrical energy. When contemplating such an idea, the fundamental question is whether benefits of such an investment project (i.e. installation of a solar power facility) will exceed long-term investment costs. This is particularly important when an investment project produces benefits primarily through savings and perhaps to some marginal degree through additional revenues of solar energy sales. In such a scenario and for the purpose of this paper, we assume that the entrepreneur will sell all excess electrical energy which is produced by the installed solar power facility, but not consumed by the entrepreneur. In another scenario, it is also possible that all excess electrical energy will be lost and thus such an investment will be less cost-effective. In both scenarios, the applied conceptual framework is equal in its essence.

## **2. Methodology**

Firstly, an analysis of the electrical energy market has to be conducted. The general aim of such an analysis is to examine the market price and its structure. There are two main components of the price of electrical energy which are constant and basic: the cost of the high tariff per unit and the cost of the network tariff per unit. Other components of the price are charges per unit which largely depend on contractual conditions. A quality market research also requires to take into consideration a time horizon of at least three years as well as to compute a weighted average price. In the long-term period assumed in a feasibility study, the weighted average price has to be constant. A final output of such an approach is a weighted average of corrected relevant market prices. Such an average price is actually a benefit per saving unit and that is the main reason why this investment study is based on a cost-and-benefit-analysis approach.

Secondly, a technological and technical analysis has to be conducted. The major activity in this step is to determine consumption of electrical energy (in kWh) in previous years. A time horizon of at least three years is repeatedly the most suitable time period to be used. When analysing a time period of three years, a consumption trend can be determined and future forecast can be computed. It is also necessary to determine a daily consumption curve and the average consumption per hour ratio for the past three years. Information related to electrical energy consumption will be gathered from a supplier of electrical energy. Subsequently, a daily time period which is the most representative throughout the year has to be determined – namely a period in which the solar power facility can produce the highest amount of electrical energy (e.g. between 10:00 AM and 4:00 PM) during the period of 365 days without interruptions. It is also necessary to determine the hourly average solar irradiance

during the period of a day (in Wh/m<sup>2</sup>). Data related to hourly average solar irradiance for a specific geographical location are provided by the State Hydro-meteorological Institute. The institute also provides exact data on the time of sunrise/sunset for a period of a full calendar year. Finally, the percentage of solar irradiation in a previously determined period relative to a day is to be computed. The purpose of this activity is to compute the excess amount of produced electrical energy in a period with the highest electrical-energy production level. The excess amount is a quantity which is constant if expected production decreases in line with expected consumption. If it is realistic to expect that a surplus of electrical energy will be generated, then the total quantity of electrical energy produced by the solar power facility will be reduced by the surplus which is produced.

Thirdly, a decision considering capacity of the solar power facility has to be made. Capacity primarily depends on the surface of the roof and/or on the area which is chosen for facility installation, but it also depends on businesses needs for electrical energy. The most important factors influencing capacity are costs relative to benefits, but in this step of our approach capacity has to be assumed. Optimal capacity can be computed by conducting a sensitivity analysis. For that purpose, it is important to compute an equal cost value per installed unit. Considering the capacity of a solar power facility, investment costs can be estimated.

Fourthly, expected production of electrical energy is to be calculated and then it should be compared with expected consumption, particularly for the determined period of the day. The process of computing of expected energy production is quite simple and can be conducted with on-line calculators. Several factors are needed to conduct such a calculation: inclination, orientation, type of a system (fixed vs. cycle) and precise data on location.

Finally, a financial analysis including both the static and the dynamic approach should be conducted including a sensitivity analysis and a risk analysis, thus optimising capacity of the solar power facility relative to expected benefits and investment costs.

### 3. Research

Our business case relates to a swimming-pool facility located in eastern Croatia which has a suitable roof pitch and a suitable roof position relative to the sun. Consumption of electrical energy in the respective object is constant, 24 hours a day and without any interruptions. Approximately, electrical energy consumption is 75 – 105 kW per hour.

Table 1 illustrates the price structure and the calculating approach used in determining of the constant price for the purpose of a feasibility study as described in the previous chapter. A time horizon of three years is used and inflation is not taken into account.

*Table 1: The cost structure of the electrical energy price*

The price structure of electrical energy during the time period of the highest tariff				
Total consumption 1.1.2011.-30.9.2014		kWh	2.724.904	
Number of monthly invoices (2011-2014)			45	
Average monthly consumption (2011-2014)		kWh	60.553	
ID	COST STRUCTURE 2011	SUPPLIER	UNIT	PRICE
* * *				
ID	COST STRUCTURE 2012	SUPPLIER	UNIT	PRICE
* * *				
ID	COST STRUCTURE 2013	SUPPLIER	UNIT	PRICE
* * *				
ID	COST STRUCTURE 2014	SUPPLIER	UNIT	PRICE

The price structure of electrical energy during the time period of the highest tariff				
1	Electrical energy – high tariff	XY Ltd.	kWh	0,41960
2	Charge 1	XY Ltd.	kWh	0,00468
3	Charge 2	XY Ltd.	kWh	0,03500
4	Charge 3	XY Ltd.	kWh	0,00375
5	Network tariffs	Z Ltd.	kWh	0,25000
6	Price of electricity		kWh	0,71303
	Average price of electricity (kn / kWh) 2011-2014		kWh	0,71936

Source: <http://www.hep.hr/ods/kupci/poduzetnistvo.aspx>

According to the previously outlined methodological approach, a technological and technical analysis has to be conducted and a decision about the capacity of the solar power facility has to be made. In a day period from sunrise to sunset, the annual average energy consumption is 52% relative to 24 hours. The highest irradiation and thus the highest expected electrical energy production is between 10:00 AM and 4:00 PM. Between March and September, irradiation and expected electrical energy production are higher than 58% relative to a period from sunrise to sunset.

Table 2 illustrates technical estimates of production as well as consumption of a solar power facility. Installed capacity is 321,2 kW. Inclination is 6°. Orientation is 15°. Assumed capacity relates to the total roof surface.

**Table 2: Technical estimates of production and consumption of electrical energy**

Month	$E_d$	$E_m$	$H_d$	$H_m$	Irradiati on <sup>1</sup>	Producti on	Consu mption	Differe nce
	kWh/plant	kWh/plant	Wh/plant	Wh/plant	%	kWh	kWh	kWh
Jan	334	10.280	2.551	78.507	80,7%	8.299	15.259	-6.960
Feb	549	15.416	4.181	117.374	75,1%	11.576	14.409	-2.832
Mar	1.002	31.057	7.819	242.348	69,2%	21.487	16.241	5.246
Apr	1.294	38.861	10.412	312.612	64,1%	24.928	16.325	8.603
May	1.458	45.284	12.022	373.360	60,1%	27.238	17.501	9.737
Jun	1.587	47.532	13.339	399.624	58,4%	27.780	17.540	10.239
Jul	1.619	50.102	13.694	423.869	59,3%	29.705	18.483	11.222
Aug	1.461	45.284	12.335	382.257	62,3%	28.191	18.594	9.597
Sep	1.066	31.956	8.697	260.660	67,1%	21.451	9.406	12.045
Oct	774	23.766	6.168	189.379	73,3%	17.431	17.913	-482
Nov	437	13.136	3.429	103.116	78,6%	10.326	17.089	-6.763
Dec	260	8.093	2.007	62.443	82,5%	6.678	15.907	-9.228
Surplus of produced electrical energy (difference between production and consumption) = 66.689 kWh per year								

Source: [http://www.fer.unizg.hr/\\_download/repository/ZR09MJurkovic.pdf](http://www.fer.unizg.hr/_download/repository/ZR09MJurkovic.pdf)

As previously outlined, we have also calculated expected production of electrical energy and then compared it with the needed long-term consumption. The assumed solar power facility has a reliable long-term efficiency of at least 25 years, with effectiveness weakness of at most 0,5% per year relative to the previous year. In this respective business case, the investor (entrepreneur) expects the solar power facility to produce a surplus of electrical energy which then will be sold on the market.

Table 3 illustrates a short version of dynamic estimates of electrical energy production.

<sup>1</sup> Irradiation (10:00 AM – 4:00 PM) / irradiation (5:00 AM – 9:00 PM)

**Table 3: Technical estimates of electricity production for 25 years**

0,5%	2016	2017	2018	2019-2037	2038	2039	2040	
Month	Total production of electricity during 25 years in kWh							
Jan	10.280	10.229	10.178	*	9.150	9.098	9.047	
Feb	15.416	15.339	15.262		13.720	13.643	13.566	
Mar	31.057	30.901	30.746		27.640	27.485	27.330	
Apr	38.861	38.667	38.472		34.586	34.392	34.198	
May	45.284	45.058	44.831		40.303	40.077	39.850	
Jun	47.532	47.295	47.057		42.304	42.066	41.829	
Jul	50.102	49.851	49.601		44.591	44.340	44.090	
Aug	45.284	45.058	44.831		40.303	40.077	39.850	
Sep	31.956	31.796	31.636		28.441	28.281	28.121	
Oct	23.766	23.647	23.529		21.152	21.033	20.914	
Nov	13.136	13.070	13.004		11.691	11.625	11.559	
Dec	8.093	8.053	8.012		7.203	7.163	7.122	
Total	360.768	358.964	357.160		321.083	319.280	317.476	
	Surplus of electricity during 25 years in kWh							
	2016	2017	2018	2019-2037	2038	2039	2040	
Mar	5.246	5.139	5.031	*	2.883	2.775	2.668	
Apr	8.603	8.478	8.353		5.861	5.736	5.611	
May	9.737	9.601	9.464		6.741	6.604	6.468	
Jun	10.239	10.100	9.962		7.184	7.045	6.906	
Jul	11.222	11.073	10.925		7.954	7.806	7.657	
Aug	9.597	9.456	9.315		6.496	6.355	6.214	
Sep	12.045	11.938	11.830		9.685	9.578	9.471	
Total	66.689	65.785	64.881			46.803	45.899	44.995

Source: <http://re.jrc.ec.europa.eu/pvgis> & converted data

The final part of in our methodological approach relates to preparing of a static and dynamic financial analysis based on a cost-and-benefit-analysis approach. Major benefits of this investment project are savings during the expected useful life of the solar power facility, but also revenues generated from sales of electrical energy.

Table 4 illustrates a static financial analysis for all years of the expected useful life of the investment project (i.e. the solar power facility). The most relevant financial indicator here is the net profitability ratio. The highest net profitability ratio is at the end of the expected useful life, mostly due to the estimated residual value. The expected useful life is actually 30 years, but for the purpose of this paper, it is reduced by 5 years. During the period of the expected useful life, net profitability is constantly positive.

**Table 4: Static financial analysis 2016-2040**

0,5%	2016	2017	2018	2019-2037	2038	2039	2040
Month	Savings during the period of the expected useful life (kn)						
Jan	7.395	7.358	7.321	*	6.582	6.545	6.508
Feb	11.090	11.034	10.979	*	9.870	9.814	9.759
Mar	18.567	18.532	18.498	*	17.810	17.775	17.741
Apr	21.767	21.716	21.666		20.664	20.614	20.564
May	25.571	25.506	25.441		24.143	24.078	24.013
Jun	26.827	26.756	26.685		25.264	25.193	25.122
Jul	27.969	27.895	27.822		26.354	26.281	26.208
Aug	25.672	25.611	25.549		24.319	24.258	24.196
Sep	14.323	14.285	14.248		13.492	13.454	13.416
Oct	17.096	17.011	16.925		15.216	15.130	15.045

0,5%	2016	2017	2018	2019-2037	2038	2039	2040
Nov	9.449	9.402	9.355		8.410	8.363	8.315
Dec	5.822	5.793	5.764		5.182	5.152	5.123
SAVINGS	211.548	210.901	210.253		197.306	196.658	196.011
Selling price:	Income during the period of the expected useful life (kn)						
0,40 kn/kWh	2016	2017	2018	2019-2037	2038	2039	2040
Mar	2.099	2.056	2.013		1.153	1.110	1.067
Apr	3.441	3.391	3.341		2.344	2.294	2.245
May	3.895	3.840	3.786		2.696	2.642	2.587
Jun	4.096	4.040	3.985	*	2.873	2.818	2.762
Jul	4.489	4.429	4.370	*	3.182	3.122	3.063
Aug	3.839	3.782	3.726	*	2.598	2.542	2.486
Sep	4.818	4.775	4.732		3.874	3.831	3.788
INCOME	26.675	26.314	25.952		18.721	18.360	17.998
RESIDUAL V.							464.119
<b>BENEFITS</b>	<b>238.223</b>	<b>237.215</b>	<b>236.206</b>		<b>216.027</b>	<b>215.018</b>	<b>678.128</b>
	Costs during the period of the expected useful life (kn)						
	2016	2017	2018		2038	2039	2040
MAINTENANCE	7000	7.035	7.105		15.855	16.660	17.500
TERMOGR. SCANNING		7.570				7.570	
INSURANCE	7.000	7.000	7.000		7.000	7.000	7.000
DISPOSAL OF WASTE							100.000
INTEREST							
DEPRECIATION	128.773	128.773	128.773		128.773	128.773	128.773
<b>COSTS</b>	<b>142.773</b>	<b>150.378</b>	<b>142.878</b>		<b>151.628</b>	<b>160.003</b>	<b>253.273</b>
	Long-term profits (kn)						
<b>EBT</b>	<b>95.451</b>	<b>86.837</b>	<b>93.328</b>		<b>64.399</b>	<b>55.015</b>	<b>424.855</b>
<b>RETAINED EARNINGS</b>	<b>95.451</b>	<b>182.287</b>	<b>275.615</b>		<b>1.785.992</b>	<b>1.841.007</b>	<b>2.265.862</b>
Net profitability	40,1%	36,6%	39,5%		29,8%	25,6%	62,7%

Source: Feasibility study; Swimming pool "Lenjje", eastern Croatia

The static performance indicators are positive. A static financial analysis is an analysis which does not include the risk impact as well as the time value of money. On the other side, the dynamic financial analysis considers both, the risk impact and the time value of money. Table 5 illustrates the dynamic financial analysis and the financial flow. The financial flow represents also the economic flow of the assumed investment as well as the economic potential of the investment. It is assumed that the investment project is fully financed by the investor.

**Table 5: Dynamic financial analysis 2016-2040**

Dr = 2,7 %	2016	2017	2018	2019-2037	2038	2039	2040	NPV	IRR
<b>Inflows (cash)</b>	<b>238.223</b>	<b>237.215</b>	<b>236.206</b>		<b>216.027</b>	<b>215.018</b>	<b>678.128</b>	509.280	4,24%
Income	26.675	26.314	25.952		18.721	18.360	17.998		
Savings	211.548	210.901	210.253		197.306	196.658	196.011		
Residual v.							464.119		
<b>Outflows</b>	<b>3.233.322</b>	<b>21.605</b>	<b>14.105</b>		<b>49.350</b>	<b>57.725</b>	<b>150.995</b>		
Investment	3.219.322								
Maintenance	7.000	7.035	7.105		15.855	16.660	17.500		

Dr = 2,7 %	2016	2017	2018	2019-2037	2038	2039	2040	NPV	IRR
Insurance	7.000	7.000	7.000		7.000	7.000	7.000		
Term. scanning		7.570				7.570			
Inverters					26.495	26.495	26.495		
Disposal of waste							100.000		
Positive cash flow	2.995.099	215.610	222.101		166.677	157.293	527.133		

Source: Feasibility study; Swimming pool "Lenje", eastern Croatia

The discount rate is a long-term interest rate on loans at the moment of writing this paper. Possible risks are eliminated with the included insurance costs. In another scenario, where investment is co-financed with a grant in the value of 50% of total investment costs, the NPV is 2.076.000 kn and the IRR is 14,22%.

#### 4. Conclusion

This paper illustrates an investment opportunity into solar power which is potentially interesting to local governments and entrepreneurs located in eastern Croatia. The investment project analysed in this paper relates to establishing of a solar power facility producing electrical energy not only for the purpose of generating savings by covering own needs for electrical energy, but also for the purpose of generating revenues through sales of produced but not consumed electrical energy. The business case analysed in this paper is based on an assumption that there is a business which has a constant need (24 hours a day) for electricity consumption. Our analysis suggests that the economic potential of such an investment is positive, even without additional co-financing through grants. This paper also proves that an established business investing into a solar power facility with the aim of covering its own needs for electrical energy is profitable and cost-effective. The paper rejects the assumption that generating profitability by a solar power facility without additional grants and financial incentives is not possible in eastern Croatia.

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**STRATEGIC PLANNING AND ACTORS' PERSPECTIVES IN RURAL  
TOURISM**

**STRATEŠKO UPRAVLJANJE I PERSPEKTIVE AKTERA U  
RURALNOM TURIZMU**

***ABSTRACT***

*Rural tourism is a potentially important resource of revitalization in rural areas, which constitute more than 90% of Croatian territory occupied by nearly 50% of the population. Although the rural area is exposed to permanent depopulation due to favourable conditions of life in the cities, there is no development strategy of rural tourism at the national level, while strategic documents are rare at the regional and local levels. Although rural tourism represents an important opportunity for (self)employment due to the fact that family members and local population work in such economies, a number of Croatian counties have almost no registered rural households engaged in tourism, including even the counties that with more than 50% of the rural inhabitants in overall population belong to the predominantly rural regions. This study examines the key strategic documents regarding rural tourism at the national level due to examination of its current state and development perspectives. In addition to the secondary data analysis, the results of semi-structured interviews are presented. Interviews were conducted in January 2015 with five representatives (owners and managers) of legal entities active in rural tourism in the Split-Dalmatia County. The market-recognized forms of rural tourism were included, while the following business aspects are reviewed: work motivation, business development, impact on the environment and the local economy, business intentions and recommendations, etc. The theoretical framework of the study is the idea of indivisibility of the micro and macro levels of society. Its relevance is confirmed by the research results as strategic documents show a poor representation of rural tourism in tourist traffic at the national level, which also applies to Split-Dalmatia County. Such a situation is particularly conditioned by weak financial and human resources of the public sector at the local level, burdening bureaucracy, poor municipal infrastructure and lack of awareness among local population about the development opportunities of rural tourism. Interviewees face these disadvantages through practice, but their permanent influence slowly alters the public institutions' actions towards strategic planning with an aim of achieving the favourable economic effects and better life quality of rural residents. Given the complemen-*



*tarity of the findings at the micro and macro social levels, the interview results are applicable to other micro-locations in Croatia.*

**Key words:** *village, rural tourism, strategic planning, tradition, employment, Croatia*

## SAŽETAK

*Ruralni turizam je potencijalno značajan resurs revitalizacije seoskog prostora koji sačinjava više od 90% hrvatskog teritorija na kojemu živi gotovo polovina stanovništva. Iako je ruralni prostor izložen dugotrajnoj depopulaciji zbog povoljnijih uvjeta života u gradu, ne postoji razvojna strategija ruralnog turizma na nacionalnoj razini, a strateški su dokumenti rijetki na regionalnoj i lokalnoj razini. Iako ruralno-turističke aktivnosti predstavljaju važnu mogućnost (samo)zapošljavanja iz razloga što na takvim gospodarstvima rade uglavnom članovi obitelji i lokalno stanovništvo, brojne hrvatske županije gotovo ni nemaju registriranih seljačkih domaćinstava koja se bave turizmom, a među njima čak i županije koje s više od 50% seoskog stanovništva pripadaju pretežno ruralnim županijama. Ova studija razmatra ključne strateške dokumente ruralnog turizma na nacionalnoj razini zbog sistematiziranja njegova trenutnog stanja i razvojnih perspektiva. Osim analize sekundarnih podataka, izneseni su rezultati polustrukturiranih intervjua provedenih na pet predstavnika (vlasnika ili voditelja) pravnih osoba djelatnih u ruralnom turizmu Splitsko-dalmatinske županije. Obuhvaćeni su tržišno prepoznatljiviji oblici ruralnog turizma, a razmotreni su aspekti poslovanja poput radne motivacije, razvoja posla, utjecaja na okoliš i lokalno gospodarstvo, poslovnih namjera i preporuka itd. Teorijski okvir studije su polazišta o nedjeljivosti mikro i makro razine društva. Njihovu relevantnost potvrđuju rezultati istraživanja jer strateški dokumenti pokazuju nisku zastupljenost ruralnog turizma u turističkom prometu na razini države, što također vrijedi za Splitsko-dalmatinsku županiju. Takvoj situaciji naročito doprinose slabi financijski i ljudski kapaciteti javnog sektora na lokalnoj razini, prezahtjevna administracija, loša komunalna infrastruktura te neosviještenost stanovništva o razvojnim mogućnostima ruralnog turizma. Intervjuirani suočavaju se nepovoljnosti kroz praksu, ali ustrajnim djelovanjem polako mijenjaju svijest nadležnih institucija prema strateškom planiranju s ciljem ostvarivanja povoljnih privrednih učinaka i bolje kvalitete života lokalnog stanovništva. S obzirom na komplementarnost nalaza na mikro i makro društvenoj razini, rezultati intervjua su primjenjivi na ostale mikro-lokacije u Hrvatskoj.*

**Ključne riječi:** *selo, ruralni turizam, strateško planiranje, tradicija, zapošljavanje, Hrvatska*

### 1. Introduction

According the Organization for Economic Cooperation and Development (OECD) criteria (up to 150 inhabitants per square kilometre), the proportion of rural areas in Croatia covers 91.6% of the entire administrative territory, while 47.5% of the overall population lives there (Kantar and Svržnjak, 2011, 143). Despite the still high degree of rurality of the country, the rural population has been declining for decades in relation to the increase of the urban population. This has been particularly contributed to the socialist industrialization and urbanization, as well as the lack of development policies in rural areas during the last two decades (Kušen, 2003). Šundalić (2010) points out that the proportion of rural population declined by 30% in the inter-census period from 1953 to 2001. It can be concluded that rural areas are characterized by overall social stagnation and survival (particularly those removed from the modern computerization and larger cities), and only some of them will thrive in an environmentally and economically sustainable basis (Štambuk et al., 2011, 239).

Strategic documents and professionals recognize rural tourism as a possible source of revitalization of rural areas, i.e. economic and consequently demographic and overall social recovery, emphasizing its underdevelopment and recent occurrence in Croatia in the late 1990s (Demonja, 2014, 75). In addition, *rural tourism* is a very broad term that encompasses all tourism activities (services) that can be organized within rural areas - hunting, fishing, tourism in natural parks, gastronomy, residential, cultural, adventure, winter, health and religious tourism, etc. When traditionally linked to nature or cultural heritage of a given area, it is considered as *village tourism*. When tied to agriculture as a core economic activity, it is *tourism at rural households* (i.e. agritourism offering domestic produce, in addition to accommodation and activities such as excursions, workshops, cultural and artistic events, etc.) (Baćac, 2011, 16-17).

Tourism at rural households is considered to be the basis for the optimal development of rural areas, without compromising the conditions of nature, customs and traditional activities (Krajinović et al., 2011, 32). The dynamics of development of agritourism indicates the capacities of rural tourism for growth, although still underdeveloped. While 32 rural households were registered in 1998, there were 352 in 2007. Most of them were registered in Dubrovnik-Netretva (70), Istria (64), Osijek-Baranja (56), Zadar (41) and Split-Dalmatia County (31), while as many as six counties did not have a single registered rural household<sup>1</sup> (Demonja, 2014, 77). Therefore, it is not surprising that the development of rural tourism, as "the most important economic activity in rural areas which do not fall under agriculture", is one of the objectives of the *Rural Development Strategy (2008-2013)*, as well as the recent *Rural Development Programme of the Republic of Croatia (2014- 2020)* especially because there were only 427 rural households in 2014. Considering the global demand, variations of rural tourism, such as cycling, health, culinary, adventure, ecological and sports tourism, are mentioned in the *Croatian Tourism Development Strategy till 2020* as products with a distinct perspective of development.

Rural tourism should be developed strategically, including as large a number of stakeholders as possible, due to the adaptation of pluralistic interests and avoidance of adverse competition that could lead to a lack of realization of the set objectives (Krajinović et al., 2011, 34). The strategic documents should be coherent, starting from the practices of local entrepreneurs to national guidelines, taking into account the interests of consumers, but also the preservation of tourist destinations in the environmental, sociological and cultural terms in order to achieve the competitive advantages, accelerate the economic growth, raise the standards and obtain a satisfactory level of welfare in rural areas (Gredičak, 2010, 116). The experience of countries with developed rural tourism can provide guidelines. Some of the obviously good practices are the variety of offers, as well as clustering, joint promotion at the national level, standardization, certification and continuing insistence on raising the quality (Baćac, 2011, 188).

## 2. Research methodology

In order to discuss the strategic framework for the development of rural tourism, a secondary analysis of the *Rural Development Strategy (2008-2013)*, *Rural Development Programme of the Republic of Croatia (2014-2020)* and *Croatian Tourism Development Strategy till 2020* was conducted. In addition, the aforementioned form of selective tourism is the subject of other strategic documents at the national level, but included were only the documents in

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<sup>1</sup> Five counties belong to predominantly rural regions with more than 50% of rural inhabitants in overall population (Požega-Slavonia, Virovitica-Podravina, Bjelovar-Bilogora, Karlovac and Lika-Senj County), while Primorje-Gorski Kotar County belongs to significantly rural regions with a share of rural inhabitants between 15 and 50 percent (Census, 2011).

which the development of such tourism is clearly designated as a priority, with at least somewhat elaborated analysis of the situation, desirable activities and results, as well as the sources of funds, indicators of successful implementation of measures, etc. Their quantitative and qualitative data are related with the results of semi-structured interviews conducted in January 2015 with five representatives (owners and managers) of legal entities within the segment of rural tourism in Split-Dalmatia County. The analysis included market-recognized forms of rural tourism (self-catering house, rural hotel, agritourism, adventure tourism and eco-ethno village). Using interviews, the authors have tried to get an answer regarding the following aspects of participants' business:

- brief description of the activity;
- work motivation;
- business development (start-up capital, the dynamics of income, offer and employees' structure);
- strengths, weaknesses, opportunities and threats<sup>2</sup>;
- cooperation with local population as well as public and private sectors;
- impact on local economy and environmental protection;
- business intentions,
- recommendations for successful business.

Interviews were conducted with representatives of eco-ethno village Škopljanci (Municipality of Lećeveica), rural hotel Sv. Mihovil (City of Trilj), adventure tourism services organization Rajske Dveri (Municipality of Zadvarje), rural household Vrata Biokova (Municipality of Podgora) and self-catering house Krželj (Municipality of Zadvarje). Informants have agreed to the publication of the data. To ensure anonymity, their names were changed as follows: Jure (eco-ethno village), Ivan (rural hotel), Frane (organization of adventure tourism), Damir (rural household) and Mario (self-catering house). For the same reason, the authors occasionally described respondents in false sex. Neyland (2008) promotes a similar approach, finding that the level of anonymity should be negotiated on the field in research with a smaller number of participants because there is always the possibility of identity recognition.

Although the two legal entities are located in Zadvarje, the association of adventure tourism operates in the Municipality of Omiš, offering services of rafting and canyoning, while the self-catering house is located at the crossroads of municipalities of Zadvarje and Šestanovac. This circumstance ensured getting the information from different administrative areas. There are not many self-catering houses in Split-Dalmatia County, while the aforementioned forms of adventure tourism are present only along the river Cetina. Furthermore, the Municipality of Podgora belongs to Makarska Riviera, but the rural household is located ten miles from Podgora, on the Biokovo Mountain. Therefore, we can treat it as part of the tourist offer of Dalmatian hinterland, particularly due to the available local roads from the interior (directed from City of Vrgorac and Municipality of Zagvozd).

In order to achieve a greater validity of data, the method of triangulation was used. Conducted interviews, analysis of strategic documents and their connection into interpretation indicate theoretical assumptions of the study, which represent a kind of attempt at "reconciliation" of theories that insist on the primacy of the social structure in shaping individuals and those who insist on actions based on actors' understandings (*Verstehn*). Those are the starting points that advocate a micro-macro social bond in terms of generating the structure through continuous interactions and relationships, whereby the structure performs retroactive influence on the actors' meanings (Ritzer, 2004). Within our research, linking the analytically different levels of study improves efficiency of the actors responsible for making of strategic documents because such documents should ultimately serve as the basis for further actions in

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<sup>2</sup> In organizational management known as SWOT analysis (Buble et al., 2005, 69).

relation to other stakeholders in rural tourism. Therefore, through the linking of secondary data with the participants' experience, *the complementary insight into the state of rural tourism in the administrative area covered is enabled, i.e. the overview of the efficiency of performance the strategic tasks set in relation to the everyday life of people who deal with this kind of selective tourism and their answers to the wider social reality*. Recognizing the richness of informants' understandings, answers are delivered in their original form, i.e. in a way they were imposed, which leaves room for reinterpretations<sup>3</sup>.

Having explained the theoretical and methodological aspects of the study, it is possible to determine the nature of the research paper that is a combination of *exploratory* and the *explanatory* study. Thus, the first type is used for exploring the subject through an analysis of existing documentation, while the second provides deeper understanding of causality through the perspectives of insiders within the rural tourism.

### **3. The experience of rural tourism in Croatia and strategic (dis)advantages of its development**

Although it is inappropriate to compare rural tourism in Croatia and the more developed European countries<sup>4</sup>, the general statistics show the possibilities of its long-term development. While the rural areas participate with 2.9% regarding the total overnight stays at the Croatian level, the same participate with 10-20% in the European terms (Ruzić and Demonja, 2013, 46). According to Eurogites<sup>5</sup>, Croatian rural households achieve 120 000 overnight stays with approximately 900 registered beds, while the annual income of rural tourism is around 4 million euros. Regarding the share of rural households in the totality of rural tourism in Europe, around 100 000 units with 1.3 million beds are offered, which gives an income of about 12 billion euros a year (Baćac, 2011, 175). As noted, rural tourism includes other forms of accommodation in addition to rural households (self-catering houses, hotels, campsites, breakfast and bed, etc.), as well as a variety of activities besides accommodation and catering, so total revenues are undoubtedly higher.

In contrast to countries with a long tradition of rural tourism, such as Austria, Germany, France, the Netherlands, England and Sweden (some of the most receptive and emissive areas of such type of tourism), which have begun to intensively develop rural tourism in the 1970s<sup>6</sup> due to the economic restructuring of rural communities, rural tourism in Croatia started gaining momentum only in the 1990s. The above mentioned countries already have a highly

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<sup>3</sup> Atkinson et al. (2001) emphasize the desirability of such a practice in qualitative studies because it discredits "totalizing" views on society and culture.

<sup>4</sup> Štambuk (2002: 18-20) emphasizes that *recomposition* in Croatia, as a developmental phase of the village areas after its *decomposition* during the socialist period, has not yet begun. Characterized by leaving the village due to the forced industrialization and urbanization, in European terms decomposition ends in the mid-20th century, when the village started to be revitalized due to non-agricultural population while agricultural production has been modernized with a decline in the share of farmers in the occupational structure. Together, this leads to a greater complexity of social relations and boosts the social structure. The author considers the development of the tertiary and quaternary sectors (which also includes tourism) as a necessary precondition for recomposition of Croatian rural social system.

<sup>5</sup> It is the acronym for the European Federation of Rural Tourism, which includes 35 organizations from 27 European countries. Its activities are networking at the international level, professional representation in European organizations, training, marketing, definition of quality standards and branding. At the European level, some other organisations deal with similar issues, such as the European Centre for Ecological and Agricultural Tourism (ECEAT) and European Council for the Village and Small Town (ECOVAST) (Petrić, 2006, 157-158).

<sup>6</sup> Although the rural area has attracted people since the time of Ancient Greece and Rome (Olympic Games, visits to healing springs, spas, villas - summer houses, etc.), beginnings of modern European rural tourism are associated with a small village Chândal a la Jaive in Provence (France) where a pilot project of self-catering house was launched in 1951. Traditionally built barn was converted for tourism purposes. Through economy recovery, it was sought to stop the emigration (Baćac, 2011, 11).

developed "bottom-up" approach, while European Union suggests the same for present day Croatia. It implies decentralization of planning of rural tourism at the local and regional level through the use of valid strategies that are harmonized with the natural and cultural context (Croatian Tourism Development Strategy till 2020, 2013). The transition to multi-party system and capitalism has spurred the interest for development of rural tourism after several decades characterised by the neglect of rural areas.<sup>7</sup>

Positive economic effects of tourism were already evident during the socialist period when the "sun and sea" tourism began to develop due to the oversupply of newcomers in the coastal cities for which there was no place in industrial production. Even then rural tourism existed in some littoral and island villages, but was not recognized as a concept at the national level (Petrić, 2006, 162). It developed sporadically until 1995, when the Ministry of Tourism started to implement education on the subject and gather information on the ground. Activities were focused on the development of rural households. In addition to the aforementioned ministry, an important role in finding suitable farms and animation of their owners for the refurbishment of facilities and the provision of tourism services had the experts of the Institute for Tourism as well as organisations Croatian farmer, Member club "Village" and Croatian Chamber of Economy (Ružić and Demonja, 2013, 45-46). Istria County became first involved in significant development of rural tourism. Number of rural households started to increase significantly since 1998, when there were 32 rural households, while the number was doubling on an annual basis until 2000, when 151 rural households were registered in total (Demonja, 2014, 76). Since then, the growth of their numbers slowed, while the recent information published by the Ministry of Agriculture suggests "unreasonably low level of representation, with 447 rural households that are very unevenly distributed across counties" (Rural Development Programme, 2014, 25).

Demonja (2014: 75) points out that the period from 1999 to 2004 was marked by weaker activities on behalf of the ministries regarding the rural tourism development (financial supports, training, etc.), in contrast to the stability of individual initiatives, while the government has been engaged significantly in the revitalization of the rural areas since 2004, particularly the Ministry of Tourism, Ministry of Agriculture and Ministry of Economy, which passed various measures for stimulation of rural development, such as financial programs, (co)funding of projects and favourable credit lines (Rural Development Strategy 2008-2013, 2008). Similar programs are offered by the regional and local governments, as well as the business sector and professional associations. The funds are intended for the public, private-profit and non-profit sectors, which are often stimulated for joint activities due to the strengthening of resources and comprehensive actions.

The pre-accession funds of the EU were available for the purpose of economic recovery through rural tourism, such as Special Accession Programme for Agriculture and Rural Development (SAPARD), Instrument for Pre-Accession Assistance (IPA) and Instrument for Pre-Accession Assistance in Rural Development (IPARD). According to the Ministry of Agriculture from 2013, 144 million euros were available to Croatia just under the IPARD program, while all previous resources and programs have been intended to prepare the former candidate country for the use of the European Agricultural Fund for Rural Development (EAFRD), intended for EU member countries. With regard to the EARFD, approximately two billion euros will be available for Croatia during the period from 2014 to 2020.<sup>8</sup> As was the case

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<sup>7</sup> Socialist (planned) economy was forcing the industrialization and urbanization, while the agricultural property was constantly reduced to prevent the establishment of a market economy and its origins in a rural area (Kušen, 2003). Disrepair of arable land, schools, clinics, houses and other buildings has become a reflection of the negative demographic and socio-economic processes (Nejašmić, 2005).

<sup>8</sup> This should be seen as an opportunity rather than resources that will surely be assigned. Utilization of funds depends primarily on applying highly evaluated proposals by the contracting authorities.

with the pre-accession funds, only a portion of the funds will be directly aimed at the development of rural tourism as financing includes nineteen measures, while Measure 6 involves the development of agricultural and non-agricultural activities in rural areas. Approximately 240 million euros will be available for this purpose (Rural Development Programme of the Republic of Croatia, 2014, 392). However, significant investments in the sector may be indirect. The Rural Development Programme of the Republic of Croatia (2014-2020), which serves as a basis for tendering within the EAFRD, sets comprehensive goals, priorities and measures for the integrated development of rural areas. Thus, it is intended to restore and improve ecosystems, promote organic agriculture, devise strategic documents on the development of rural areas, raise entrepreneurial awareness among the local population, encourage networking into associations and public-private partnerships, build museums, playgrounds, hiking trails, squares, parks, markets, etc. These factors can significantly contribute to the recognition of tourist destinations, invigorating their natural and anthropogenic basis.

*Table 1 SWOT matrix of rural areas in the Republic of Croatia*

<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Preserved environment	The weaker availability of physical infrastructure in relation to urban areas	Stable macroeconomic indicators at the national level	The slow process of structural reforms
Landscape diversity	A lower level of social infrastructure compared to urban areas	The quality of the highway and the development of telecommunications	Depopulation and aging processes in rural areas
Cultural and historical heritage	Financially and organizationally weak local authorities	New trends in tourists' demand	Extremely uneven regional development
Traditional skills and products	Abandoned settlements and abandoned arable areas	The favourable geographic position of the Republic of Croatia	Slow demining progress in areas that were affected by the Homeland War
Forest areas with the potential for hunting and timber industry	The lower level of education than in urban areas	Strengthening the multifunctional role of agriculture and rural areas in the economy and society	Low employment and higher dependence on social transfers in rural areas
The diversity of agricultural production	Low level of initiatives at the local level	The trend of decentralization within the rural and regional development of the EU	Lack of coordination between the programs and activities in rural areas
SMEs sector in developing	Underdeveloped waste water management and waste management	Strengthening the sector of energy production regarding the renewable sources	The low degree of organization of civil society and local initiatives
The upward trend of rural tourism	Lack of experience and knowledge regarding the rural development programs	Horizontal and vertical alliances aimed to increase the competitiveness	The high incidence of environmentally vulnerable areas
Groups and individuals with experience in the regional planning	Fragmentation and disunity of entrepreneurial initiatives	Changes in the consumers' minds with regard to nutrition, animal protection and environmental protection	Problems with ownership of real estate and real estate markets
The rise of entrepreneurial initiatives	Labour shortages in rural areas	Expanding the market without trade barriers	Aversion to rural lifestyle in the social system
Centralized monitoring of forest areas		Pre-accession and other EU funds	

*Source: Rural Development Strategy (2008-2013), pp. 32-33*

Efforts of the Programme towards strengthening the planned development of rural areas and raising the education of rural population are indicative. According to the SWOT analysis within the Rural Development Strategy (2008-2013), next factors are listed as some of the fundamental weaknesses of the rural area: a low level of initiatives at the local level, a low level of education in relation to urban areas, a lack of experience and knowledge regarding the rural development programs, a poor physical and social infrastructure when compared to urban areas, labour shortage as well as financially and organizationally weak local authorities. Some of the main threats are depopulation and aging processes, low employment and higher dependence on social transfers. Among other things, next indicators are listed as strengths and opportunities: the upward trend of rural tourism, preserved environment and diverse natural and cultural heritage (strengths), new trends in tourists' demand, decentralization policy within the rural and regional development of the EU, favourable geographical position of Croatia as well as the pre-accession and other EU funds (opportunities) (see Table 1).

Given the time distance of the publication of the strategy, the validity of some indicators can be discussed (the stable macroeconomic indicators at the national level, the sector of small and medium-sized enterprises in developing, etc.). However, the discussed factors continue to determine the rural area. According to the administrative organization of the Republic of Croatia, in addition to 128 cities, there are even 428 municipalities (Statistical Yearbook, 2014, 59), many of which do not have the financial and operational capacity for strategic development (Croatian Tourism Development Strategy till 2020, 2014, 24). A negative natural increase has determined Croatia since the 1990s, while a net migration with foreign countries has shown negative indicators since the 2009<sup>9</sup>. In comparison, a negative natural increase has been very noticeable phenomenon in rural areas since the mid-1970s, while a negative migration balance has been present even earlier (Akrap, 2002, 62-63). Therefore, a worse average education of rural population is not surprising (percentage of people who have completed only a primary school, while having 15 years of age or more, is twice higher than in urban areas, ranging from 20 to 35%). Furthermore, rural population has greater exposure to poverty and social exclusion (38.1% in rural areas while the national average is 20.5%) (Rural Development Programme of the Republic of Croatia, 2014).

Spotting the animosity toward "rural" in the social system, especially because it is the opinion of public authorities<sup>10</sup>, puts an emphasis on the claims of sociologist Štambuk (2002: 27) on the "astonishing indifference of politicians for the research results of rural areas within the social sciences and humanities, with regard to population and area categorized as rural social segment, which determined the number of scientists and research papers that discuss this subject". In addition, rural tourism in Croatia does not possess a long-term developmental history. Therefore, a small number of authors who systematically study this issue is not surprising. The potential for strengthening the scientific deficit in the study of rural tourism has legislation that prevents registration of restaurants and other tourist activities as rural households if a precondition of agricultural production isn't satisfied. Considering that the total supply of such products and services can be a very diversified, it is obvious that the law contributes to the obstacles for monitoring the development of rural tourism. The individual statistics are made only for rural households. Demonja (2014: 75) argues that neither such statistics are updated regularly. He stresses that the last publicly available records date back to 2007.

Unfavourable role for monitoring the state of rural tourism has also a non-adoption of a nati-

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<sup>9</sup> This trend overlaps with the strengthening of economic recession in Croatia (see Statistical Yearbook 2012, 2013 and 2014).

<sup>10</sup> Rural Development Strategy (2008-2013) is an official document of the former Ministry of Agriculture, Fisheries and Rural Development.

onal strategy for its development. On three *Croatian Congresses on Rural Tourism with International Participation*, held in 2007, 2009 and 2012, a national strategy was highlighted as one of the priorities among the conclusions. Since the rural area covers most of the national territory and nearly half the population, such tourism can contribute to improving the living conditions and economic growth through sustainable development "while preserving local identity, traditions and customs, protecting the environment and promoting indigenous, traditional and ecological production" (Baćac, 2011, 10). Although rural tourism is considered within several strategic documents of which the most relevant are mentioned in this paper<sup>11</sup>, it is clear that its potentials are not evaluated enough (at the level of priorities, measures, financial and evaluation plan, etc.). In most of them, it is considered very generally, without significant explanations which activities should be supported, when and where<sup>12</sup>. In addition to described weaknesses of rural areas, by all accounts, we should rely more on individual initiatives than major strategic planning of rural tourism at the national level. When only a few counties have adopted their tourism development strategies with an emphasis on rural areas (Zagreb, Sisak-Moslavina and Split-Dalmatia County), a quick and territorially balanced development of activities that belong to this type of selective tourism cannot be expected (Ružić and Demonja, 2013, 59).

#### **4. The Situation in the Split-Dalmatia County: the Experiences of Actors in Rural Tourism**

Rural tourism is based on natural and cultural conditions of the given area. It starts with the tourist valorisation of existing resources (Kranjčević, 2010, 145). In this sense, the interviewees emphasize a good demand regarding the local products and services. Damir (42) points out that the rural household offers "typical traditional food products and specialties. One can also ride horses. Finally, a tour of Biokovo Mountain crags is available". Besides adventure tourism (horse riding, rafting, biking and hiking) and accommodation, local gastronomy is also a part of the offer of the rural hotel Sv. Mihovil, as well as the eco-ethno village Škopljanci. Eco-ethno village has accommodation capacities too, while its offer is broad and makes integrated complex of local heritage. As Jure (40) emphasises:

"We possess a museum, eco garden and farm animals that are used in catering purposes. We present folklore. The sports facilities, picnic spots and a children's program are another part of the offer. We possess 1745 exhibits of retro objects, 45 folk costumes and numerous musical instruments. There are three old rustic taverns and a hall with a capacity of approximately 300 seats. We hold different events such as bullfighting, rural Olympics, carnivals, midsummer night's ceremony and a Miss Dalmatia hinterland pageant. There is an oak tree forest that is protected as a natural monument, while the village is protected as a cultural monument. The perspective is excellent. We have invested a lot."

Frane (37) emphasises the profitability of rural tourism too. His job is rafting and canyoning. "With the current resources, I make enough money for me and my family, despite the fact that I am one of the smallest contractors. I work with two boats. During high season, rafting is consumed by a thousand people a day. There are around 20 companies engaged in this kind of business. Each of them has three to four boats whose capacities are fully utilized during the morning and afternoon tours. Around eighty boats are driven in the morning hours and a little

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<sup>11</sup> Its importance is undoubtedly stressed in the *Strategic Development Framework (2006-2013), Government Programme for the mandate 2008-2011, Croatian Tourism Development Strategy till 2010*, etc.

<sup>12</sup> Finally, it is the case with the Rural Development Programme of the Republic of Croatia (2014-2020). The concept of rural tourism is rarely mentioned and explained through several pages of the document that contains a total of 420 pages.



less during the afternoon. Seven to eight people fit in each of them. So, it is close to a thousand people a day that consume rafting. The situation has been the same over the last few years”.

Participants suggest that business success depends on the design of the offer, which often combines several products and services, which can attract different target groups. Petrić (2006: 43) points out that it is necessary to meet the aspirations of visitors to the consumption of cultural and educational elements, especially through the participation in activities and daily life of residents. Visits to Croatian rural destinations are also motivated by extreme pleasures of outdoor activities and desirable health impacts (Ružić and Demonja, 2013, 46).

Results confirm that rural tourism does not destroy nature. There is no need to construct major new facilities, while such tourism seeks the best way to use existing resources (Rajko, 2013, 50). Rural hotel, eco-ethno village, rural household and self-catering house that are presented in this study have been created by restoration and adaptation of family-owned buildings. Their valorisation for tourism purposes informants often associate with the degradation of unused assets whose adaptation enables a good life in the countryside. Mario (28) emphasizes that his family “went into business with a self-catering house by renovation of the old family-owned houses that have been without tenants for years. It was sad to see that such a capital collapses in the middle of nature, near the arable land and the lake.”

In the presented cases, tourism is generally based on the desire to stay in the countryside to preserve heritage. Therefore, dealing with financially feasible activities is an existential precondition. Jure comments typically: "I wanted to keep the life in the countryside, preserve old customs and provide guests with the beauties of this region. We have a lot to show." Damir emphasizes that his father, who was a rancher at Biokovo Mountain in the 1960s, has introduced him into the business. "I have been in love with the business since childhood. I found myself by working on our ranch. Simply, I enjoy it! I am outside the city, I live alone on the mountain and that's the future I desire."

Even if one owns valuable assets, rural tourism requires cautious planning. It is important to keep in mind that an offer should be developed gradually - usually due to disadvantages of the political and economic environment. Indeed, it is not easy to succeed. This is confirmed by Ivan's (49) case:

"I am an entrepreneur, like the other members of my family. We've always been here. We were looking for the best developmental opportunities. We had a bar before the Second World War. After 1965, we were allowed to start new businesses. We opened the restaurant immediately. Later we built our hotel. Then we struggled with that. Who knows what else we could have made if we had not encountered major economic crisis. Croatia has always been in some kind of crisis. First there was war, and the post-war period was difficult too. In the end, the weakest are always affected the most. Indeed, Dalmatian hinterland is weak. Especially, when considering the economy, but also infrastructure, demographics, etc.

His further comment shows that informing the public about rural tourism activities as well as well thought out market analysis can be crucial for success:

"We built the hotel through the adaptation of the restaurant when they began to build a golf course in the City of Trilj. The golf course failed when the war started. At that time, I was a graduate student of tourism. I studied the global trends. I saw the possibility of active holidays, i.e. adventure tourism. While I was developing my thesis, I studied family hotels in Italy and France, gathering a lot of information on the bu-

siness success of such hotels in countryside. As one of the pioneers, my family has started rafting, canyoning and kayaking on the Cetina River. We learned from the professionals that were active on the Dobra River. Then it was in the beginning. We came here and made a similar story."

One of the reasons why interviewees started their business were the finances i.e. the improvement of their material conditions. However, business development has often required considerable financial sacrifices. This is not the case with Mario who stresses that his family "owns a few shops along the coast and the hinterland. But still, at the beginning of the self-catering house, a great effort of the whole family was invested", including his father, five brothers and sisters and him as well. For Frane, who was unemployed, a low level of investment made the situation a lot easier regarding the service business registration and purchasing of two boats. "I spent approximately one thousand kunas to register my service business. Equipment wasn't expensive too. My parents helped me financially. I took out a small loan. However, it was understandable to avoid loans. This is still a new branch in which you can earn something, but the opposite is also true. Only the earned money, I invest in business development."

Damir and Jure both emphasize great sacrifices. "When the war was over, we had no money. We had to make a plan even before buying a sack of cement. When we bought it, we had to bring it to the ranch and begin construction. But, we have owned a beautiful location on the Biokovo Mountain which is now a boom in the tourist industry. However, a perseverance and work have brought us success." The following Jure's comment perhaps best illustrates why rural tourism is developing slowly in this area. The causes may be sought in the lack of organization and lack of necessary professional capacities of national, regional and local authorities and the population, the large capital which sometimes needs to be invested, as well as a poor economic, demographic and communal situation in the villages. "A huge amount of money was needed due to the expensive renovation of the old houses made of stones, some of which have collapsed to the ground. We had to rebuild them with such materials, according to original construction parameters. The project was entered with a hundred thousand deutsche marks of loans and debt to state that gave us the cows that were sick. Likewise, authorities have given us the incentive for planting the almonds. A natural disaster has occurred and everything went dry. The authorities have given us the wrong directions. Nevertheless, we had to pay incentives. Then we continued with financial deficit. We have invested a lot, sold the house, real estates, abandoned our comfortable life and continued to live here where only in 1976 the electricity was introduced. However, the water supply is still missing, while the Internet access could be considered as a science fiction. In the 21st century, we do not have basic supplies, while the costs for utilities are similar to those of the capital of Croatia. "

Previous arguments make unreliable the statements on rural tourism as an ideal area for lifestyle entrepreneurs that seek for autonomy, keeping the family together and a certain way of life, uninterested in a significant strengthening of the economy (Petrić, 2006, 146). Although all interviewed emphasize the features of their tourism as a "family business", they often employ local population and point out their influence on the development of the local economy. They want to develop their businesses. Of course, the high-quality preconditions are needed. In this sense, Ivan points out:

"My parents and I have always strived to employ the other members of the family, while the local inhabitants have been an important workforce since the beginning of our business. However, we cooperate within a broad network of entrepreneurs, consisted of carriers, rural households, skippers, cafes, nightclubs, etc. Tourism seeks a broad inclusion. I financed the construction of the pool last year. The local companies have done this. I have just hired another local company to build a lift. Later, a local painter will decorate it. Again, the curtains should be changed. A seamstress from Trilj

will earn around ten thousand kunas. Since the last two years, I have invested 250 thousand euros. All the money has remained in Trilj and the surrounding area.

Frane emphasizes the importance of employing local people in order to reduce further emigration from rural areas. "When I have too much of work, I hire some guys from the village using the employment service mediation. It's their extra income. For some of them, it is the only one. Rafting is the only way out for many local guys. What else would they do if rafting did not appear in the late nineties? There is already a deficit of people in rural areas. It would be even worse if the youngsters emigrate to larger cities or abroad. There are 20-25 local rafting companies, while canyoning spreads. Each company hires four to five skippers, so there are 100-130 skippers along the Cetina River every summer season."

Informants indicate a good informal cooperation with the local population in terms of mutual promotion, logistics support in the realisation of activities and events, etc. This is important because it creates the potential for community development and creation of the tourist destinations wherein the relationships with the guests are crucial. Rural tourism is not targeted at the masses, but develops a personal approach towards guests with whom an everyday life is shared (Baćac, 2011). Damir explains: "The inhabitants support me verbally with kind words down the road. Their nice statements motivate me because it is obvious that I contribute to our community at least with an original and interesting offer." Furthermore, Mario emphasizes that several times a year he organizes parties for his friends and other inhabitants, while tourists are frequent participants too. "We gather in a restored tavern not far from my home. We make a barbecue and go bowling. Foreign tourists come often. They socialize with us. Some friendships arise." Finally, Frane believes that mutual respect leads to a reciprocal benefit:

"I am often a sponsor of sports and cultural events. Furthermore, my organisation cooperates with the local fire department. Our firefighters visit their colleagues and other fire departments in Croatia. When their colleagues come to Zadvarje, rafting is the biggest attraction. Firefighters from Vukovar, Osijek, Koprivnica and some other places have been here more than once. Sometimes, I do rafting for them free of charge, while sometimes they pay. In such cases, the salary is not important, as the feelings of honesty, solidarity and unity are."

Interviewees generally do not cooperate with the profit sector when designing their products and services because it is not a so developed offer in need of such support. They cannot cooperate with non-governmental organisations due to their underdevelopment in rural areas. None of the informants took a part in the EU projects. The lack of own knowledge regarding this subject is noticeable. The situation is a bit different considering the rural hotel in Trilj which offer is a very diversified. It is located in the metropolitan area so the civil society conditions are somewhat better, although the apparent lack of knowledge and professional staff. Ivan emphasises the collaboration with for-profit and non-profit sectors as an important factor in ensuring the quality of the business:

"We work with the miller in Grab, farmers on Kamešnica and people who deal with other services. For instance, rural households and various services providers among the Cetina River. People are often not professionals or initiators. You should initiate. It will be much better once you get people involved in tourism educated to the extent that they would initiate. I have to take my staff when coming to miller or to Kamešnica to fake on the authentic conditions. Again, this means that people need help to find out how to treat guests, exploit the potentials and develop the offer. Then services bind all the time. The local governments should promote development, support people to learn how to manage the entire process. Tourist boards are very important stakeholder considering the strategic development, while local governments have become

aware that it is possible to do something. When possible, it is necessary to utilize their capacities."

Participants consider the relations with the government and the public sector as unfavourable, while the public administration is seen as a serious threat to their future business. They identified the complexity and instability of legislation and procedures, as well as indifference, incompetence and specific suppression of activities along the political lines. As Damir claims:

"They do not care. They are even not informed what happens here. Is it out of ignorance or negligence, I really do not know. We encounter obstacles that neither the administration often knows how to solve. Let's say for this part of the Nature Park Biokovo. The local administration usually needs to consult with the others to get some information. It is always someone waiting, waiting, call forwarding, redirecting. "

Jure clearly suggests the indifference of local authorities for the development of community, stating how he has built an electrical substation for the development of his eco-ethno village, while the mayor even did not know for all this. Lack of interest can be even more trivial: "Chinese tourists came with two buses a few days ago. I asked the authorities to put a street lights on the bus stop. They did not listen so I had to use a flashlight. The visitors found it interesting. Flashlights are our standard for the 21st century. The authorities should put the street lights because they are paid for that. However, I have decided to finance it on my own. I cannot wait such a long time." Furthermore, Jure describes how it looks like when you are completely prevented to start a new business: "I have experience with starting a camp. Everything is unclear. Regulations are sluggish, while it is difficult to deal with the mass administration which cares only for itself. The prosperity of the community is not important as much as its own pleasures. A typical attitude is to cut you down. Otherwise, you are supposed to come repeatedly with a lot of papers, requirements, etc."

As a major threat to their businesses, participants state elements of what they see as an opportunity at the same time - the future of tourism destinations, which is like Janus. Development should be based on strengthening supply all within the destinations, otherwise there will be a disappearance of rural tourism for the benefit of other counties that will be competitive (Rural Development Programme, 2014). As it Ivan explains: "You cannot act alone on the market. We have recently created the destination. If it does not develop significantly, a danger is decreasing the quality of experience. Our way of rural tourism is very popular at the moment. But, when it stops to be a hit, we should put an emphasis on the quality." The informants as well as relevant documents suggest the significant tourist attractions of the Dalmatian hinterland and good transport connections with the coast where rural tourism can support the basic offer of the "sun and sea" destinations. Therefore, it is necessary to find the new ways of animating such activities due to the increasing tourists' interest in Croatia and Split-Dalmatia County.

## **5. Conclusion**

The conditions of rural tourism are similar at the level of Croatia and Split-Dalmatia County. This effect is enhanced by the consequences of the socialist period, when the perspectives of the rural areas were suppressed in a uniform way for decades. Since the 1990s, the political and economic decentralization has occurred. Although a single part of the Croatia cannot be exempt from the impact of social spheres at the national level, decentralization promotes the autonomy of action and social changes. A certainly positive example in terms of the rural tourism is Istria County. Its tourist traffic constantly increases. However, there is a considerable scope for strengthening the offer, as evaluated by visitors (Ružić, 2012, 230). Positive changes are also taking place in Split-Dalmatia County, which belongs to the rare counties

with the strategy of development of rural tourism. Although many activities are financed every year (Stella, 2010, 440), the share of rural tourism in the overall tourist traffic remains unchanged and very low. As in other regions, the limiting factors are burdening bureaucracy, inadequate and unclear legislation, lack of initiatives by the public authorities, general lack of knowledge, poor municipal infrastructure, etc. The wide presence of the problem suggests a strong structural impact on the lives of individuals. However, their answers to the social reality are equally important. As the strength of their businesses, informants generally claim a quality of work and persistence, i.e. the successful resolution of many (especially administrative) obstacles. Our respondents actively change their living environment. A typical example is Jure. He points out that the local residents have established new attractions without any assistance (rural Olympics, Miss Dalmatia hinterland pageant etc.). Undoubtedly, interviewees contribute to the local economy and preserve the environment, which they consider as their "office and playfield". Informants intend to develop a tourist offer (mainly accommodation) which shows a good prospect of such activities. However, significant development requires the inclusion of a number of people - public sector professionals, entrepreneurs, non-governmental organisations, etc. Despite of the many attractions as well as demographic potentials which are favourable still, there is a lack of knowledge and resources in Dalmatia hinterland, which is similar to many other rural areas in Croatia. These factors should be planned and improved according to further elaborations in strategic documents adopted at the local, regional and national levels (Ružić and Demonja, 2013, 59), especially because of the amount of money available from the EU funds. In this case, such documents should be considered as a valuable tool for changing attitudes of individuals and groups on the basis of emerging social changes (Relja and Alfirević, 2014, 453). This is the only way to revitalize the rural areas.

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## **ANALYSIS OF SOME IMPORTANT INDICATORS OF THE CROATIAN ELECTRIC POWER DISTRIBUTION SYSTEM**

### **ANALIZA BITNIH POKAZATELJA STANJA DISTRIBUCIJSKOG SUSTAVA U OKVIRU HRVATSKOG ELEKTROENERGETSKOG SUSTAVA**

#### **ABSTRACT**

*The competitiveness of market participants in the European single electricity market depends on the costs of generation, transmission and distribution of electricity. Achieving distributed power generation is an important goal because the generation facilities are located near the final customers, whereby the losses of electricity in the network as well as the need for the capacity of the high voltage network are reduced.*

*The distribution of electricity in the Republic of Croatia is carried out by the HEP Distribution System Operator (HEP ODS) that manages the distribution network and facilities, as opposed to the energy activity of the distribution of natural gas that is carried out by dozens of operators in their distribution areas. Therefore, the amounts of tariff items in the Tariff system for electricity distribution, for certain categories of customers (i.e. tariff models), are unique over the entire territory of Croatia.*

*HEP ODS carries out the distribution of electricity in 21 distribution areas, which differ significantly in size, number of employees, number of customers, network length and the amount of distributed electricity. The indicators essential for the efficiency of the distribution system are analyzed in this paper, based on the modified regionalisation of distribution areas.*

*The aim of this paper is to analyze relevant data for HEP ODS and to compare these data according to the distribution areas, towards the higher efficiency of the system itself.*

**Key words:** *distribution of electricity, distribution system, regionalisation, efficiency*

#### **SAŽETAK**

*Konkurentnost sudionika na jedinstvenom tržištu električne energije Europske unije (EU) ovisi o troškovima proizvodnje, prijenosa i distribucije električne energije. Distribuirana proizvodnja električne energije, kod koje su proizvodna postrojenja smještena u blizini potrošača, predstavlja dobro rješenje, budući da se smanjuju gubici prijenosa i potreba za prijenosnim kapacitetima visokog napona.*

*Energetska djelatnost distribucije električne energije u Republici Hrvatskoj obavlja se korištenjem distribucijske mreže i postrojenja od strane HEP Operatora distribucijskog sustava (HEP ODS), za razliku od energetske djelatnosti distribucije prirodnog plina koju na svojim distribucijskim područjima obavlja više desetaka operatora. Stoga su visine tarifnih stavki u Tarifnom sustavu za distribuciju električne energije, za određene kategorije kupaca, odnosno tarifne modele, jedinstvene na području Republike Hrvatske.*

*HEP ODS obavlja djelatnost distribucije električne energije u svojim distribucijskim područjima, koja se značajno razlikuju po veličini, broju zaposlenih, broju kupaca, duljini mreže i količini distribuirane energije. U ovom su radu analizirani pokazatelji bitni za učinkovitost distribucijskog sustava, na temelju modificirane regionalizacije distribucijskih područja.*

*Cilj ovog istraživanja je istražiti relevantne podatke za HEP ODS kao cjelinu te ih usporediti po distribucijskim područjima, a u svrhu povećanja učinkovitosti samog sustava.*

**Ključne riječi:** *distribucija električne energije, distribucijski sustav, regionalizacija, učinkovitost*

## **1. Introduction**

Liberalization of the electricity sector has taken place in the EU on the basis of the Directive 96/92/EC on common rules for the internal market in electricity (1996), the Second Energy Package adopted in 2003 and the Third Energy Package adopted in 2009. Full implementation of the Third Energy Package is essential for the successful completion of the Internal Energy Market. As a result of the implementation of the aforementioned energy legislation in the Member States, electricity generation and electricity supply have been carried out as market activities. On the other hand, transmission and distribution of electricity remained regulated because network activities are considered as a typical natural monopoly.

The regulation of distribution of electricity is carried out in such a way that the network operator gets a sufficient income for the operation, development and maintenance of the distribution system with an adequate rate of return on its own investment. In general, national regulatory authorities (NRAs) approve the amount of tariff items that enable financing of the network operators. In electricity distribution, higher tariff items increase the cost of electricity to end customers. Moreover, if a manufacturing company has a high share of the cost of electricity in the final price of the product, electricity price can significantly affect its competitiveness or cause the relocation of manufacturing plants to the area with lower electricity prices.

Banovac *et al.* (2009, 2013) described the complex role of national regulatory authorities, especially related to the regulation of network energy activities. Furthermore, Banovac *et al.* (2005, 2006) conducted an analysis of the elements that are important for electricity market's efficiency and discussed implementation of distributed electricity generation with respect to regulatory issues.

In general, benchmarking is a valuable method of comparing the business process of a company to best practices from companies in the same branch of industry. Benchmarking is the most convenient method to define efficiency of the network energy activities. If regulators use international benchmarking studies, they need to agree upon procedures for data collection, standard templates and data standardization. Furthermore, the target benchmarking design depends primarily on types of utilities. Jamasb and Pollitt (2002) accentuated, in their international benchmarking study related to European electricity distribution companies, that "national energy regulators are looking for international benchmarking analyses for help in setting price controls within incentive regulation". This worthwhile study is based on data on 63 electricity distribution and regional transmission utilities in 6 European countries (Italy, Netherlands, Norway, Portugal, Spain and the United Kingdom). A more detailed overview of benchmarking is interesting, but overpasses the framework of this work. For a more detailed consideration of benchmarking, the works of Jamasb and Pollitt (2000) and Stapenhurst (2009) could be recommended.

There is only one distribution system operator (HEP ODS) in electricity distribution in Croatia. Therefore, it is not possible to use benchmarking in order to compare it with similar operators at a national level or to determine the acceptable costs of electricity distribution. Furthermore, the unique tariff item for energy activity of electricity distribution is set just due to the fact that there is only one distribution system operator, although the investment costs vary (depending on the place of investment). It should be noted that there is a big difference between electricity distribution and gas distribution in Croatia, because 35 operators carry out the energy activity of gas distribution,



and the amount of tariff items for gas distribution is lower in the continental part of the Croatia than in the Adriatic part.

In general, each development investment must be profitable. Some competitive areas may become noncompetitive due to economically unprofitable investments. Therefore, without analyzing a very complex investment problematic henceforward, it should be noted that the impossibility of an investment return in an area, in which some amount of capital is invested, may jeopardize the investor's business. Surely, it is possible that an area is subsidized albeit more cost-effective solutions for this area exist. It is necessary to create a stimulating environment for innovative solutions in order to achieve the competitiveness of non-competitive areas.

Furthermore, the district heating infrastructure will likely not be built in some areas of Adriatic Croatia due to high investment costs, but electricity will be used for heating. Consequently, electric infrastructure could be better used and large seasonal fluctuations in electricity consumption could be avoided (Pudić et al., 2009).

Investments are essential for any business, from the standpoint of economy, realization of preconditions for quality of services, long-term companies' competitiveness, sustainability of energy systems, etc. A highly efficient distribution system may result in lower costs and profitable investments. In the case of the energy activity of distribution of electricity, which represents the distribution of electricity through the distribution networks of different voltage levels for its delivery to customers (excluding supply), lack of quality indicators could result in questionable investment decisions, which could affect the amounts of tariff items. Hence, an analysis of a set of indicators significant for HEP ODS will be conducted in this paper.

HEP ODS is organized into 21 distribution areas, mostly following the principle of the constitution of counties. These organizational units vary in size several times. Therefore, there is a possibility to achieve better efficiency of HEP ODS by implementing consolidation of distribution areas. Better efficiency of the distribution system could affect the electricity price favorably and, consequently, the phenomenon of energy poverty, which is researched by Pudić et al. (2014). The data relevant to the level of HEP ODS are explored in the remainder of this paper. These data are compared by the distribution and regional levels in order to create prerequisites for increasing the efficiency of the observed distribution system.

## **2. A comparison of DSOs in the countries of the central part of South East Europe**

The distribution system operator (DSO) is the subject that controls, monitors and maintains the electricity distribution network that carries electricity from the transmission system to individual consumers. The following data relevant to the efficiency of DSOs will be considered in this paper:

- number of metering points,
- consumption of electricity,
- length of the distribution network,
- number of employees,
- losses in the distribution network.

The situation analysis of the electric power distribution systems in the central part of South East Europe (Albania, Bosnia and Hercegovina, Croatia, Kosovo, Macedonia and Serbia) is conducted in this section. These countries have one DSO, with the exception of Bosnia and Herzegovina that has four. The electric power distribution system is operated by the Croatian distribution system operator (HEP ODS) in Croatia, the Serbian distribution system operator (EPS) in Serbia, the Macedonian distribution system operator (EVNM) in Macedonia, the Albanian distribution system operator (OSHEE) in Albania, the Kosovo distribution system operator (KEDS) in Kosovo, and by four distribution system operators (EPBiH, EPHZHB, ERS and EDB) in Bosnia and Herzegovina. DSOs are state owned in Bosnia and Hercegovina, Croatia and Serbia, while DSOs in Albania, Macedonia and Kosovo are predominantly privately owned.

Basic data on DSOs for the countries of the central part of South East Europe (SEE) are given in Table 1.

**Table 1** Basic data on DSOs in the countries of the central part of SEE (2012)

Basic data on distribution system	OSHEE (Albania)	EDB (BiH)	EPBIH (BiH)	EPHZHB (BiH)	ERS (BiH)	EPS (Serbia)	EVNM (Macedonia)	HEP ODS (Croatia)	KEDS (Kosovo)
Number of metering points	1,181,950	35,970	715,411	188,918	540,615	3,554,417	827,366	2,350,885	483,251
Electricity delivered to final customers [MWh]	4,318,583	224,456	3,933,902	1,181,143	3,124,475	27,839,979	5,252,288	14,753,134	3,468,238
Supply area size [km <sup>2</sup> ]	28,748	493	17,657	11,000	24,067	77,696	25,713	56,594	10,907
Total length of distribution network [km]	45,270	2,072	34,294	12,270	46,319	153,963	19,462	105,094	19,453
Distribution network average age [yrs]	37	20	24	24	23	33	-	17	18
Number of employees	4,123	112	2,756	914	3,789	10,692	2,215	9,052	3,161
Total losses in distribution network [%]	44.96	14.2	9.36	14.01	14.87	14.14	17.41	8.68	33.52

Data source: South East European DSOs Benchmarking Study (the table is made by the authors).

Table 1 shows that Serbian EPS delivers the greatest amount of electricity to final customers (43% of total electricity delivered in the region). The second is Croatian HEP ODS, which delivers 23%. EDB in Brčko District in Bosnia and Herzegovina delivers the smallest amount of electricity to final customers (0.35%). Serbian EPS also has the highest values of almost all basic data – 3,554,417 metering points and supply area size of 77,696 km<sup>2</sup>. The table also shows that the total losses in the distribution network are the highest in Albania and Kosovo with a huge 44.96% and 33.52%, then in Macedonia with 17.41%. It seems amazing that DSOs with the highest losses are mostly privately owned. In general, if losses are included in the approved costs, there is a possibility that a private owner allows illegal electricity consumption for certain customers.

Croatian HEP ODS has the smallest total losses in the distribution network. The number of employees is the largest in DSOs in Serbia and Croatia. By comparing these DSOs, it can be concluded that although the amount of electricity delivered to final customers in Serbia is almost doubled, and the total length of the distribution network is almost 50% higher, the number of employees in Croatia is only 15% smaller. The distribution network average age amounts from 17 years in Croatia up to 33 years in Serbia. By analyzing the presented data, it can be concluded that the network age and losses in the distribution network are not directly correlated.

Important indicators for DSOs in the countries of the central part of SEE are shown in Table 2.

**Table 2** Important indicators for DSOs in the countries of the central part of SEE (2012)

Important benchmarking indicators	OSHEE (Albania)	EDB (BiH)	EPBIH (BiH)	EPHZHB (BiH)	ERS (BiH)	EPS (Serbia)	EVNM (Macedonia)	HEP ODS (Croatia)	KEDS (Kosovo)
Electricity delivered per metering point [KWh]	3,654	6,240	5,499	6,252	5,779	7,833	6,348	6,276	7,177
Electricity delivered per distribution network length [MWh/km]	95	108	115	96	67	181	270	140	178
Number of metering points per 1 km of network length	26.11	17.36	20.86	15.40	11.67	23.09	42.51	22.37	24.84
Length of distribution network per employee [km/employee]	10.98	18.50	12.44	13.42	12.22	14.40	8.79	11.61	6.15
Number of metering points per employee	286.67	321.16	259.58	206.69	142.68	332.44	373.53	259.71	152.88
Electricity delivered per employee [MWh/employee]	1,047	2,004	1,427	1,292	825	2,604	2,371	1,630	1,097

Source: The table is made by the authors.

The amount of electricity delivered per metering point is the lowest in Albania (3,654 kWh), which may indicate that the industrial consumption is much lower than in other considered countries, assuming that the average household spends 2,000 □ 3,000 kWh.

The maximum electricity delivered per metering point is in Serbia (7,833 kWh). The highest amount of electricity delivered per kilometer of the distribution network is in Macedonia (270 MWh/km). This amount is almost two times lower in Croatia (140 MWh/km), while some DSOs in Bosnia and Herzegovina have few times lower amount of electricity delivered per kilometer of the distribution network than Macedonia, which is also an indicator of the competitiveness of the electricity distribution system in Macedonia.

The next important indicator is the number of metering points per kilometer of the distribution network. This indicator shows that the highest density of connections is in Macedonia (42.51), while this density is almost twice as small in most electricity distribution systems, and even three to four times smaller in some electricity distribution systems.

Concerning the indicator that shows the length of electricity distribution network per employee, it is obvious that KEDS (Kosovo) with 6.15 km/employee is the last in this category. Furthermore, one employee covers only 8.79 km of the electricity distribution network in the case of EVNM (Macedonia). EDB has the best ratio of km/employee (18.50) although the Brčko District in Bosnia and Herzegovina is the smallest distribution area.

In Macedonia, one employee covers the most metering points (373.53). On the contrary, one employee covers only 152.88 metering points in the case of KEDS in Kosovo, and 142.68 in the case of ERS in Bosnia and Herzegovina.

According to the SEE DSOs Benchmarking Study (2015), the SEE DSOs are less efficient per employee, compared to 7 subsidiaries of the American Electric Power (AEP), which is an important electric utility in the United States. US companies have a much larger level of electricity delivered per employee (22 □ 35 GWh/employee) than SEE DSOs (even the best EPS has only 2.6 GWh/employee). Furthermore, AEP companies have the average ratio of electricity delivered per distribution network length of 480 MWh/km. Consequently, the distribution network infrastructure is more efficiently used in given AEP companies than in SEE DSOs.

### **3. The operator of the electricity distribution system in Croatia**

The Croatian electricity distribution system operator HEP ODS had 9,052 employees in 2012. The total number of measurement points was 2,350,885. The supply area size was 56,594 square kilometers. HEP ODS comprises 21 distribution areas that vary in size and values of indicators. Due to large differences between these areas, a potential restructuring with the aim of decreasing the number of distribution areas could be opened for analysis. Basic data on the HEP ODS' distribution areas (number of employees, number of metering points, electricity delivered to final customers, length of the distribution network, supply area size and losses in distribution network) are shown in Table 3.

Observing the data shown in Table 3, it is obvious that the distribution areas vary up to 10 times by the number of employees, and up to 20 times by the criteria of the number of metering points and the electricity delivered to final customers. HEP ODS has 56 workers at the company's headquarters in Zagreb. Split and Zagreb are distribution units with over 1,000 employees and over 15,000 kilometers of distribution network. Four distribution units have over 1 million MWh of electricity delivered to final customers.

The values of important indicators, for the distribution areas of HEP ODS, are shown in table 4. The indicators are:

- electricity delivered per metering point,
- electricity delivered per distribution network length,
- electricity delivered per employee,
- number of metering points per kilometer of network length,
- length of distribution network per employee,
- number of metering points per employee.

**Table 3** Basic data on HEP-ODS' distribution areas (2012)

Distribution area	Number of employees	Number of metering points	Electricity delivered to final customers [MWh]	Total length of distribution network [km]	Supply area size [km <sup>2</sup> ]	Total losses in distribution network (%)
Zagreb	1,343	542,013	3,761,667	17,419	2,550	7.95
Zabok	305	66,635	416,449	5,475	1,235	10.07
Varaždin	293	70,023	480,111	5,491	1,003	6.58
Čakovec	172	46,133	318,502	2,974	730	5.74
Koprivnica	239	52,671	314,761	4,754	1,645	5.11
Bjelovar	243	51,103	286,782	3,899	1,789	6.95
Križ	358	77,811	426,853	5,706	3,992	7.28
Osijek	732	153,776	929,046	7,580	4,152	10.32
Vinkovci	298	81,890	467,990	4,293	2,448	8.82
Slavonski Brod	261	64,696	354,232	3,345	1,983	8.40
Pula	562	150,817	1,104,314	7,778	2,813	6.36
Rijeka	728	208,588	1,398,758	9,959	3,574	8.08
Split	1,174	281,093	1,773,227	16,414	5,030	10.88
Zadar	401	117,012	664,509	8,071	2,693	9.58
Šibenik	389	85,030	414,197	7,078	3,031	10.84
Dubrovnik	223	52,457	413,294	4,379	1,434	13.55
Karlovac	382	86,990	479,070	5,935	4,300	10.82
Sisak	346	57,871	328,910	6,040	3,204	6.80
Gospić	264	46,897	193,289	5,676	6,408	12.34
Virovitica	135	30,219	159,127	2,421	1,431	5.39
Požega	148	27,160	165,744	1,940	1,251	6.91

Data source: Annual Report of HEP ODS in 2012 (the table is made by the authors).

**Table 4** Values of important indicators for HEP-ODS' distribution areas (2012)

Distribution area	Electricity delivered per metering point [kWh]	Electricity delivered per distribution network length [MWh/km]	Electricity delivered per employee [MWh/employee]	Number of metering points per 1 km of network length	Length of distribution network per employee [km/employee]	Number of metering points per employee
Zagreb	6,940	215.95	2,801	31.12	12.97	403.58
Zabok	6,250	76.06	1,365	12.17	17.95	218.48
Varaždin	6,856	87.44	1,639	12.75	18.74	238.99
Čakovec	6,904	107.10	1,852	15.51	17.29	268.22
Koprivnica	5,976	66.21	1,317	11.08	19.89	220.38
Bjelovar	5,612	73.55	1,180	13.11	16.05	210.30
Križ	5,486	74.81	1,192	13.64	15.94	217.35
Osijek	6,042	122.57	1,269	20.29	10.36	210.08
Vinkovci	5,715	109.01	1,570	19.08	14.41	274.80
Slavonski Brod	5,475	105.90	1,357	19.34	12.82	247.88
Pula	7,322	141.98	1,965	19.39	13.84	268.36
Rijeka	6,706	140.45	1,921	20.94	13.68	286.52
Split	6,308	108.03	1,510	17.13	13.98	239.43
Zadar	5,679	82.33	1,657	14.50	20.13	291.80
Šibenik	4,871	58.52	1,065	12.01	18.20	218.59
Dubrovnik	7,879	94.38	1,853	11.98	19.64	235.23
Karlovac	5,507	80.72	1,254	14.66	15.54	227.72
Sisak	5,684	54.46	951	9.58	17.46	167.26
Gospić	4,122	34.05	732	8.26	21.50	177.64
Virovitica	5,266	65.73	1,179	12.48	17.93	223.84
Požega	6,103	85.44	1,120	14.00	13.11	183.51

Source: The table is made by the authors.

Based on the data shown in Table 4, it can be concluded that the distribution area of Zagreb has the best indicators except for electricity delivered per metering point because the distribution areas of Dubrovnik and Pula delivered more electricity per metering point. The distribution area of Gospić has the lowest amount of electricity delivered per distribution network length (it is almost two times less than the first that follows). The distribution area of Zagreb has the highest amount of electricity delivered to final customers, the highest amount of electricity delivered per distribution network length, the highest amount of electricity delivered per employee, the highest number of metering points per kilometer of network length and the highest number of metering points per employee. Considering large differences between the distribution areas of HEP ODS, an option of its reorganization in the distribution system operator with larger (regional) distribution areas could be researched, just as an opportunity for achieving higher efficiency. The effects of the hypothetically reorganized HEP ODS, based on the model of the organization with six regional distribution areas chosen by the authors, are presented in the continuation of this paper. The values of basic data on such hypothetically reorganized HEP ODS are calculated by the authors (Table 5).

**Table 5** Basic data on the hypothetical HEP ODS, which is reorganized based on the principle of regionalisation

	Number of employees	Number of metering points	Electricity delivered to final customers (MWh)	Total length of distribution network (km)	Supply area size (km <sup>2</sup> )	Total losses in distribution network (%)
<b>DA-1 (Zagreb)</b>	<b>1,343</b>	<b>542,013</b>	<b>3,761,667</b>	<b>17,419</b>	<b>2,550</b>	<b>7.95</b>
Zabok	305	66,635	416,449	5,475	1,235	10.07
Varaždin	293	70,023	480,111	5,491	1,003	6.58
Čakovec	172	46,133	318,502	2,974	730	5.74
Koprivnica	239	52,671	314,761	4,754	1,645	5.11
Bjelovar	243	51,103	286,782	3,899	1,789	6.95
<b>DA-2</b>	<b>1,252</b>	<b>286,565</b>	<b>1,816,605</b>	<b>22,593</b>	<b>6,402</b>	<b>6.89</b>
Osijek	732	153,776	929,046	7,580	4,152	10.32
Vinkovci	298	81,890	467,990	4,293	2,448	8.82
Slavonski Brod	261	64,696	354,232	3,345	1,983	8.40
Virovitica	135	30,219	159,127	2,421	1,431	5.39
Požega	148	27,160	165,744	1,940	1,251	6.91
<b>DA-3</b>	<b>1,574</b>	<b>357,741</b>	<b>2,076,139</b>	<b>19,579</b>	<b>11,265</b>	<b>7.97</b>
Pula	562	150,817	1,104,314	7,778	2,813	6.36
Rijeka	728	208,588	1,398,758	9,959	3,574	8.08
Gospić	264	46,897	193,289	5,676	6,408	12.34
Zadar	401	117,012	664,509	8,071	2,693	9.58
<b>DA-4</b>	<b>1,955</b>	<b>523,314</b>	<b>3,360,870</b>	<b>31,484</b>	<b>15,488</b>	<b>9.09</b>
Split	1,174	281,093	1,773,227	16,414	5,030	10.88
Šibenik	389	85,030	414,197	7,078	3,031	10.84
Dubrovnik	223	52,457	413,294	4,379	1,434	13.55
<b>DA-5</b>	<b>1,786</b>	<b>418,580</b>	<b>2,600,718</b>	<b>27,871</b>	<b>9,495</b>	<b>11.76</b>
Karlovac	382	86,990	479,070	5,935	4,300	10.82
Sisak	346	57,871	328,910	6,040	3,204	6.80
Križ	358	77,811	426,853	5,706	3,992	7.28
<b>DA-6</b>	<b>1,086</b>	<b>222,672</b>	<b>1,234,833</b>	<b>17,681</b>	<b>11,496</b>	<b>8.30</b>

Data source: The table is made by the authors.

Note: DA - Distribution Area

The calculated values of important indicators (ratios), for the considered model with larger regional distribution areas, are presented in Table 6.

Analysis of the data presented in tables 5 and 6 shows that the concentrated distribution areas no longer differ 10 □ 20 times, but only up to three times. According to the considered model, the number of employees would be in the range of 1.086 (DA-6) to 1.955 (DA-4). The number of metering points would be over 200,000 and the distribution network length would be over 17,000

km in all DAs. The distribution areas organized according to the considered principle would have a real possibility to reduce the fixed costs and to increase efficiency.

**Table 6** Values of important indicators of the reorganized distribution areas, based on the principle of regionalisation

Distribution area	Electricity delivered per metering point (kWh)	Electricity delivered per distribution network length (MWh/km)	Electricity delivered per employee (MWh/employee)	Number of metering points per 1 km of network length	Length of distribution network per employee (km/employee)	Number of metering points per employee
DA-1	6,940	215.95	2,801	31.12	12.97	403.58
DA-2	6,339	80.41	1,451	12.68	18.05	228.89
DA-3	5,803	106.04	1,319	18.27	12.44	227.28
DA-4	6,422	106.75	1,719	16.62	16.10	267.68
DA-5	6,213	93.31	1,456	15.02	15.61	234.37
DA-6	5,546	69.84	1,137	12.59	16.28	205.04

Data source: The table is made by the authors.

Note: DA - Distribution Area

#### 4. Conclusion

Analysis of the values of the chosen basic data (consumption of electricity, the length of the distribution network, the total number of measurement points, number of employees, the losses in the distribution system) and of the selected relevant indicators (electricity delivered per metering point, electricity delivered per distribution network length, electricity delivered per employee, number of metering points per kilometer of network length, length of distribution network per employee and number of metering points per employee), which is conducted for the current organization of the HEP ODS (21 distribution areas) and for the hypothetically reorganized HEP ODS, based on the model of six regional distribution areas chosen by the authors, showed a significant equalization of such hypothetically reorganized regional distribution areas, according to the criteria of number of employees, number of metering points and the length of the distribution network. Consequently, there are possibilities for reducing fixed costs and increasing the efficiency of the electric power distribution system organized in larger distribution areas.

The rationalization of the distribution system of HEP ODS, along with the possibilities reviewed in this paper, would also include a broader analysis of operating costs, optimization of the number of employees, technical losses in the network, etc. In this context, there is a clear need for further researches.

Finally, we want to emphasize that, in the scenario in which more DSOs compete in a larger electricity market, the higher efficiency of a certain DSO should be manifested in the reduction of costs, which will represent its significant competitiveness if it will sell electricity to customers using the principle of market prices.

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## **SMART SPECIALIZATION – INDUSTRIAL HEMP**

### **PAMETNA SPECIJALIZACIJA - INDUSTRIJSKA KONOPLJA**

#### ***ABSTRACT***

*The notion that out of 3.15 million hectares of agricultural land in the Republic of Croatia, only 63% is cultivated, while the rest are grazing fields, and that plains mainly stretch in the area of temperate continental climate is a solid natural foundation for proposing a theory of a new trend in economic development, more precisely in the field of smart specialization, i.e. the come back of Cannabis sativa to the farming land of Croatia.*

*Upon reviewing the historical facts related to the cultivation and use of hemp on the territory of Europe from the Neolithic to becoming the legal means of tax payment in America in the 18th century and honouring the fact that, in the 60s, Yugoslavia was the sixth largest producer and exporter of hemp in the world and that, in those years, about 9,000 hectares of the territory of the Republic of Croatia were in hemp, the idea about developing a model that has already been tried and tested throughout history crystallized. The fact that over 25,000 different products such as biodegradable plastics, lightweight building panels and insulation materials can be derived from hemp speak in favour of this idea, as well as the fact that its natural biomass could cover the entire energy demand that is presently met by oil and that its seeds are unparalleled in their nutritional value as well as being an impressive source of minerals and vitamins.*

*With the proposed amendments to legislative regulations relating to the cultivation of Cannabis sativa hope is slowly restored to demotivated producers who, according to the present rules and a strict procedure, may only use the seed, while destroying the stem, but the uninformed public still remains a big issue. The presentation of the thesis of „the uninformed public“, which is a reflection of a long negative campaign targeted at hemp, and the confirmation of this premise via a survey conducted among the senior students of the high school and Polytechnic of Požega, naturally lead to the idea of a comprehensive campaign.*



*The conclusion proposes a cardinal turn in the approach to hemp through the execution of a model introducing the public to its potentials and possibilities of use, utilizing the elements of a communication mix while implementing the results of the conducted survey.*

**Key words:** *industrial hemp, smart specialization, legislation, public, marketing campaign*

## SAŽETAK

*Spoznaja da se od 3,15 milijuna hektara poljoprivrednih površina u Republici Hrvatskoj obrađuje samo 63%, dok su ostalo pašnjaci, te da se ravnice prostiru pretežno na području s umjerenom kontinentalnom klimom, dobra je prirodna osnova za postavljanje teorije novog trenda u razvoju gospodarstva i to na području pametne specijalizacije, tj. povratku industrijske konoplje (lat. Cannabis sativa) na poljoprivredne površine u Hrvatskoj.*

*Pregledom povijesnih činjenica vezanih uz uzgoj i upotrebu industrijske konoplje od mlađeg kamenog doba na području Europe, do zakonskog sredstva plaćanja poreza u Americi u 18. stoljeću, te poštujući činjenicu da je 60-ih godina Jugoslavija bila šesti najveći proizvođač i izvoznik industrijske konoplje u svijetu i da je tih godina na području RH bilo zasijano preko 9 000 hektara konoplje, jasno se javlja ideja o razvoju modela koji je već dokazan kroz povijest. Ovoj ideji ide u prilog i podatak da se od industrijske konoplje može proizvesti preko 25 000 različitih proizvoda, poput biorazgradive plastike, laganih građevinskih ploča i izolacijskih materijala te da bi njezina prirodna biomasa mogla nadoknaditi sve energetske potrebe koje se danas zadovoljavaju naftom, a da su njezine sjemenke bez premca u hranjivosti te impresivan izvor minerala i vitamina.*

*Prijedlogom izmjena zakonske regulative vezane uz uzgoj industrijske konoplje polako se vraća nada demotiviranim proizvođačima, koji prema sadašnjim pravilima uz strogu proceduru smiju koristiti samo sjeme dok se stabljika mora uništiti, ali neupućena javnost i dalje ostaje velik problem. Iznošenjem problemske teze „neupućene javnosti“, koja je odraz godinama provedene negativne kampanje usmjerene prema konoplji, i potvrđivanjem teze kroz anketu polaznika završnih razreda srednje škole i Veleučilišta u Požezi, nameće se ideja o potrebi sveobuhvatne kampanje.*

*U zaključku se predlaže kardinalni zaokret u pristupu industrijskoj konoplji kroz realizaciju modela upoznavanja javnosti s njezinim potencijalima i mogućnostima iskorištavanja, a koristeći elemente komunikacijskog miksa uz implementaciju rezultata provedene ankete.*

**Ključne riječi:** *industrijska konoplja, pametna specijalizacija, zakonska regulativa, javnost, marketinška kampanja.*

### 1. Basic assumptions

The main characteristic of Croatia is best recognized in the variety of climate, relief and soil types, which also enable a wide array of agricultural products, from Mediterranean crops and sorts to the continental ones.

Correlation facts that in the RC agriculture and fishery share in the total GDP with a total of 7.6% and that out of a total of 3.15 million ha of agricultural surface area only 63% is cultivated, confirm that there is space for strong development of agricultural production with emphasis on the introduction of smart specialization.[1]

A plant which deserves attention in terms of smart specialization and reappearance on the agricultural surfaces of Croatia is precisely hemp (*Cannabis sativa*).

This statement is best confirmed by reviewing historical facts related to the cultivation and use of *Cannabis sativa* since the Neolithic Period on the European territory to making it the legal means of tax payment in America in the 17th and 18th century and honouring the fact that, in the 60s, Yugoslavia was the sixth largest producer and exporter of hemp in the world and that, in those years, about 9,000 hectares of the territory of the Republic of Croatia were in hemp.

Table 1 shows a considerable decrease in the quantity of textile fibres manufactured out of *Cannabis sativa* in the period of a hundred years.

**Table 1** Production of industrial plants in Croatia 1900-2003

Five years	Oil crops (000 tons)			Sugar-beet (000 tons)	Tobacco (000 tons)	Textile fibres (000 tons)	
	Rape	Sunflower	Soy			Hemp	Flax
1900-4	5.2	..	..	1.3	1.8	9.7	4.2
1935-9	3.4	0.2	..	101	0.6	9.2	4.7
1951-5	3.2	11.9	0.7	261	0.9	9.9	1.8
1985-9	44.5	51.1	50.4	1.176	17.9	0.4	0.4
1990-4	27.4	41.8	50.3	821	10.5	0.2	0.1
1995-9	20.4	57.3	60.6	961	10.7	0.1	0.0
2000-3	26.5	57.2	92.3	827	10.5	0.0	0.0

Sources: I. Stipetić: *Biljna proizvodnja u Hrvatskoj 1885-1990, Agrarno-ekonomske studije, vol. 1, Zagreb 1991 and Statistički ljetopisi Hrvatske (for the period 1990 – 2003)* [2],

Although extremely important in production and processing terms, hemp lost its place among leading plants according to their exploitation.

Information that hemp can be used to produce over 25 000 different products such as paper, biodegradable plastic, lightweight building panels and insulation materials speaks in favour of this idea, as well as the fact that its natural biomass could cover the entire energy demand that is presently met by oil is additional food for thought regarding the possibilities this plants has to offer today, which has led to research being conducted here as well, with the aim of obtaining the highest quality raw material for construction materials. [3]

If we take the plant as a whole, the bark of *Cannabis* has the longest and the strongest fibres of all plants and they are also elastic, long-lasting and water-resistant making them a natural choice for the production of cordage, ropes, sails, clothes, shoes, tarpaulin, tents, fire hoses and similar products. The woody part of the plant is used for the production of cellulose, insulating material, as well as for firewood, while its seeds are unparalleled in nutritional value, an impressive source of minerals and vitamins and a raw material for the production of oil that is used as food but also in the production of cosmetic products.

## 2. Legal regulations

The term *Cannabis sativa* is frequently wrongly interpreted and presented because it is mixed up with a different type of *Cannabis* – *Cannabis indica*.

The Draft of the Act on Amendments to the Drug Abuse Prevention Act, proposed by Mirela Holy, D.Sc., a representative in the Croatian Parliament, is a testimony to this. More precisely, said Draft only mentions the term "*Cannabis*", which shows that even on the level of proponents of legal regulations these terms are communicated unclearly.

The proposal is also unclear in defining what types of *Cannabis* and under what conditions can be cultivated, processed and marketed, which could lead to uncontrolled and unpunishable cultivation and use of marijuana (*lat. Cannabis indica*) for the so-called private use and the possibility of placing marijuana on the market in a virtually free, uncontrolled and unpunishable way. [4]

Besides terminology dilemmas, the stumbling block in the development of *Cannabis sativa* management is the applicable legal regulation. The current legislation regulating the cultivation and processing of *Cannabis sativa* is based on the Drug Abuse Prevention Act (OG [107/01](#), [87/02](#), [163/03](#), [141/04](#), [40/07](#), [149/09](#), [84/11](#), [80/13](#)) where Article 13 defines the adoption of the implementing regulation, i.e. the Rulebook on the conditions for *Cannabis* cultivation, the method for poppy cultivation registration and the conditions for possession of drugs in veterinary activity (OG [18/12](#)).

With regard to the Rulebook in question (Rulebook Articles 1-7), prescribing that the licence for the sowing and cultivation of *Cannabis* issued by Minister of Agriculture is obtained for only one year of sowing, which is also the current production year, we can assert that it is an administrative aggravating circumstance, as well as the fact that the permit is issued exclusively for the cultivation of *Cannabis* for nutritional purposes. The stem of *Cannabis sativa*, which has great potential in processing industry, unfortunately has to be ploughed in or burnt after the seeds are gathered according to applicable regulations of the RC. In addition, it should also be noted that said implementing regulation states exactly that the percentage of THC (Tetrahydrocannabinol) in the dry matter of the plant may not exceed 0.2%, which is very questionable since it is an element which is variable depending on the environmental conditions (the amount of sunlight, etc.) in which the plant is developing. That variability dependant on the environmental conditions is even more pronounce when we know that seeds of *Cannabis sativa* are not available in Croatia and that it is imported from other countries according to the Common Catalogue of the European Union, including Scandinavian countries well-known for its small amount of light. [5] [6] [7]

### **3. International trends vs. production of Cannabis in the Republic of Croatia**

In the past 15 years, interest for *Cannabis* in developed industrial countries has gradually started to grow again. So, today in Europe *Cannabis* fibres are used in automotive industry for the production of plastic parts and in the production of cigarette paper, banknotes, hygienic products, etc. They are also used in the production of insulating materials and as cement additive. [8]

In 2012, 12 growers/producers of *Cannabis sativa* were recorded in the Republic of Croatia, a year later the number of growers rose to 32, while at the end of 2014 over 100 growers were recorded and *Cannabis sativa* covers 658 ha of agricultural land in the RC. [9]

Some of the national growers and processors of *Cannabis sativa*, who systematically grow and invest in further production and processing, are Herbio plus, CannaBio, etc.

### **4. Uninformed public – the need for a comprehensive media campaign**

Historical traces, such as Biblical paper, artwork of the most famous painters, clothing, ship ropes, sails, etc. speak of *Cannabis sativa* being grown for several thousands of years, more precisely different types of *Cannabis* and in different variations on all continents. Depending on the climate, the species, i.e. the subspecies of *Cannabis*, also varied and hence its use as well.

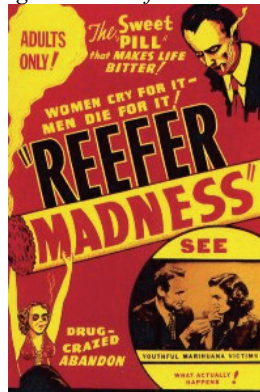
Nevertheless, the present role of *Cannabis* in the world is reduced to an extremely low level, due to existing legal regulations, but also the overall negative media campaign that was carried out at the beginning of the last century when the most influential media were newspapers and the radio, and the contemporary media such as Internet did not exist. Then, an individual could not independently check the information obtained through the mass media, which was trusted blindly. The best indicator of that is the campaign by wood and oil lobbies which started in the 30s of the last century in America. Namely, it was a moral campaign for the prohibition of “marijuana”, which was instigated by Harry Aslinger and the Federal Bureau of Narcotics, spreading it in the main American tabloids via ordered articles, flyers and movies (Images 1 and 2).

Image 1 Propaganda flyer from the 1930s



Source: [http://www.druglibrary.org/mags/aapicture/film\\_posters7.htm](http://www.druglibrary.org/mags/aapicture/film_posters7.htm)

Image 2 American propaganda movie from 1936 aimed at high-school kids



Source: [http://en.wikipedia.org/wiki/Reefer\\_Madness#/media/File:ReeferMadnessPoster.jpg](http://en.wikipedia.org/wiki/Reefer_Madness#/media/File:ReeferMadnessPoster.jpg)

They used the campaign in their testimonies before the Congress without scientific proof, based on which a law was passed in 1937 on taxing the production and sale of *Cannabis*, which made it completely uninteresting to the producers since it was unprofitable. The campaign continued with greater or lesser intensity over decades. [10]

Scientific and other literature says that complete legal regulations implemented in America also shaped the international policy towards drugs, which resulted in the adoption of decisions, which installed *Cannabis* as a dangerous and harmful plant in the international conventions conclusively with the UN *Single Convention on Narcotic Drugs* from 1961. [11]

At the beginning of the 20<sup>th</sup> century, public knowledge about *Cannabis* was diffuse and, today, the common names distinguishing between its narcotic and other features are completely obscure.

A long-term campaign that spread throughout the world succeeded, and, unfortunately, it has become apparent that the young generations today don't distinguish between the types of *Cannabis*, are not familiar with the historical component of *Cannabis sativa*, nor its characteristics and numerous possibilities in processing and nutritional terms.

## 5. Conducted research results analysis

A method of inquiry was used in the paper, i.e. polling, with the aim of obtaining information, which was then processed. The information obtained from the anonymous poll conducted has been processed using the descriptive statistics method. This research used a modified questionnaire (Table 2) for the questioning of participants in this research and it was anonymously filled in by 83 senior students of the Economics High-School and Polytechnic in Požega, of which 60 students were female (72,29%) and 23 were male (27,71%). Such a sample of young people was chosen because this population uses the Internet for several hours a day, thus having access to a sizeable amount of information. The questionnaire was used to determine to what extent the respondents were familiar with the term *Cannabis sativa* and its historical role, properties and possibilities, as well as the need for additional information.

According to the conducted research, out of the total number of respondents (N=83), 33 (39.76%) of them claims that they know the difference between *Cannabis indica* and *sativa* and as much as 50 (60.24%) does not. It is heartening that information about *Cannabis sativa* is after all present in the media since 53 respondents (63.86%) “heard” about the plant in the past year.

As many as 64 (77.11%) individuals who filled in the questionnaire are generally or completely unfamiliar with the properties of *Cannabis sativa* or now a little bit, while 76 persons (91.57%) do not know that in the 1960s Yugoslavia was the sixth producer and exporter of *Cannabis sativa* in the world.

**Table 2** Questions used in the poll conducted and its results

1. Do you know the difference between *Cannabis indica* and *sativa*?

YES	NO
39.76%	60.24%

2. Have you noticed *Cannabis sativa* being mentioned in the media in the past year?

YES	NO
63.86%	36.14%

3. To what extent are you familiar with the properties of *Cannabis sativa*?

COMPLETELY UNFAMILIAR	GENERALLY UNFAMILIAR	NEITHER FAMILIAR / NOR UNFAMILIAR	MOSTLY FAMILIAR	COMPLETELY FAMILIAR
24.10%	20.48%	32.53%	20.48%	2.41%

4. Do you know that in the 1960s Yugoslavia was the sixth producer and exporter of *Cannabis sativa* in the world?

YES	NO
8.43%	91.57%

5. How many products do you think can be produced from *Cannabis sativa*?

UP TO 100	FROM 101 TO 5 000	FROM 5 001 TO 15 000	OVER 15 000
15.66%	53.01%	15.66%	15.66%

6. Do you know that biodegradable plastics can be produced out of *Cannabis sativa*?

YES	NO
22.89%	77.11%

7. Are you familiar with the fact that *Cannabis sativa* does not require herbicides or pesticides during its cultivation?

YES	NO
30.12%	69.88%

8. To what extent, in your opinion, natural biomass of *Cannabis sativa* can replace the energy demand presently met by oil?

IT CANNOT REPLACE IT AT ALL	IT CAN REPLACE IT ONLY PARTIALLY	IT NEITHER CAN / NOR CANNOT (I don't have an opinion)	IT CAN REPLACE IT MOSTLY	IT CAN REPLACE IT COMPLETELY
14.46%	19.28%	42.17%	18.07%	6.02%

9. Have you tried /used products made out of seeds of *Cannabis sativa* (oil, beer, liquors, cookies, hygiene products, etc.)?

YES	NO
20.48%	79.52%

10. Since *Cannabis sativa* is considered to be the "plant of the future" do you want to know more about its properties and possibilities of use?

YES	NO
78.31%	21.69%

11. In what way do you want to be introduced to the properties and possibilities of *Cannabis sativa* use?

VIA PUBLIC MEDIA (TV, RADIO, ETC.)	VIA FAIRS AND EDUCATIONAL WORKSHOPS	VIA DIRECT COMMUNICATION (TELEPHONE, MAIL, E-MAIL)	VIA INTERNET MARKETING (ARTICLES, BANNERS, ETC.)	VIA AFFIRMING ARTICLES ON THIS SUBJECT (NEWSPAPERS, PORTALS, THEMATIC MAGAZINES)
49.40%	20.48%	6.02%	14.46%	9.64%

Sources: Authors

The respondents are also modest in estimating how many products can be produced from *Cannabis sativa*, i.e. only 13 (16.66%) state that this is a number exceeding 15,000 products. Respondents don't believe that *Cannabis sativa* can be used to produce biodegradable plastic, 64 (77.11%), nor that it doesn't require herbicides and pesticides in its cultivation, 58 (69.88%). Only 5 (6.02%) of the respondents believe that natural biomass of *Cannabis sativa* can completely replace the energy demand that is presently met by oil, and most of them have not tried its products, 66 (79.52%), but the majority, i.e. 65 (78.31%) of the persons polled want to know more about *Cannabis*.

## 6. Communication mix

In view of the results of the implemented poll, the idea of a comprehensive campaign is becoming apparent. The campaign would be based on the elements of a marketing communication mix.

"Marketing communication mix (also called a promotional mix) consists of five main forms of communication:

- Advertising
- Public relations and publicity.
- Sales promotion
- Personal sales
- Direct marketing: " [12]

A communication mix is offered in the poll through techniques and methods of communicating messages adapted to the product in question.

Since almost 80% of respondents expressed a wish to get additional information on the properties and possibilities of using *Cannabis sativa* and 70% of them wants to receive information via public media, fairs and educational workshops, communication should be based precisely along the lines of said techniques and methods of communication.

## 7. Conclusion

A cardinal turn is suggested in the approach to *Cannabis sativa* through a realization of the model of introducing the public to its potentials and possibilities of use, using elements of communication mix with the implementation of the results of the conducted poll. The poll confirmed the set hypothesis that the young population today does not distinguish between the types of *Cannabis*, is not acquainted with the properties and historical role of *Cannabis sativa* in our region and is not familiar with the possibilities of use and exploitation of it. It also discovered that the polled population wants to learn more about the subject in question, mostly via public media.

Due to the flexibility of newspapers (printed and digital form) as a medium and their good coverage of the local market, a coordinated campaign is needed in the form of a column and feature articles. Furthermore, low costs of radio as a medium, its mass use and "unobtrusiveness" to the listener, should be used in the form of organizing specialized shows on the subject of educating the public. Contrary to the above said, high costs of TV advertising can be compensated by encouraging panel discussions and roundtables on the given subject with the participation of eminent professionals, but also representatives of legislative bodies, all with the aim of bringing back *Cannabis sativa* to the agricultural areas of the RC through smart specialization.

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## **ENTREPRENEURIAL UNIVERSITY: A KNOWLEDGE EXCHANGE PERSPECTIVE**

### **PODUZETNIČKO SVEUČILIŠTE IZ PERSPEKTIVE RAZMJENE ZNAJANJA**

#### **ABSTRACT**

*Along the shift to a knowledge-based economy, universities around the world are under increasing pressure to transform themselves and develop different types of external relationships in order to exchange knowledge. The Triple Helix framework stresses the importance of trilateral and hybrid networks between universities, industry and government for the purpose of creation, use and exchange of knowledge and innovation. Since 2000 Croatian government has invested decisive efforts into founding a framework for university-industry cooperation and commercialization of research, but these efforts only slowly produce the expected results. This paper seeks to contribute to the growing body of literature on the Triple Helix Systems and entrepreneurial university by discussing the possibilities and examples of knowledge exchange and networking at a HEI which takes steps to enhance its potential for academic entrepreneurship. Based on the available faculty documents, as well as the results of interviews with faculty members, the study concludes that increasingly staff at the Faculty of Economics in Osijek engage in knowledge exchange and maintain cooperation with partners in industry and government. At the same time, it is important to observe that faculty opinions towards knowledge exchange and networking differ significantly.*

**Key words:** *entrepreneurial university, knowledge exchange, Triple Helix, academic entrepreneurship, innovation.*

#### **SAŽETAK**

*Istovremeno s prelaskom na gospodarstvo utemeljeno na znanju, sveučilišta diljem svijeta su pod sve većim pritiskom da se transformiraju i razvijaju različite vrste odnosa radi razmjene znanja. Triple Helix okvir naglašava važnost trilateralnih i hibridnih mreža između sveučilišta, industrije i vlade u svrhu stvaranja, uporabe i prijenosa znanja i inovacija. Od 2000. godine hrvatska Vlada ulaže odlučne napore u stvaranje okvira za suradnju između sveučilišta i industrije, kao i komercijalizaciju istraživanja, ali ti napori vrlo sporo daju očekivane rezultate. Ovaj članak nastoji dopuniti postojeća saznanja o Triple Helix Systems i poduzetničkom sveučilištu raspravljajući o mogućnostima i primjerima razmjene znanja i umrežavanje na jednoj visokoškolskoj instituciji koje poduzima korake kako bi poboljšala svoj potencijal za akademsko poduzetništvo. Na temelju fakultetskih dokumenata, kao i rezultata intervjua s nastavnicima na fakultetu, može se zaključiti da osoblje na Ekonomskom fakultetu u Osijeku sve više sudjeluju u razmjeni znanja i održava veze s partnerima u industriji i vladi.*

*U isto vrijeme, važno je uočiti da se stavovi nastavnika na fakultetu u vezi razmjene znanja i umrežavanja značajno razlikuju.*

**Ključne riječi:** *poduzetničko sveučilište, razmjena znanja, Triple Helix, akademsko poduzetništvo, inovacije.*

## **1. Introduction**

Faced with the challenges of an insecure and complex environment and global incapacity to manage changes, as well as the prolonged financial crisis, and decline in core funding, universities are under increasing pressure to self-transform, and develop different types of external relationships in order to create, use and exchange knowledge and innovation. In such schemes, Croatian government has invested decisive efforts into founding a framework for university-industry cooperation and commercialization of research. Due to low scientific capacities, low R&D investments, absence of cutting edge technologies and the lack of strategic innovation management, these efforts only slowly produce the expected results (Švarc, 2014). Innovativeness and economic development in a knowledge based society advocate hybridization of university, industry and government in generating a new institutional and social framework for creation, exchange and implementation of knowledge (Ranga and Etzkowitz, 2013).

Although the Triple Helix Systems is not a recent invention, such form of cooperation is still in its early stages of development in Croatia. The significance of this approach to solving growing social and economic problems lies in the fact that such cooperation seems to be the only sustainable procedure to establishing a successful, productive and innovative society

This paper seeks to contribute to the growing body of literature on Triple Helix Systems and entrepreneurial university by considering the significance of the Triple Helix Systems in a country in transition to knowledge-based society, in particular by calling attention to one feature of the Triple Helix Systems (relationships), and one particular aspect of it, namely the knowledge exchange relationships of faculty members and their attitudes towards knowledge exchange and networking. The lack of systematic research in this area means that there is a shortage of evidence about interesting and effective practices. Therefore, the paper discusses possibilities and examples of knowledge exchange relationships and networking at a HEI which is struggling to enhance its potential for academic entrepreneurship.

The paper is organized as follows: it starts by outlining the conceptual framework, drawing on the Triple Helix Systems literature. Next, the discussion about the transition to an entrepreneurial university is supported with the case of Faculty of Economics in Osijek, which is followed with the presentation of the results of a research and discussion of different knowledge exchange practices that members of the Faculty of Economics engage in. In addition, their opinion about the cooperation between university, industry and government is presented. The paper concludes with some implications of the research results and proposals for further research.

## **2. Triple helix systems and the future of university**

The Triple Helix model focuses the attention on the cooperation between three sphere-institutions: university, industry and government, and postulates that the interaction among these spheres is the key to first improving the conditions for innovation in a knowledge-based society, and secondly sustaining economic growth. At the same time, it enables the measurement of the extent to which innovation has become systemic (Leydesdorff, 2012). This concept has since 1990s developed into a widely accepted framework which brings

together knowledge, consensus and innovations of three major social factors, thus providing a cradle for social and economic development, as well as general welfare (Etzkowitz, Leydesdorff, 2000). By bringing local-global (international-national) dimension as a fourth helix into the model (Leydesdorff, 2011), it has, since 2011, been extended to The Quadruple Helix.

Ranga and Etzkowitz (2013) synthesize key features of the Triple Helix model into an innovation system format as a set of Components (institutional spheres: university, industry and government), Relationships between components which contribute to the innovative policy, creation and management of economic growth ( technology transfer, collaboration and conflict moderation, leadership, substitution and networking) and Functions (knowledge, innovations and consensus space). At present, the traditional roles of science, economy and government are being redefined. Besides carrying out its traditional role, each institutional sphere assumes roles of the other two (spheres), consequently directing its innovative potential into the creation of new innovations and knowledge. Hence, three spaces come into existence: Knowledge space which encompasses knowledge generation, its diffusion and use; Innovation space which includes formation and functioning of hybrid organizations that promote innovation; and Consensus space which incorporates formal and informal governance activities that bring together actors to brainstorm, discuss, and evaluate ideas and projects. In the initial phase, the circulation of knowledge between the three spheres of the Triple Helix is conducted individually. In the later steps, during the process of capitalization of knowledge, these connections become more complex and intense. In the final stage they represent a set of complex organizational connections among mutually overlapping spheres, thus gradually diminishing the boundaries that separate them.

Apart from its existing role in education and research, as a consequence of the second academic revolution (Etzkowitz, 2003), universities are encouraged to assume other roles and become more entrepreneurial. Modern universities educate students who carry new ideas, skills and entrepreneurial talent, which are the base values of the knowledge-based society. In addition to that, modern universities engage in generating technology, thus changing themselves from a traditional source of human resource to a source of new technology. Consequently, the emphasis from university, as a center of traditional teaching, has shifted to university becoming a socially responsible subject in social and economic development of a country.

The collaboration between the spheres (university, industry and government) faces serious challenges because each has its own characteristics, purposes and structures, and operate under different organizational environments and cultures, which have different norms, standards and values (Siegel et.al., 2003). With universities having different histories, traditions and structures, there is no typical way to become an entrepreneurial university.

### **3. Transition to an entrepreneurial university**

Clark (1998) defined an entrepreneurial university as a university that actively seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. Entrepreneurial universities provide a good environment, culture, opportunities and practices that enhance student entrepreneurship. The notion of entrepreneurial university is at the heart of the Triple Helix model and has been used in relation to a spectrum of evolutions faced in recent years by the academia (Looy et.al., 2003) : more involvement in economic and social development, more intense commercialization of research results, patent and licensing activities, the institutionalization of spin-off activities and managerial and attitudinal changes among faculty members with respect to collaborative projects with industry. Furthermore, researchers (Etzkowitz, 2004.) have framed the concept of the so-

called second academic revolution, which happened in the 1990s and includes the entrepreneurial objective as the third component to the mission of the university, along with research and education.

Etzkowitz et.al. (2008) argue that the emergence of the entrepreneurial university is the result of a complex interplay between exogenous and endogenous factors combined in different ways in different countries. Exogenous factors include socio-economic crises leading to loss of manufacturing industries and failure to create an alternative industry, movement of corporations and entrepreneurs abroad, followed by various government policy responses requiring universities to play a larger role in innovation. Endogenous factors include internal transformations within the university or other bottom-up organizational and management changes driven by changes in the intellectual property regime, as well as cuts in funding. At present, direct and indirect government measures stimulate economic growth by encouraging start-ups and Triple Helix interactions. Universities realize economic value from research, and are willing to participate in order to gain increased resources, additional streams of funding and sources of support, and simultaneously achieve their new academic objective of contributing to economic development and regional renewal.

Active involvement of various stakeholders is useful for successful entrepreneurial universities. Cooperation among university, industry and government spheres have received broader attention due to the recognition of the fundamental role of knowledge and innovation in fostering economic growth, technological performance and international competitiveness. These new relations are based on the concepts of scientific networks (Pavitt, 1997), and the new vision on university, industry, and government interactions as in the Triple Helix Systems. Through these relationships universities provide opportunities for their students and staff to take part in entrepreneurial activities in the external environment and thus create value for both the society and the university (Salem 2014).

A shift of priorities has been observed, favoring R&D that would contribute to productivity and global competitiveness, rather than to the development of new products in firms, as observed in Cohen and Noll (1994). The increased emphasis on knowledge exchange across university-industry boundaries has led to the creation and implementation of a variety of transfer-oriented mechanisms (Looy et.al., 2003), which include industrial liaison or technology transfer offices, academic spin-offs and joint ventures, science parks and business incubators.

Although the presence of a strong research potential is an important prerequisite for the transition to entrepreneurial university, it is not sufficient. (It is not rare in Europe that research-intensive universities display low levels of entrepreneurial activity.) On the other hand, low levels of university research and weak R&D potential of local firms are serious obstacles in this transition that can be extremely difficult to overcome, even with various government policies, programs and funding created to support technology transfer and entrepreneurship ( Ranga and Etzkowitz, 2008).

Entrepreneurial universities have become a reality that cannot be ignored, and comprise three basic elements. First of all, a more prominent role for the university in innovation, secondly, a movement toward collaborative relationships among the three major institutional spheres, and finally, institutions assuming the roles of other two, while simultaneously performing their traditional function (Etzkowitz, 2008).

#### 4. The case of Faculty of Economics

Faculty of Economics is a part of the J.J. Strossmayer University in Osijek, which relies heavily on government funding, and has suffered a significant loss of research funding. Teaching, research and entrepreneurship still present separate activities, but gradually these roles are being interlinked, and although the focus is still on teaching and research in the traditional sense, in the recent years, the Faculty has become a center of excellence in teaching and research on entrepreneurship, which has been documented in the results of teaching quality and research assessment, the research grants received, and the reputation of the Faculty. In 2008 the Faculty was granted the Chair in Entrepreneurship. Although relatively small, with little bit more than 50 faculty members, it has managed to gain a position among the leading universities in the region. In the recent years, Croatian government has tried to foster universities' involvement in knowledge exchange, and the Faculty of Economics has made efforts to enhance its entrepreneurial capacity. Most notably, it has engaged in fostering the development of different types of external relationships in order to exchange knowledge, including the establishment of Center for Entrepreneurship and BIOS, the most successful business incubator in the region.

In order to increase its competitiveness and employability of its students, as well as to ensure sustainable growth of the economy and contribute to the welfare of the whole society Faculty of Economics in Osijek has developed programs which are in demand. Križanović et.al. (2014) documented one such example, the A.C.T.I.V.E. project, whose aim has been to improve the employability of young people in the region. This project shows well how such cooperation can include agents from all three spheres: university, industry and government. Another successful example is the Legal-Economic Clinic (Delić, Oberman-Peterka, 2014), which presents a unique clinical-based training in two fields: law and business, and includes students and professors (as mentors) from Faculty of Law and Faculty of Economic of J.J. Strossmayer University in Osijek, as well as local lawyers and representatives of business support institutions. These examples show that at the Faculty of Economics knowledge is being distributed across boundaries of the three Triple Helix spheres.

As an example of transition to the entrepreneurial university form the perspective of knowledge exchange relationships two bottom-up practices will be presented here: first, one informal networking project, and then a formal spin-off.

Scholars have recognized the importance of networks as organizational structures which include relations that connect individuals and/or organizations. Networks can either be conceptualized as informal ties among individuals, or as formal contracts or strategic alliances. Literature has mainly dealt with formal interactions like patenting and licensing, research grants, collaborative research, consultancies and spin-offs, but less formal ones also deserve some attention. The example presented here is a networking project which was organized at Faculty of Economics by the students' organization EWoB during Global Entrepreneurship Week in 2014. Various workshops were organized on how to network, either face-to-face or through social media, and how to present oneself. The alumni and students who have succeeded, as well as professionals from IT companies, lobbying organizations, marketing agencies and business support institutions presented their experience and lessons learned. Participants at this event did not only get useful information, but established valuable contacts which have been reported to have resulted in work placements and employment, in addition to further cooperation of EWoB with similar organizations in the region.

Next, as an example of, a more formal knowledge exchange activity at Faculty of Economics in Osijek, a spin-off is presented here. As government cuts their funding, it is expected that universities will significantly increase their commercial activities, rather than reduce

expenses. University spin-offs represent a resource intensive way to exchange knowledge, with additional benefit of obtaining financial support for the host institution. Such cooperation spreads across all three Triple Helix spaces: knowledge, innovation and consensus. Spin-offs are in general virtual companies with low investment capital, sales and number of employees, but they draw upon research from the university and networks of researchers that come from several faculties of the university.

At the initiative of its students, Faculty of Economics is starting a spin-off, with the aim to enhance its own potential for academic entrepreneurship, and obtain additional funds, but also to train students in entrepreneurship and innovation, and increase their employability. This project has an additional function, i.e. to generate public awareness of the importance of knowledge and role of universities in handling pragmatic entrepreneurial issues. This particular example can be seen as a sign of students being trained for entrepreneurship and their taking entrepreneurial roles within and out of the university.

In short, the idea for the spin-off is that on-line marketing agencies transfer the inquiries about small budget, less demanding campaigns, that they are not interested in, to the spin-off where students carry out simple, less demanding campaigns under the supervision of their mentors. If, after that, a customer decides to invest more substantial funds into the next campaign, he is by contract referred back to the agency. All partners benefit from this: not only does the agency service and keep satisfied customers, but it also has the opportunity to train students and evaluate their engagement, as well as identify the most competent students as their future employees. The Faculty, as founder and the host institution, gets a percentage of profit, but also visibility in the community, in addition to getting access to a field where they can do their research, and real life examples which staff can use in their teaching. Finally, a spin-off is good for student because they can apply the new knowledge on solving real-life problems, get ready for the labor market while earning some pocket money.

The next section of the paper presents and discusses opinion of the faculty members concerning the cooperation among three Triple Helix spheres.

## **5. Methodology**

The data for the research was collected by means of semi-structured in-depth interviews with 17 faculty members from all chairs. The interviewees were asked to discuss specific forms of knowledge exchange they have been engaged with, and to express their opinion about these practices. The interviews were coded by using character counts. The data was analyzed initially by exploring the research themes, and in greater depth at the second level of coding by developing sub-themes. The research was intended as an initial study to gain a deeper understanding of the scope of knowledge exchange practices and the opinions of faculty members concerning that at the Faculty of Economics in Osijek.

## **6. Results and discussion**

Although one cannot be satisfied with the progress of knowledge exchange at Faculty of Economics, our results indicate that considerable number of faculty members engage in knowledge exchange processes with industry and government institutions, but our observations show that the way the faculty members engage in university-industry collaboration differs greatly.

The results demonstrate that faculty members communicate results of their research to firms and government institutions, and regularly present the results of their research to those who can make use of them. Although these practices do not include any commercial transactions and can actually be understood as core activities of faculty members, they presents an

important means of interaction with industry and government and may be seen as the first step leading to a more significant knowledge exchange. Business activities and commercialization of results are the practices adopted the least by faculty members. It has been observed that despite little involvement of faculty members in commercial activities, the number of such cases is growing.

A few interviewees have reported that they have been asked to participate in different working groups involved in the application of new knowledge and practices from their research. A large number have provided consultancy services to firms and/or government institutions. Cooperation between universities and industry goes very slowly, although faculty members are aware that universities are forced to react quickly in response to cuts in public funding. Few claim that the results of their research have contributed to development of new or improved goods or services. Several faculty members shared their experience that big corporations are reluctant to enter into such cooperation, while small and micro companies eagerly seek input for product development from the university. Faculty members tend to take part in consultancy, collaborative research and contract research, rather than in starting spin-off companies, or patenting and licensing. This can partly be explained with the characteristics of their core research topic. Also, there is a big difference between chairs in scope of such practices, which can also be explained with the character of their field of study and research. In conclusion, the most common knowledge exchange practices are presentation of research results and consultation. Besides, knowledge exchange relationships are conducted mostly individually, and the bottom-up approach is predominant. Moreover, it appears that most knowledge exchange occurs through informal relationships, and that external links that faculty members establish with industry and/or government do not seem to undermine cooperation with colleagues. On the contrary, it seems that the route to the entrepreneurial university encompasses the transition from individual to collective and organizational entrepreneurship, as individuals, in order to realize various projects, recruit collaborators with complementary skills. Those in favor of knowledge exchange additionally pointed out that through such cooperation researchers have an opportunity to prove they are, apart from being successful university teachers, successful businesspeople as well.

Secondly, concerning the cooperation of the university with government, it has been stated that government institutions in Croatia can hardly be considered entrepreneurial partners of Faculty of Economics, but they take part in the network and thus present a resource for the Faculty in terms of money, reputation and human capital.

In the second part of the interview, faculty members were asked to voice their opinion about these relationships. Differences with respect to the opinions of the faculty towards knowledge exchange can be observed. Interviewed faculty members are rather conservative regarding the entrepreneurial role of their home institution. At the same time, some faculty members show willingness to integrate the new role with their previous academic roles. Interestingly, faculty members with the least experience in knowledge exchange perceive the university-industry-government cooperation as mostly risky for fundamental academic values. They tend to believe that engaging in knowledge exchange relationships might result in academic research being influenced too much by the application-oriented needs of businesses. Also, it is the senior faculty members who seem to be more skeptical towards such practices, and more conservative about the university entrepreneurial role. Certain prejudices about the cooperation with industry and government can be found in the interviews. Faculty members also expressed concerns about certain drawbacks of university-industry-government cooperation. Apart from the most often mentioned shift towards applied research, most commonly expressed concerns are about the increased pressure on faculty members to spend too much time on commercial activities and the possible loss of interest and involvement of

faculty members in teaching. They also foresee the conflicts of commitment that occur when faculty members' full-time duties, which include teaching, tutorials with students, research and other obligations to the university, are affected by the activities from involvement in the cooperation. Often an opinion is voiced that offering public funds for research and formation of companies is not sufficient and that creation of VC industry is needed. Additionally, faculty members mentioned the need for change in standards for promotion and tenure, and the fact that the University does not have formal policies regarding and regulating this issue.

## 7. Conclusion

This paper presents evidence about the practices of knowledge exchange relationships among spheres of the Triple Helix at the Faculty of Economics in Osijek and their significance for the transition towards entrepreneurial university. It is a preliminary study, with a limited sample, but certain conclusions can be made, although without generalizations. The Triple Helix model emphasizes both opportunities and challenges arising from the involvement of the university in economic activities, and this has been supported by this research.

In conclusion, this study shows that transition towards entrepreneurial university at Faculty of Economics in Osijek has been gradual. In our example external knowledge relations start as informal, but evolve into a more formalized way of knowledge exchange leading to spin-offs. Furthermore, it has been shown that individual beliefs and behaviors are extremely important for knowledge exchange relationships to succeed. The analysis of perspectives of faculty members concerning knowledge exchange practices and cooperation of the faculty members with other two spheres could be understood as an important indicator of the present entrepreneurial behavior at the Faculty in the transition towards entrepreneurial university. Willingness of faculty members to participate actively in the process seems critical. Our examples indicate the importance of setting up incentives for the parties included, in order to ensure faculty collaboration.

Clearly, entrepreneurship at a university should not end with the capacity of one Faculty to spin-off new businesses in order to exploit its intellectual property or to attract additional sources of income, but it continues to faculty members becoming more innovative. For this purpose it would be appropriate to define what knowledge and skills faculty members have, which the university can commercialize on the market. Such relationships should be the test of the success of the faculty, as well as the competitiveness of its staff, and this could be the ultimate motivation for faculty members for getting involved in such practices.

“The entrepreneurial university is a public-private entity in scale and scope. In good times the private side predominates; in bad times the public side comes to the forefront. In all times, the global convergence to an entrepreneurial university is the reverse side of the same coin: the transmutation of academic knowledge into economic advantage” (Etzkowitz et al., 2008)

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## **PROPERTY RELATIONS AND INFRASTRUCTURE MAPPING IN THE CASE OF PROJECT "SLAVONIAN NETWORK"**

### **IMOVINSKOPRAVNI ODNOSI I KARTIRANJE INFRASTRUKTURE NA PRIMJERU PROJEKTA „SLAVONSKA MREŽA“**

#### **ABSTRACT**

*Directive 2014/61/EU of the European Parliament and of the Council of the EU (15th May 2014) on measures to reduce the cost of setting up electronic communications broadband networks – requires establishment of a national information contact point for Member States for utilities infrastructure. By implementing Directive – inventory of all utilities shall be made, which will be used for planning construction works in the field and installing utilities for internet broadband access. In that way, a stocktaking in the area before making key decisions about the planning of construction work, which could also serve to set up the infrastructure for broadband access. In the areas where it will be necessary to thoroughly renew electronic communications infrastructure by laying pipes or fiber-optic cables directly into the ground, it won't be possible without proper project documentation. Property relations could represent unexpected difficulties in this process if they aren't noticed ahead. By mapping existing infrastructure and its electronic integration with public records from cadaster and land registry, it is possible to achieve a new quality in the design and planning of infrastructure for broadband access.*

**Key words:** broadband, Directive 2014/61/EU, infrastructure, mapping, property relations

#### **SAŽETAK**

*Direktiva 2014/61/EU Europskog parlamenta i Vijeća Europske unije od 15. svibnja 2014 o mjerama za smanjenje troškova postavljanja elektroničkih komunikacijskih mreža velikih brzina nalaže članicama EU uspostavu nacionalne kontakt točke za podatke o infrastrukturi. Na taj bi se način uspostavila inventura u prostoru prije donošenja ključnih odluka o planiranju građevinskih zahvata, a koji bi mogli poslužiti i za postavljanje infrastrukture za širokopojasni pristup. Na području gdje će biti potrebno elektroničku komunikacijsku infrastrukturu temeljito obnoviti polaganjem cijevi ili svjetlovodnih kabela direktno u zemlju, to se neće moći obaviti bez valjane projektne dokumentacije. Imovinskopravni odnosi mogli bi biti nenadana prepreka ako se na njih*

*pravovremeno ne ukaže. Kartiranjem postojeće infrastrukture i njeno informatičko povezivanje s javnim evidencijama Katastrom i Zemljišnom knjigom moguće je postići novu kvalitetu u osmišljavanju i planiranju infrastrukture za širokopojasni pristup.*

**Ključne riječi:** *Direktiva 2014/61/EU, imovinskopравни odnosi, infrastruktura, kartiranje, širokopojasni pristup*

## **1. Introduction**

European Union documents – the Digital Agenda 2020 and the accompanying directives, from which the most important is the Directive 2014/61/EU from European Parliament and Council of 15 May 2014 on measures to reduce the cost of setting up electronic communication broadband networks, requires establishment of inventory of the existing electronic from national economies and to, by method of good management come up with models of investment in the reconstruction. Technologically speaking, big problems aren't expected. Commitment to a minimum transfer speed of 30 Mbit/s for all households, and 100 Mbit/s for 50% of households does not leave doubts on which technology should be used. Certainly, it is a technology that uses optical fiber as a medium. Exceptions exist, and they are conditioned by large investments to individual lone subscribers. To cover commercially problematic (isolated) areas with broadband Internet connection, Europe is ready to invest up to 80% percent of the total investment in infrastructure. National economies are obliged to perform the necessary steps to ensure the continuous flow in investment cycle from getting building permit to the certificate of occupancy. Discontinuity in the developing process causes a significant delay in realization of the investment which Europe punishes by withholding funding from the budget.

Fundamental analysis starts from the review of the current electronic communications infrastructure. All the critical infrastructure needs to be mapped. We could say that Croatia has advantage over some state members of the European Union, because infrastructure mapping has been controlled since 1973 through the utility cadaster. Condition of infrastructure records in north-east Croatia is significantly better than records in a large part of the Croatia, with the exception of Zagreb, which utility cadaster was organized even before the legal regulation, because of the needs of a large city. This register is important because existing route can be used for laying fiber-optic cable or, in the case of the distributive telephone network used for copper conductors, optical fibers replacement can be done at no additional construction work. Without this utility cadaster register, significant damage to the existing infrastructure is expected in the area excavation.

Another important factor that affects the realization are property relations on the path of infrastructure route of future construction. Various obstacles are expected because of unregulated property relations on the real estates.

These two threats in the realization of broadband access are theme of this paper. Without utility cadaster there is no economical use of space, the probability of damaging existing infrastructure is big. Utility cadaster (of utilities embedded in the ground) defines on whose property is the existing route and whether the property relations are already settled, or whether they will be a threat to obtaining a building permit. Because this is a multidisciplinary professional matter in which surveyors and lawyers take part, there is a need for connecting existing databases: land cadaster, utility cadaster and Land register through information technologies. Databases are connected in the form of Web GIS solution to visualize problems.

## **2. Collection and analysis of attribute data**

When we talk about data (and their storage in a database) from any domain of real life, we need to be aware of their spatial component. In fact, about 80% of all data contains spatial component by default – the address or location to which this information is linked (Cetl et al. 2008). Sometimes data without their spatial component have no significance to us, e.g. if we find out that the

earthquake happened yesterday, but we do not know where it happened, that information will not be relevant for us, but if we find out that the earthquake happened near the place where we live, then that information will have certain weight of importance. In addition to spatial component, time component is very important, i.e. connection of actual situation with older data. Development of systems for spatial data management (and their accompanying attributes), so called GIS's (geographic information systems) began in the late 60s of the last century. Geographic Information Systems include technologies for input, processing, analysis and display of spatial information (geoinformation) (Frančula 2004). Today, GIS systems are realized as computer software that allows you to communicate with the database in which data is logically structured and perform operations on data in database. Application of GIS systems is very broad, and some of the purposes of use are:

- maintenance and monitoring of municipal infrastructure (roads, power lines...)
- monitoring and guiding the vehicle fleet (e.g. Fire trucks, taxis...)
- environment protection
- management of the agricultural industry...

A modern approach to visualize geographic data, as well as all other information is through the Internet. This approach has significant advantages over the classic presentation of data:

- easy accessible from any location (requires Internet access)
- simultaneous access from large number of users
- data is stored on a centralized place which makes updating easier
- to view the data, user requires just an internet browser (no need to buy commercial software)
- usually does not require special training to use – it's the same platform that we use every day for consuming various content over the Internet (web browser)
- data is always available in the latest version...

For the purpose of developing GIS aimed to facilitate and speed up regulation of property relations in the real estate registry, data was collected from public records of Land registry and Cadaster. The task required a high level of data reliability, and since there is a large amount of data (City of Osijek as the local government, i.e. Cadastral municipalities: Osijek, Tenja, Tvrđavica-Podravlje, Brijesće, Josipovac and Klisa) it was necessary to carry out informatization of data collecting process. The goal of informatization was to automate the process of data collection, but also avoiding human error factor which could cause data loss or even wrong data collected. With spatial analysis of the data using GIS, corridors through which infrastructure passes are defined. For marked cadastral parcels is then downloaded data from public records.

Land registry and Cadaster data together give the full picture of the smallest official spatial units in Croatia – cadastral parcels. Throughout history, these two records are maintained with different interests:

- Land registry includes data about property rights – proprietorship, easement rights
- Cadaster includes data about position and size of the parcels, land usage info and some other real estate information

The result of many years of keeping those two records as separate entities are the unadjusted records for same parcels, therefore the collected data should firstly be thoroughly analyzed and matched with the actual, current state of cadastral parcels so that we can perform operations on that data. After data adjustment, unique data set for every cadastral parcel is prepared, which is the basis for the analysis of property relations. However, such aggregated data also contains different entries for the same owner, for the purposes of visualization it was necessary to perform the categorization by the owners of real property (Table 1).

In addition to data from Land registry and Cadaster, it was necessary to collect additional data on the already regulated property relations – copies of contracts concluded between Croatian Telecom

(Hrvatski Telekom – HT) and the title holder on real property – in order to check whether the contracts are implemented in Land registry records, and if not, so that they can be particularly emphasized.

By unification of all the necessary information in one place – in the database – development of Web GIS solution could start in order to visualize the attribute data.

**Table 1** Example of different entries of the same owner in the Land register

Record about owner in the Land register	Associated category
UDIO 1/1 GRAD OSIJEK	City of Osijek
UDIO 1/1 GRAD OSIJEK OSIJEK, F. KUHAČA 9	City of Osijek
GRAD OSIJEK OSIJEK, FRANJE KUHAČA 9 OIB: 30050049642	City of Osijek
UDIO 1/1 GRAD OSIJEK OSIJEK, KUHAČEVA 9	City of Osijek
UDIO 1/1 GRAD OSIJEK OSIJEK, FRANJE KUHAČA 9	City of Osijek
...	...

*Data source: Public records of the Land register (<http://e-izvadak.pravosudje.hr/>; 05.04.2015.)*

### 3. Technology and tools used in the Web GIS creation

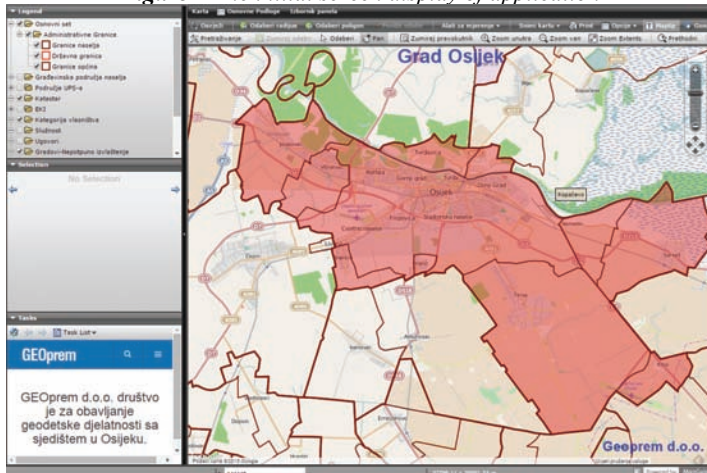
Computer programs used for project like this include a series of software for different purposes, which are necessary for the formation of the final product. The process of preparing data included: the separate preparation of graphic data, collection and processing of attribute data, their shared storage and finally visualization and serving Web GIS solution over the Internet. Earlier in the paper was mentioned that own software tools were developed collect certain data sets in order to prevent data loss and the factor of human error due to large amounts of data. For processing the graphic part, software used is Autodesk AutoCAD with additional official MAP 3D enhancement, which is de facto standard in Croatia when it comes to cadastral spatial data. As the central database for storing and manipulating data is a free version of Microsoft SQL Server – SQL Server Express Edition.

There are many GIS tools which are distributed under so-called FLOSS license (Free/Libre Open Source Software). In this project is used MapGuide, free and open source tool for visualizing and servicing Web GIS over the Internet.

#### 4. The implementation and use of Web GIS

Developed web application for viewing and analyzing adjustment of property relations on the real estates was placed on cloud server through which it is distributed to users (Figure 1).

*Figure 1 The initial screen display of application*



Source: Web GIS application

After zooming in, cadastral parcels are displayed in different colors – fill color is appropriate to the category of the owner. Such thematic overview of ownership allows easy visual recognition of property rights on the parcels (Figure 2).

*Figure 2 Thematic view of cadastral parcels ownership*

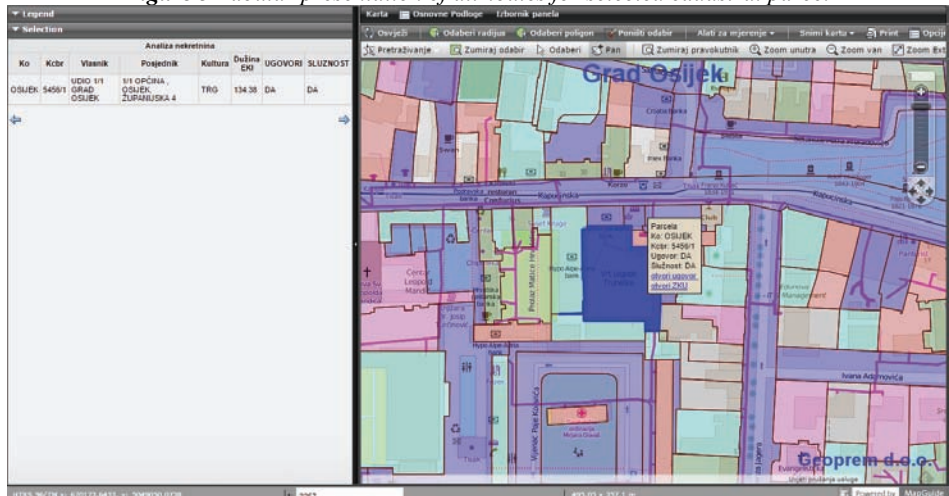


Source: Web GIS application

Each parcel in the application is possible to be individually selected and found via built-in search tool. By selecting cadastral parcel in the application, it displays additional attribute information about the parcel. Shown data is not immediately visible from the thematic presentation of ownership, data in table contains (Figure 3):

- cadastral municipality in which the parcel is located,
- unique number of cadastral parcel,
- the owner (record from Land registry records),
- the holder (entry from the records of the Cadaster),
- land usage (entry from the records of the Cadaster),
- total length of ECI (electronic communication infrastructure) on the parcel,
- the contract between HT and owner (if any),
- recorded easement right in the Land register for the parcel.

*Figure 3 Tabular presentation of attributes for selected cadastral parcel*



Source: Web GIS application

By activating additional thematic layers, other relevant information about implementation of existing contracts in the Land registry is shown. On Figure 4 dark blue marked parcels are the ones with existing contract between the City of Osijek and HT, while the dark green marked are those parcels for which the contract was fully implemented in the Land register (have registered easement right).



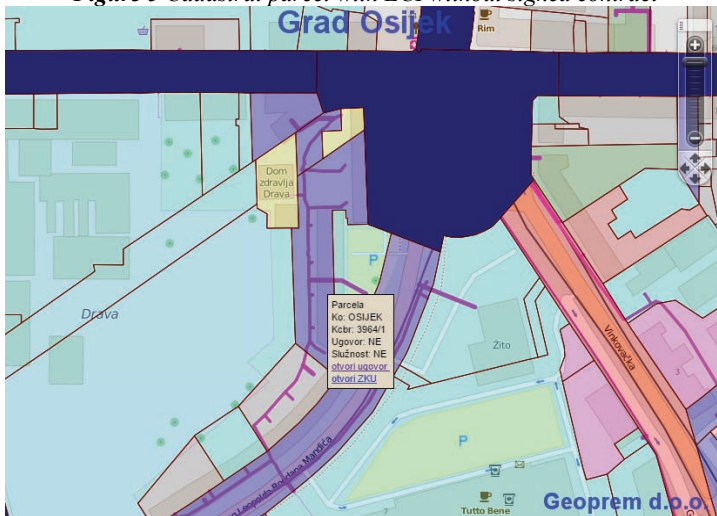
**Figure 4** Highlighting of parcels for which the contract was concluded but aren't implemented in the Land register (blue), and parcels on which easement right is implemented (green)



Source: Web GIS application

By zooming in we can easily see which parcels (owned by the City of Osijek) are not included in existing contracts between the City and HT, and we see clearly that there is a built electronic communication infrastructure (purple line) (Figure 5) on parcels. Besides the visual elements and their associated attribute data, application also contains scanned contracts and scanned copies of Land registry entries which can be used for in depth study of the actual state (Figure 5 – link within tooltip).

**Figure 5** Cadastral parcel with ECI without signed contract



Source: Web GIS application

The data that the application offers changes over time, so it is necessary to perform periodic updating. One of the most important advantages of this GIS, based on digital technology is the possibility of "painless" data refresh, according to a pre-defined schedule or on demand (in this case by HT or City) after the intervention on the infrastructure or the Cadastral and Land registry data.

Internet application is primarily intended for the City of Osijek and the HT to ease resolving property relations on parcels as soon as possible, which ultimately brings regulated condition that favors the development of the economy. Apart from the office – for the preparation of documentation for settlement of property relations, studying, analyzing and planning the changes to the infrastructure etc., the application can be used live in the field when setting up new routes or maintaining existing ones. Thanks to the development of information technology, today we have laptops and tablets that have wireless Internet access and can be used effectively in the field. The application allows you to check the status of lines in the area around the City of Osijek at any time, and the only limiting factor is access to the Internet.

## 5. Conclusion

Modern GIS solutions are an excellent tool for analysis and visualization of spatial data. Considerably facilitate the resolving of spatial-related problems from practice. Developed Web GIS solution is an example of tool to solve specific practical problems which complicates and delays obtaining and use of financial resources of the European Union. It is characterized by ease of use, ease of access and the availability of 0-24 from any location where Internet access is available. No need for expensive software applications for end users, which are generally used only for viewing data. As a software foundation for Web GIS, used free tools have proved to be adequate and fully functional replacement for expensive commercial GIS solutions available on the market.

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## **THE SOURCES OF BUSINESS INFORMATION'S IN METAL INDUSTRY**

### **IZVORI POSLOVNIH INFORMACIJA U METALSKOJ INDUSTRIJI**

#### ***ABSTRACT***

*Modern business dynamics to all the participants that are involved in business process poses a daily challenge: decision-making of an entire character of the matter, often several times during the day. In a number of cases, some decisions must be made as soon as possible, and the information's available for making the right decisions are not always sufficient. To the applicants, as available information's often stands various different sources from which it is possible, on many different ways to collect the needed information. An important role when making business decisions also have the conditions during which the sources of information's are selected and make business decisions. Important criteria for the selection of sources of information's and assessment of their quality are different, but they all have one common goal - to provide useful and timely information. In the modern business, computer and Internet usage, both in communication and as an inexhaustible source of all kinds of information becomes inevitable. Computerization and spreading of Internet greatly facilitates, but also accelerate business processes in general. Today it is one of the fastest, more convenient and simpler ways of collecting the necessary information's using the network interface, the Internet. The Internet has become accessible to even greater number consumers, both for the personal and business needs, and Internet access is mostly available to all the employees, regardless of the hierarchy. In order to verify the application of theoretical basis in practice, research was carried out in a number of major metal companies on the territory of Međimurje County. In the theoretical part of the paper are briefly presented the (theoretical) framework of business decision - making, and the final aim of the research that is presented in this paper is to examine what are the sources of information's on the different control levels when commonly used in the search for business information's, and to establish the place of the Internet as one of the newer source of information's. In addition, it will be explored which are the characteristics of the information's sources that are most important to the seekers.*

**Keywords:** management, information's sources, business decision-making, decision, metal industry

## SAŽETAK

*Dinamika suvremenog poslovanja svim sudionicima uključenima u poslovni proces svakodneвно stvara izazov: donošenje odluka svekolikog karaktera, nerijetko i po više puta dnevno. U velikom broju slučajeva neke odluke treba donijeti u što kraćem roku, a informacije raspoložive za donošenje ispravne odluke nisu uvijek dostatne. Tražiteljima informacija na raspolaganju često puta stoji više različitih izvora s kojih je na mnogo različitih načina moguće prikupiti potrebne informacije. Bitnu ulogu u donošenju poslovnih odluka imaju i uvjeti u kojima se biraju izvori informacija i donose poslovne odluke. Kriteriji za odabir izvora informacija i procjenu njihove kvalitete različiti su no svi oni imaju jedan zajednički cilj-osigurati upotrebljive i pravovremene informacije. U suvremenom poslovanju uporaba računala i interneta, kako u komunikaciji tako i kao neiscrpan izvor svih vrsta informacija postaje nezaobilazno. Informatizacija i internetizacija u velikoj mjeri olakšavaju, ali i ubrzavaju poslovne procese kao poslovanje općenito. Danas je jedan od bržih, praktičnijih i jednostavnijih načina prikupljanja potrebnih informacija korištenje mrežnog sučelja, tj. interneta. Internet postaje dostupan sve većem broju korisnika, kako privatno tako i poslovno, a pristup internetu dostupan je u najvećoj mjeri svim zaposlenicima, neovisno o hijerarhiji. Kako bi se provjerila primjena teorijskih osnova u praksi, provedena su istraživanja u nekoliko značajnijih metalskih poduzeća na području Međimurske županije. U teoretskom dijelu rada ukratko su predstavljeni teorijski okviri poslovnog odlučivanja, a cilj provedenog istraživanja koje je predstavljeno kroz ovaj rad jest istražiti koji se izvori informacija na različitim upravljačkim razinama najčešće koriste u traženju poslovnih informacija te mjesto interneta kao jednog od novijih izvora informacija. Osim toga bit će istraženo koja su obilježja izvora informacija tražiteljima najvažnija.*

**Ključne riječi:** menadžment, izvori informacija, poslovno odlučivanje, odluka, metalska industrija

### 1. Introduction

Everyday business life requires decision-making of the versatile character, often several times during the day. In order to get the right decision it is necessary to have the appropriate information which can be combined in many different ways. In private life, decisions are mainly based on intuition and such decisions include only a small number of persons, while in the business during the decision-making one cannot rely solely on intuition, because the decision, depending on the level at which were made, include a smaller or larger number of employed people. What is the level of the decision-making more complex and requires more knowledge (information's) as far as it concerns the larger number of members of the organization, so in accordance to Sikavica, wrong decision may have harmful consequences for the entire organization (Sikavica, 1999, 10) There is not a single position where the decisions have not been made, and the difference between the positions are reflected in the importance and meaning of the decisions that was made. In order to make the right decision, it is necessary to provide oneself with the adequate information's. Procedure of supplying information's is a process to be carried out several times during the decision-making process, and the decision on the monitoring of information's depends on how they are difficult to obtain, and also on the degree of knowing of their sources (Goodhue, 1998, 109). To obtain information's is not an easy task. There are many different sources of information's, such as your own top management, users of the product, sales representatives, catalogue offers, sales

literature, including sales magazines and others (Bunn, 1993, 53). The modern business implies the use of computers and the Internet, both in communication and as an inexhaustible source of all kinds of information's. The fact is that the Internet is becoming available to an increasing number of users, both for personal usage and also professionally, and ceases to be available to only small elite of scientists and business corporations (Savolainen, 1999, 766). Internet access is mostly available to all the employees, regardless of the hierarchy. Internet is offered as a source of information's to the engineers employed in the design process, while in the process engineering and production is ranked fourth (Kwasitsu, 2003, 470) This account is consistent with the statement according to which the World Wide Web, whose popularity is growing explosively since the beginning of the nineties, has a great potential as a new medium for data collection and various information's (Stanton, 1998, 709) Following the development of the Internet as a new medium, it was observed that during the last ten years, an ever increasing number of companies just over the Internet makes available information's about their products and services (Yang, 2005, 575)

## **2. Business decision making**

Decision making is the process of assessing the available possibilities and, as a result, the choice between alternatives that the decision making marks as the most important part of the managerial work. On the other hand, decision-making is defined as a selection of a direction and mode of actions among several alternatives. It can be defined as the process of problem solving and provides actual answers to questions related to the place, time, manner of decision making and decision makers. If the decision is considered as a process, then the decisions are the results of the decision making process. The decision represents a choice between one or more choices, and making such choice to be more optimal. A good decision, as a result of decision-making has the following characteristics: it must be unambiguous, precise, clear and achievable and above all, timely (Peter and Babogredac, 2013, 17) The importance of making a decision is supported by the statement that such decision should confirmed an irreversible allocation of resources (Parnell et al., 2011, 275) Yates (2012) defined decision as a commitment to action that will bring a satisfactory state of affairs for a particular party, i.e. the user who has commenced such action. From this definition, it follows that the decision reflects the intent of a particular action (Yates, 2012, 25) In the companies are basically makes the two kinds of decisions: major strategic decisions, made by a small number of the most important leaders, and a number of small decisions that daily bring all its employees. A good decision is every decision made that facilitates faster approach to the previously set of goals, and also a good decision is the one that is made on time (Liataud and Hammond, 2006, 88). Most nonprogrammed decisions are made by the managers and experts with the greater knowledge and experience. Unprogrammed decisions are more important than programmed and probably have a greater impact on the performance of the organization. Managers tend to delegate programmed decisions to their subordinates thereby gaining more time to make a heavier, non-programmed decisions (Gomez-Mejia, Balkin, Cardy, 2008: 227). Studies made by Pilepić and Šimunić (2010) has shown that when the strategic decisions took place, 77% (of total respondents) of managers from the top management were involved, 66% of managers of middle management and none managers from the lowest level of management. When making tactical decisions, 100% (of total respondents) of the top managers were involved, 97% of managers of middle management and 50% of managers of the lowest level of management were included. For the implementation of operational decisions, 44% (of total respondents) managers from the top management, 44% of managers of middle management and 100% of managers from the lowest level of management were included. Programmed decisions are made by 119 of a total

of 124 (96%) surveyed managers at all levels of management, while 85% of them are forced to make non - programmed decisions. In total, 90% of managers made their decisions individually, and 88% of them participate in a group decision (Pilepić and Šimunić, 2010: 419).

### 3. Research

The survey was conducted in April and May 2014. Data were collected through a structured questionnaire. The study included nine businesses located in the Međimurje County, and the criterion required for the participation in the study, except for the metal industry, was the number of employees. Thus, in this study were included some of the most important metalworker companies that have employed more than employees. In every company that was included in the survey, the assistants were determined, who were helping researchers in a way that they took the questionnaires from them and in accordance to their instructions distributed to responders, after which they have collected and returned them. Respondents to the questionnaires had four weeks available. In every company that even after the deadline has not returned the questionnaires, contact with the assistants was established, and the deadline for the submission of completed questionnaires was extended for an additional two weeks, after which the questionnaires have been collected and returned. Overall, 99 questionnaires were handed over, of which 36 to the respondents from a higher hierarchical levels and to 63 respondents from the lower hierarchical levels. The total number of the returned questionnaires was 81. Before data processing has started, the three questionnaires were excluded due to incompleteness, 78 of the were valid: of which 26 (72,2%) questionnaires from the respondents were from the higher hierarchical levels and 52 (88,9%) questionnaires were from respondents from the lower hierarchical levels. The overall effective response rate was 78,8%.

#### 3.1. Sample description

The subjects were divided into two hierarchical levels: higher and lower. In a higher hierarchical level were included the most senior officials such as the main managers and directors as well as their deputies, technical directors and directors for the procurement and sales, but engineers, technicians and economists responsible for performing daily tasks at the operational level were located in a lower hierarchical level. From a total of 78 subjects, 26 of them belonged to a higher hierarchical level (33,3%) The lower hierarchical levels enrolled 52 subjects (66,7%)

As it has been seen from the age criteria, the average age of employees on a higher hierarchical levels was 43,9 years. The youngest participant at the time of testing was 28 years old and the oldest one 67. At the time of testing, 69,2% of the respondents had 42 years of age or less. The employees average age from the lower hierarchical levels was 36,2 years. In this group of participants, the youngest one, at the time of testing was 24 years, and the oldest was 59. At the time of testing, 75% of respondents had 41 years of age or less.

The average age of all 78 subjects in total amounted to 38,7 years.

Summary about the information's on the age structure of the respondents is shown in Table 1.

**Table 1** *The age structure of the respondents*

Hierarchical level	N	Min.	Max.	Mean	Std. Deviation
Higher level	26	28	67	43,92	11,70
Lower level	52	24	59	36,15	8,89

Source: Mario Šercer, own work.

As for the qualifications, all respondents have at least completed vocational or the secondary school. Most of the respondents have completed higher or the University education: 20 respondents from the higher hierarchical levels or 76,9% of respondents, and 27 from the lower hierarchical levels, or 51,9% of them.

Among other things, the respondents were answered on questions related to the use of computers and the Internet, and the following data were obtained:

- 46,2% of respondents from the higher hierarchical levels used a computer for at least 15 years, and this percentage is almost the same with the members from the lower hierarchical levels that amounts to 44,2%.

- 23,1% of respondents from the higher hierarchical levels have been using the Internet for 15 years or more, while at the same level for the business purposes 38,5% of respondents use the Internet for an hour or less.

In similar vein to a higher level, in the lower level, the Internet have been used by 25,4% of respondents for 15 years or more, while for the business purposes, up to one hour of Internet uses 46,2% of respondents.

### **3.2. The questionnaire**

The questionnaire was designed to gather and process the information's relating to the sources of information that respondents the most commonly used in their daily work and to obtain information's about the characteristics of such information that are the most important to them. When developing the questionnaire, as the basis have served in the previous research used and tested measuring instruments (Allen and Gerstberger, 1967 and Kwasitsu, 2003) which have been expanded and adapted to the needs and research duration. Respondents of both hierarchical levels filled in the identical questionnaires, and using the Likert scale with five points, it was necessary to evaluate the importance of each of eighteen offered sources of information's. Also, for every of the eighteen sources of the information's, respondents should evaluate the following characteristics: accessibility, ease of usage, the quality of the obtained information's, experience when using the sources of information's and their reliability.

### **3.2. Analysis and Results**

With the factor analysis of the original 18 items of the measuring instrument were divided into four factors which explained a total of 62,06% of the variance; five items have been excluded. The first factor, i.e. the internal sources explains 31,54% of the variance and included the following items: research within the company, people in the business environment within the company, group discussions, experiments and tests and technical staff. The second factor (advisory external sources and the Internet) consists of four items: an advisory external sources with surcharge, sources on the Internet for a fee, free advisory external sources and free resources on the Internet, which explains 12,24% of the variance. The third factor (suppliers and customers) consists of the three items: suppliers, potential suppliers and customers, and they explained 9,37% of the variance, while the fourth factor, i.e. the printed literature, which includes books and technical journals explains 8,91% of the variance. Each factor had an acceptable level of reliability, and Cronbach alpha was 0,802 for the first factor, 0,776 for the second, 0,758 for third and 0,751 for the fourth factor.

### 3.2.1 Analysis of the importance feedback from the sources of business information's

The study results have showed that the preferences of the use of certain sources of information's do not differ with respect to the hierarchical level, and therefore at a higher and a lower level in the course of the collection of information's are most commonly used internal sources. In the second place are placed the suppliers and customers, as a sources of information's which during the information gathering are used more often, even from the printed literature and from the Internet. Affiliations towards different sources of information's at different hierarchical levels are shown in Table 2.

**Table 2** *The use of sources of information, depending on the hierarchical level.*

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher level	Internal sources	4,18	0,70
	Suppliers and customers	3,96	0,69
	Printed literature	3,46	0,68
	Advisory external sources and the Internet	3,39	0,64
Lower level	Internal sources	4,07	0,59
	Suppliers and customers	3,76	0,71
	Printed literature	3,66	0,99
	Advisory external sources and the Internet	3,36	0,80

Source: Mario Šercer, own work.

### 3.2.2. Sources of the business information's characteristics analysis

For each offered source of business information's, it was necessary to evaluate the following characteristics: accessibility, ease of usage, the quality of the obtained information, experience in the use of the sources of information's and reliability.

With the data analysis, following results were obtained: at all the hierarchical levels, the sources that originated from the suppliers and customers are considered the most accessible source of information's, while to the members of the higher hierarchical levels are at least accessible printed literature, while to the members of the lower hierarchical levels those are external advisory sources and the Internet. The schedule of the information according to their accessibility is shown in Table 3.

**Table 3** *Accessibility to the sources of information's.*

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher level	Suppliers and customers	3,81	0,68
	Internal sources	3,81	0,94
	Advisory external sources and the Internet	3,55	0,80
	Printed literature	3,35	0,73
Lower level	Suppliers and customers	3,76	0,80
	Internal sources	3,72	0,72
	Printed literature	3,63	0,87
	Advisory external sources and the Internet	3,41	0,75

Source: Mario Šercer, own work.



Suppliers and customers are the source of information's that top managers mostly use with ease in searching for business information's, while printed literature is the source that they use rarely, what is in a clear opposition to respondents from the lower hierarchical levels, where the printed literature is the source of information's which is easiest to use, while they hardest use the advisory outside sources and the Internet. Sources of information's in accordance to the ease of their use are presented in Table 4.

**Table 4** *The ease of information's sources usage*

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher level	Suppliers and customers	3,95	0,75
	Internal sources	3,73	0,80
	Advisory external sources and the Internet	3,71	0,67
	Printed literature	3,54	0,76
Lower level	Printed literature	3,86	0,82
	Internal sources	3,78	0,65
	Suppliers and customers	3,72	0,77
	Advisory external sources and the Internet	3,51	0,71

Source: Mario Šercer, own work.

The respondents from the higher hierarchical levels, with regards to the quality of business information's, give the highest priority to the internal sources while information's obtained from consulting external sources and from the Internet are considered the non – quality information's, in which they coincide with the respondents from the lower hierarchical levels. Furthermore, members from the lower hierarchical levels not only, as it was mentioned earlier, as a source of information's the printed literature use on the easiest way, but such source is considered to be of the highest quality, as it is shown in Table 5.

**Table 5** *The quality of sources of information's*

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher levels	Internal sources	3,93	0,70
	Printed literature	3,90	0,68
	Suppliers and customers	3,87	0,65
	Advisory external sources and the Internet	3,46	0,67
Lower levels	Printed literature	4,06	0,75
	Internal sources	3,95	0,63
	Suppliers and customers	3,72	0,81
	Advisory external sources and the Internet	3,57	0,68

Source: Mario Šercer, own work.

Apart from the fact that to them are the most affordable and easiest to use as a source of information's, the most experience of all the available sources have the members of the higher hierarchical levels with the suppliers and the customers. Unlike them, members of the lower hierarchical levels are the most experienced when using the internal sources of information's. Advisory external sources and Internet have begun relatively intense to use

only during the later years which is indirectly confirmed by the fact that all of the respondents have the least experience when using such sources, what has been set forth in the Table 6.

**Table 6** Experience when using the sources of information's

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher level	Suppliers and customers	4,01	0,86
	Internal sources	3,91	0,81
	Printed literature	3,79	0,76
	Advisory external sources and the Internet	3,55	0,79
Lower level	Internal sources	3,78	0,60
	Printed literature	3,65	0,78
	Suppliers and customers	3,39	0,86
	Advisory external sources and the Internet	3,22	0,80

Source: Mario Šercer, own work.

Reliability of sources of information's is the only characteristic in which coincide respondents replies at the both hierarchical levels that they considered the printed literature as the most reliable source of information's. Second place when ranking the reliability took the internal sources, followed by suppliers and customers, while advisory external sources and the Internet data are considered the least reliable source for the proper business information's, which is evident from the data shown in Table 7.

**Table 7** Reliability of the sources of information's

Hierarchical level	Sources of information's	Mean	Std. Deviation
Higher level	Printed literature	3,98	0,66
	Internal sources	3,90	0,66
	Suppliers and customers	3,72	0,84
	Advisory external sources and the Internet	3,43	0,71
Lower level	Printed literature	4,04	0,71
	Internal sources	3,95	0,63
	Suppliers and customers	3,51	0,77
	Advisory external sources and the Internet	3,42	0,73

Source: Mario Šercer, own work.

#### 4. Discussion

During the gathering of the business information's, top managers as well as operational management give the equal importance to all of the available resources. Information's are usually drawn from internal sources such as researches within the company, from the people in the business environment within the company, during the group discussions, experiments and tests and from the technical staff. To the information's that were gathered from internal sources are more trusted than for those that come from external sources: internal sources are relatively easy accessible and they are easy to use, and all the employees during their work so far had the opportunity to meet with them. We have hereby confirmed the findings obtained during an earlier research. Hertzum and Pejtersen (2000) have showed that working

colleagues to the expert engineers represent the primary source of information's, and the underlying cause of this fact is their accessibility. To the same conclusions reached Kwasitsu (2003), who in his work as the main source of information's has shown the people in their own work unit. Suppliers and customers are considered to be an important source of information's, whose information's contains all the essential features that are also a prerequisite for their use: they are affordable, all the customers have already had the experience of working with them, and they provide a relatively high-quality and reliable information's. Rosenberg had found already back in 1967 that at least used sources of information outside the business organisations, is the one that requires correspondence by letter or by contacting persons by the seekers of information who are more than ten kilometres away. And even nowadays, advisory external sources (regardless of whether these services are free or need to be settled) still remain at the rear. The Internet, as one of the sources of information's that is still not to be believed unreservedly. Although at the present time practically does not exist the firm that would not have an Internet connection, but Internet access is still not accessible to all employees in so far as to appear at the first glance. One reason for this is the fact that some companies, because of the abuse of the Internet by their employees for the private purposes, they supervise and control its access. Another reason is the information's congestion. It is expected that the internet in the nearby future has become the increasingly important and widely used source of information's and recommendations for the future research and also to monitor the intensity of the use of the Internet not only for private purposes but also for the business. Computer literacy is increasingly present regardless of age, which is certainly one of the basic requirements in creating preferences for the Internet as one of the sources of business information's.

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## **ANALYSIS OF INFORMAL SOURCES OF FINANCING IN CROATIA**

## **ANALIZA NEFORMALNIH IZVORA FINANCIRANJA U REPUBLICI HRVATSKOJ**

### **ABSTRACT**

*This paper overviews the sources of financing entrepreneurship in Croatia, with special emphasis on informal sources, and uses the information gathered by Global Entrepreneurship Monitor (GEM) Croatia 2010. The sources of financing are one of the key elements (with entrepreneurial opportunities, and human resources) affecting to the growth of entrepreneurial activities that ultimately generates the general economic growth of the national economy of a country. According to the GEM research of experts it was found that financial support is one of the unfavorable conditions of entrepreneurial activity. Therefore, this paper analyze views of experts on the sufficiency and availability of financial sources, required money, the link between financial resources and entrepreneurial motives in the Republic of Croatia (Croatia). The aim of this paper is, through a greater number of variables related to funding sources, point out the problem of the entrepreneurial financial sources, especially on informal sources of financing. After a thorough bibliographic review regarding financial sources and analysis of GEM data, results show that financial sources are insufficient – particularly informal. Presented and interpreted results could be a useful basis and encouragement for a further research in this and similar topics.*

**Key words:** *Financial sources, Entrepreneurship, Experts, Entrepreneurial motives, Informal investors*

### **SAŽETAK**

*Ovaj rad bavi se izvorima financiranja poduzetnika u Republici Hrvatskoj, s posebnim naglaskom na neformalne izvore financiranja, koristeći Global Entrepreneurship Monitor (GEM) bazu podataka za Hrvatsku za 2010. godinu. Izvori financiranja su jedan od ključnih elemenata (uz poduzetničke mogućnosti, i ljudske resurse) za rast poduzetničkih aktivnosti koji u konačnici generira općim ekonomskim rastom nacionalne ekonomije neke države. Prema GEM istraživanju eksperata utvrđeno je da je jedan od nepovoljnih uvjeta poduzetničkog djelovanja financijska potpora. Stoga se u radu analiziraju stavovi eksperata o dostatnosti i dostupnosti financijskih izvora, potreban novac poduzetnicima početnicima, te veza između financijskih sredstava i poduzetničkih motiva u Republici Hrvatskoj. Cilj rada je obuhvaćanjem što većeg broja varijabli vezanih za izvore financiranja ukazati na problematiku izvora financiranja poduzetnika, a posebno na neformalne izvore financiranja. Na temelju relevantne literature te analize GEM podataka, može*

*se zaključiti kako su potrebi financijski izvori nedostatni – što se posebno odnosi na neformalne izvore financiranja. Prikazani rezultati mogu biti korisna baza i poticaj daljnjim istraživanjima na ovu i sličnu temu.*

**Ključne riječi:** *Financijski izvori, Poduzetništvo, Eksperti, Poduzetnički motivi, Neformalni izvori financiranja*

## **1. Introduction**

Availability of, and access to finances is a key element to the start-up and successful entrepreneurial growth and development. Barriers to accessing appropriate level or sources of funding may have a lasting negative impact on the performance of affected firms (Marlow, Patton, 2005). Therefore, funding sources are one of the most important aspects of start-up (Van Osnabrugge, 2000), and they also represent the biggest obstacle to the most firms (Sudek, 2006/2007). Financing sources in the literature can be divided into formal and informal (Lawal, Abdullahi, 2011, Schreiner, 2001, Bygrave, et. al., 2007). Considering that the availability of financial resources needed to run the firm is a key component for development of entrepreneurship (or the economy of a country), this paper will analyze the informal sources of financing based on the GEM database for the Republic of Croatia (Croatia), year 2010.

Croatia can be defined as a transitional country, which has a major problem with the number of unemployed and with the number of people living below the poverty level (Vehovec, et. Al., 2006). Since the entrepreneurship or self-employment is a way to end unemployment, and since the availability of financial resources is one of the three main elements for starting a business (Lingelbach, de Lavigne), it is necessary to determine the availability of funding for start-ups in Croatia. Regarding that, in this paper an emphasis will be put on informal sources of financing, ie. 3F - Family, Friends, and Foolhardy strangers (Bygrave, Quill, 2007).

Based on GEM data, 2006 Financing report, Bygrave and Quill, we can clearly interpret the importance of informal sources of financing (with an emphasis on 3F) in reducing unemployment and poverty. Based on literature review it can be concluded that most of the literature which is engaged on informal sources of financing is based on business angels, and 3F's are usually only mentioned but rarely analyzed. However, this approach ignores the other sources of informal financing, whether the financing of higher amounts in the high potential firms (which is typical for business angels) or small amounts in micro enterprises (Bygrave, WD, et. Al., 2007). So, in order to get clarification on the availability and range of informal sources of funding it is necessary to expand the analysis with business angels on all other participants in the informal sources of financing.

Based on the relevant literature it could be concluded that although the formal sources of financing are often less expensive than informal - especially in terms of interest rates (Yifu, Xifang, 2006), because of their less availability for start-ups (primarily due to higher demand than supply, information asymmetry - related to "hard information" such as the basic financial statements, credit ratings, collaterals as assets to reduce risk, etc.) (Yifu, Xifang, 2006, Lawal, Abdullahi, 2011, Schreiner, 2001, Berensmann, et. al., 2002, Mason, Stark, 2004), they often turn to informal sources of financing.

Since 2001, GEM discusses about two different types of entrepreneurship: entrepreneurs driven by necessity and entrepreneurs driven by opportunity (Block and Wagner 2006, Reynolds et al., 2002). GEM research has made progress in understanding how different types of entrepreneurship affect the development. The difference between these two types of entrepreneurs is in their motives for starting entrepreneurial ventures. The starting point in distinction between "entrepreneurs by necessity" and "entrepreneurs by opportunity" is that the first ones became entrepreneurs because there is no better option for them, that is opposed to the "entrepreneurs by opportunity" since they became entrepreneurs because of the perceived business opportunity (Reynolds et al. 2002). The existence of entrepreneurs by opportunities has a positive and significant impact on economic

growth (Acs et al, 2005; Reynolds et al., 2002) while countries with low share of entrepreneurs by opportunity and a large proportion of entrepreneurs by necessity have a low gross domestic product (GDP) per capita (Block, Wagner, 2006 in Block J, Sandner, P., 2009).

Considering that entrepreneurship is recognized as a driving force of economic growth, and since one of the most important elements for launching entrepreneurial ventures are funding sources - which are often unavailable from formal sources (the reasons stated above), this paper analyze the views of experts about the sources of financing, the money needed for start-ups, links between sources of funding and entrepreneurial motives in Croatia.

The purpose of this paper is to evaluate the availability of financial resources (from formal and informal sources) in Croatia and to examine the link between financial sources and entrepreneurial motives.

The aim of this paper is to point out, through a greater number of variables related to funding sources, the problem of the entrepreneurial financial sources - especially on informal sources of financing.

## 2. Sample and Variables

This research is based on data collected through the Global Entrepreneurship Monitor (GEM) consortium. GEM is the largest international empirical research for monitoring entrepreneurial activity. The first published reports came out in 1999 and involved just 10 countries, 16 years later over 100 economies participate in this research (countries at all levels of economic development and in almost all geographic regions). Croatia has been participating in GEM research since 2002. The objective of GEM study is to measure entrepreneurial attitudes, activities and aspirations of people worldwide, as well as to assess entrepreneurial environment of all countries participating in the research. GEM uses a unique methodology for researching entrepreneurship state in the world, and collects data from three sources: Adult Population Survey (APS), National Experts Survey (NES) and standardized secondary international databases, such as Doing Business Report, the International Monetary Fund etc. Based on data collected and analyzed, GEM consortium annually publishes a global report on entrepreneurship state.<sup>1</sup>

The basic objectives of the GEM research are: 2

- Measuring the differences in entrepreneurial aspirations, behaviour and activities between countries
- Determining the factors that influence the nature and level of entrepreneurial activity of a country
- Identifying policies that may enhance the level of entrepreneurial activity in a country

The data collection engine powering GEM research is composed of two complementary tools:<sup>3</sup>

- I. Adult Population Survey (APS) - is a comprehensive questionnaire, administered to a minimum of 2000 adults (aged 18-64) in each GEM country, designed to collect detailed information on the entrepreneurial activity, attitudes and aspirations of respondents. APS data is used to establish one of GEM's best known measures of entrepreneurial activity, the early Stage Entrepreneurial Activity Rate (also called the TEA index).
- II. The National expert survey (NES) - The NES is a survey instrument administered to a minimum of 36 "experts" in each GEM country, allowing the measurement of the nine key Entrepreneurial Framework Conditions (EFCs): Finance, Government policies, Government programs, Entrepreneurial education and training, Research and development (R&D) transfer, Commercial and professional infrastructure, Internal market openness, Physical infrastructure and services, Cultural and social norms.

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1 <http://www.gemconsortium.org/docs/download/3616> (accessed 17 May 2014)

2 <http://www.gemhrvatska.org/metodologija.html> (accessed 17 May 2014)

3 <http://www.gemconsortium.org/Data-Collection> (accessed 17 May 2014)

Except for referred data, GEM uses standardized secondary international databases, such as Doing Business Report, the International Monetary Fund etc.

The sample used in this study is based on data collected through examination of the APS and NES for Croatia in 2010. Holders of Croatian GEM project are SMEs and Entrepreneurship Policy Center (CEPOR) and Josip Juraj Strossmayer University of Osijek. CEPOR's external associate participated in the process of surveying and interviewing experts, while surveying adult population was carried out by IPSOS Puls d.o.o. Agency for market research (PULS), according to the methodology and instruments that are mandatory for all participants in the GEM research.<sup>4</sup>

In the sample of APS Croatia for 2010 there were 2,000 adults, but for this research from that sample respondents are selected on the basis of total early-stage entrepreneurial activity (TEA index) and make the sample of 92 participants (64% male, 36% female). NES sample consists of 40 experts (57.5% female, 37.5% male).

Indicators of motivation for entrepreneurial activity:

- TEA Opportunity index: those who are opting for entrepreneurial activity because they have perceived a business opportunity
- TEA Necessity index: those who are forced by the situation they found themselves in (lost their job, could not find another employment...)

The variables included in the NES survey are following: 5

- There is sufficient equity funding available for new and growing firms (sample size (N)=37; Statistical Average (Mean)=2,49; Standard Deviation (SD)=0,9).
- There is sufficient debt funding available for new and growing firms (N=40; Mean=3,20; SD=1,02).
- There are sufficient government subsidies available for new and growing firms (N=39; Mean=2,79; SD=0,92).
- There is sufficient funding available from private individuals (other than founders) for new and growing firms (N=37; Mean=2,11; SD=0,91).
- There is sufficient venture capitalist funding available for new and growing firms (N=36; Mean=2,08; SD=1,02).
- There is sufficient funding available through initial public offerings (IPOs) for new and growing firms (N=34; Mean=2,15; SD=1,04).

Based on APS data, the following variables were analyzed:

- Variable „Nascent entrepreneur, opportunity (SUBOPP10)“ represents the number of nascent entrepreneurs with opportunity motive (Mean=0,43; SD=0,50, N=40).
- Variable „Opportunity, necessity or other motive (TEA10MOT)“ describes entrepreneurial motives (N=92; opportunity motiv=65%; necessity motive=32%; other motive=3%; SD=0,55).
- Variables that describe the significance of differences in the level of required money, level of invested money and informal funds with regard to the motives of entrepreneurs are as follows:
  - Total money required value - US\$ (SUMONTUS) (N=92; Percent=63%; Min=1781,80; Max=1.000.000; Mean=128.585,20)
  - Personal money invested value - US\$ (SUMONOUS) (N=92; Percent=14%; Min=8.127; Max=534.540; Mean=81.346)
  - Informal funds in the last 3 years value - US\$ (BAFUNDUS) (N=92; Percent=6,5%; Min=3.563; Max=71.272; Mean=24.054)

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4 <http://www.cepor.hr/GEM-brosura-2002-2011-eng-za-web.pdf> (accessed 17 May 2014)

5 The survey was conducted through Likert scale from 1 to 5, where 1 means Strongly agree, 2 - Agree, 3 - Neither agree nor disagree, 4 - Disagree, 5 - Strongly disagree.



- Informal investor in the last 3 years with provided value (BUSANGVL) (N=92; Percent=6,5%; SD=0,24)
- Variables related to the informal investors:
  - Busang - Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds? (N=92; Mean=0,087; SD=0,28).
  - Bafund - Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds? (N=6; Mean=135.000; SD=144187,4).
  - Barel - What was your relationship with the person that received your most recent personal investment? (N=7; Mean=2,71; SD=1,70).

As a dependent variable, in this paper, is defined: sources of financing; and as an independent variable: entrepreneurial motives.

The main hypothesis of this paper is: sources of financing (whether formal or informal) are not sufficiently available for start-ups and growing businesses.

Statistical analysis was made in the program STATISTICS 64.

### 3. Results

Ratings of experts about the sufficiency and availability of funding sources are summarized by descriptive statistics analysis (NES Croatia 2010). The experts rated their claims through Likert scale from 1 to 5, where 1 means Strongly agree, 2 - Agree, 3 - Neither agree nor disagree, 4 - Disagree, 5 - Strongly disagree (Table 1).

Descriptive statistical analysis of experts attitudes about financing sources (Table 1) shows that none of the evaluated elements is rated more than 3.5. The lowest average score (2,08) was rated variable "sufficiency and availability of funding through other business owners for new and growing businesses", while the highest average rated (3,20) variable is "sufficiency and availability of debt financing for new and growing businesses".

Experts attitudes about "the sufficiency and availability of equity for new and growing firms" is rated with average score 2.49, the variable "There are sufficient government subsidies available for new and growing firms" is rated with average score of 2.79, and the average score of variable "There is sufficient funding available from private individuals (other than founders) for new and growing firms" is 2.11, while the average score of variable "There is sufficient funding available through initial public offerings (IPOs) for new and growing firms" is 2.15.

Based on these analysis it can be concluded that these low average scores suggest that experts perceive existing sources of funding as insufficiently available.

**Table 1** Experts attitudes about funding sources

Variable	Valid N	Mean	Min	Max	Variance	Std. Dev.	Coef. Var.
There is sufficient equity funding available for new and growing firms	37	2,49	1	4	0,81	0,9	36,25
There is sufficient debt funding available for new and growing firms	40	3,20	1	5	1,04	1,02	31,81
There are sufficient government subsidies available for new and growing firms	39	2,79	1	4	0,85	0,92	33,02
There is sufficient funding available from private individuals (other than founders) for new and growing firms	37	2,11	1	4	0,82	0,91	42,99
There is sufficient venture capitalist funding available for new and growing firms	36	2,08	1	5	1,05	1,02	49,19
There is sufficient funding available through initial public offerings (IPOs) for new and growing firms	34	2,15	1	5	1,1	1,04	48,82

Source: research results

Variable „Nascent entrepreneur – opportunity“ is a dichotomous variable with values 0 and 1, where 1 indicates a nascent entrepreneur – opportunity, and 0 other entrepreneurs (Table 2). Nascent opportunity entrepreneurs are represented in a larger percentage share (52.78%) compared to nascent entrepreneurs driven by necessity. At the level of significance of 5%, based on the Mann-Whitney U test, we do not have sufficient evidence to reject the null hypothesis ( $p = 0.88$ ). We conclude that there is no difference in the distribution of Nascent entrepreneur, opportunity with regard to Total money required value.

**Table 2** Mann-Whitney U Test: The difference in the distribution of Nascent entrepreneur, opportunity with regard to Total money required value.

Variable	Mann-Whitney U Test	2*1 sided exact p
SUMONTUS - Total money required value - US\$	632,500	0,88

Note\* Marked tests are significant at  $p < .05000$

Source: research results

The relation between the investment of financial resources and entrepreneurial motives will be determined by the Mann - Whitney U test (Table 3). Regarding the entrepreneurial motives, in the above analysis, the variable "Total money required value" of a total of 68 respondents, 26.47% are necessity entrepreneurs, and 73.53% are opportunity entrepreneurs. At the variable "Informal funds in the last three years of value" out of 9 respondents 22.22% are necessity entrepreneurs, and 77.78% opportunity entrepreneurs. Toward the variable "Informal investor in the last three years with provided value" of a total of 108 respondents 32.40% are necessity entrepreneurs, and 67.60% opportunity entrepreneurs. Based on the Mann-Whitney U test, we can conclude that there is insufficient evidence to reject the null hypothesis, ie there is no difference in the distribution of the total value of the money required value with regard to the motive of entrepreneurs.

**Table 3** The significance of differences in the level of invested money and the use of funds for companies with regard to the entrepreneurial motives based on Mann - Whitney U test

Variable	Mann-Whitney U Test	2*1 sided exact p
SUMONTUS - Total money required value - US\$	386,000	0,38
BAFUNDUS - Informal funds in the last 3 years value - US\$	5,000	0,67
BUSANGVL - Informal investor in the last 3 years with provided value	1228,000	0,75

Source: research results

To the question: „Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds?“ responded 57,26 % males and 31,42 % females, out of 92 respondents 8,70% answered affirmatively to this question (Table 4).

**Table 4** Frequency by gender to the question „Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds?“

Category	count	Cumulative count	Percent	Cumulative percent
0	84	84	91,30	91,30
Yes	8	92	8,70	100,00
Missing	0	92	0	100,00

Source: research results

Based on descriptive statistic to the question: “Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds?” out of 6 respondents 66,67% of them are males, and 33,33% are females. Reviews on average males invested higher amounts (Means=177.500,00) then

females (Means=50.000,00) (Table 5). Considering the low sample of respondents, was made Mann-Whitney U test (Table 6).

**Table 5** Descriptive statistics by gender for the the question: „ Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds? “ - One-way-ANOVA

Gender	BAFUND Means	BAFUND Sum of w	BAFUND Std. Dev.
Male	177.500,00	4	163.783,4
Female	50.000,00	2	42.426,4
All grps	135.000,00	6	144.187,4

Source: research results

Based on the Mann-Whitney U test, we can conclude that there is insufficient evidence to reject the null hypothesis, ie there is no difference in the distribution of the amount of financial investment with regard to gender (Table 6).

**Table 6** Mann-Whitney test: The amount of informal investments in entrepreneurial venture regarding to the gender of informal investors

Variable	Mann-Whitney U Test	2*1 sided exact p
BAFUND - Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds?	2,000	0,063

Source: research results

It is evident from Table 7, that informal investors on average financed an entrepreneurial venture in the amount of HRK 135,000.00, the lowest amount is HRK 20,000.00, while the highest amount is HRK 400,000.00.

**Table 7** Descriptive statistics by variable: “Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds?”

Variable	Valid N	Mean	Min.	Max.	Std. Dev.
BAFUND	6	135.000,00	20.000,00	400.000,00	144.187,4

Source: research results

Based on the frequency of responses to the question "What was your relationship with the person that received your most recent personal investment?" it is clear that from the 7 respondents who answered this question, 42.86% answered that they are close family member, 14.28% of them that they are work colleague, 28.58% friends or neighbors, and 14.28% strangers with a good business idea (Table 8).

**Table 8** Frequency by question: “What was your relationship with the person that received your most recent personal investment?”

Category	Count	Cumulative count	Percent	Cumulative percent
Close family member	3	3	3,26087	3,2609
A work colleague	1	4	1,08696	4,3478
A friend or neighbor	2	6	2,17391	6,5217
A stranger with a good business idea	1	7	1,08696	7,6087
Missing	85	92	92,39130	100,0000

Source: research results

## Final considerations and the guidelines for further research

The obtained results indicate that existing sources of funding for entrepreneurs are insufficiently available. Regarding to entrepreneurial motives, opportunity entrepreneurs are represented in a higher percentage share (52.78%) compared to entrepreneurs driven by necessity, and there is no difference in the distributions of Total money required value regarding to the entrepreneurial motive.

Very low number of respondents (8.70%) in the last three years personally financed some entrepreneurial venture, of which, on average, male respondents invested higher amounts (Means = 177,500.00) than female respondents (Means = 50,000.00). However, in further analysis it was concluded that there is no difference in the distribution of the amount of financial investment regarding gender. Informal investors, on average, financed an entrepreneurial venture in the amount of HRK 135,000.00, the lowest amount is HRK 20,000.00, while the highest amount is HRK 400,000.00. Most informal investors belong to close family members (Family = 42.86%) and friends (42.86%) and the lowest proportion of them are foolhardy strangers (14.28). Very low sample of informal investors can suggest the following: either the share of informal investors is substantially low or respondents were to averse responding to this question. With regard to that we can conclude that informal investments are insufficiently developed to entrepreneurs.

Limitations of this paper are reflected in insufficient number of respondents (as experts and as informal investors, and entrepreneurs themselves) and that merely year 2010 was analyzed. In further research on this topic more consecutive years should be analyzed to determine the movement of variables, and to make a comparison with countries with similar characteristics. Moreover, the analysis should be segmented by regions in Croatia in order to gain insight into the existence of possible differences with respect to a particular region, and to put in relation national economic indicators (GDP, unemployment rate, the rate of exports and imports) with the entrepreneurial activity. As regards to informal investors, it is necessary to make a detailed analysis of informal investors, in a way to research a greater number of them in order to make clearer conclusions. Also, it is necessary to analyze the impact of formal and informal sources of funding to entrepreneurial activity over the years.

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## **SIGNIFICANCE OF REPUTATION THROUGH THE PERSPECTIVE OF ASSET SPECIFICITY TRANSACTION COST THEORY**

### **VAŽNOST UGLEDA KAO SPECIFIČNE VRIJEDNOSTI U TEORIJI TROŠKOVA TRANSAKCIJE**

#### **ABSTRACT**

*The purpose of this paper is to examine the influence of reputation and Oliver Williamson's conception of asset specificity as drivers for competitiveness. More specifically, this paper develops the idea of reputation as it relates to buyer/supplier relationships. A consideration of the costs associated with economic exchange can yield insights and help guide corporate strategy as to whether to acquire an asset, what to outsource or vertically integrate, where to situate a business, or whether to invest in a dedicated supplier. Reputation can affect business outcomes through the channel of asset specificity and can be analyzed through the lens of transaction costs.*

**Key words:** Reputation, asset specificity, transaction costs, competitive advantage, supplier relationships, business networks

#### **SAŽETAK**

*Svrha ovog rada je preispitati utjecaj ugleda u Transakciji Pregovaranja Olivera Williamsona i koncepcije specifične vrijednosti (asset) kao inicijatora konkurentnosti. Točnije, ovaj rad razmatra ideju važnosti ugleda u uzajmnom odnosu kupca/dobavljača. Razmatranje troškova povezanih sa ekonomskim razmjenama može pridonijeti točnijem uvidu i pomoći razvoju korporacijske strategije u odlučivanju specifične vrijednosti (asset); da li outsource ili se okomito integrirati, u odabranju lokacije ili ulaganja u određenog dobavljača. Ugled može utjecati na poslovne rezultate kroz specifične vrijednosti (asset) i mogu se analizirati kroz prizmu troškova transakcije.*

**Ključne riječi:** *Ugled, specifične vrijednosti (asset), transakcijski troškovi, konkurentska prednost, odnos s dobavljačima, poslovnim mrežama*

## **1. Introduction**

Transaction cost economics (TCE) is a framework that can be used to make complex strategic decisions that impact the performance of a firm. In many ways, TCE provides an answer to some of the shortcomings in standard neoclassical theory. As explained by Robert Salomon “transaction cost economics is a central theory in the field of strategy. It addresses questions about why firms exist (i.e., to minimize transaction costs), how firms define their boundaries, and how they ought to govern operations.” (Salomon, 2015). Since business transactions are a key part of operations, an understanding of where and how transaction costs occur can yield insight into why total costs can be different between firms. It is not just direct costs that are of concern but also indirect costs that affect and are affected by differences in quality and delivery. While this approach may provide an understanding of current positioning in its marketplace, continuous evaluation of where to invest capital, and whether to focus on outsourcing or vertical integration are important considerations for minimizing transaction costs and sustaining competitive advantage.

According to Oliver Williamson, the determinants of transaction costs are frequency, specificity, uncertainty, limited rationality and opportunistic behavior (Williamson, 1981). These classifications are broad and their meanings are interpreted in many ways.

The importance of TCE to business is found through the process of evaluating transaction costs, which can be undertaken at the level of individual transactions as well as on a macro strategic level. Since costs are an unavoidable aspect of running a firm and are inherent in the business process, consideration and potential quantification of transaction costs can lead to more insightful decision-making. For example, in the absence of private investors, firms can request loans from a bank in order to expand their operations. These bank loans can have covenants in which a firm is compelled to follow the stipulations of the bank which may be overly restrictive and result in excessive transaction costs through such things as reporting on key metrics and focusing on creditor needs instead of customer needs. As described by Apitado and Millington (1992), a bank’s competitive position may be improved through careful matching of risk, loan covenants and interest rates for small business lending. The authors also suggest that small companies might be more selective in the types of covenant and loan agreements and banks they sign with (Apitado and Millington, 1992). These restrictions add to a firm’s transaction costs as they take away from customer-focused value-added functions. In a competitive market, a rival firm can displace a firm that is less customer-focused due to the emphasis to meet bank agreements.

Previous authors have treated the internal workings of a company as a ‘black-box’ with the justification that it was sufficient to know that it operated to maximize profits. (Slitter and Spencer, 2000). This perspective however rendered the firm and the entrepreneur as passive entities. More recently, firms have been recognized to be much more multi-dimensional. To illustrate, in the aftermath of high-profile corporate scandals such as those involving Tyco (Mykhailenko, 2015), Enron (Ailon, 2015) and Bernard L. Madoff Investment Securities (Abramovich, 2009), corporate reputation and trust have become important strategic elements

and economic drivers in addition to profit maximization. Equally importantly, Oliver Williamson's theory of transaction cost economics identified and helped popularize the importance of asset specificity, frequency, uncertainty, limited rationality and opportunistic behaviour in the economic governance of business enterprise (Williamson, 1983). This paper examines the relationship between corporate reputation and asset specificity as it applies to supplier relationships and business networks more generally.

## **2. Reputation**

There are many competing definitions of reputation as it applies to business entities. To narrow down the multitude of suggestions for defining corporate reputation, this paper focuses on Fombrun and Shanley (1990) which defines reputation as "a perceptual representation of a company's past actions and future prospects that describe the firm's overall appeal to all its key constituents when compared to other leading rivals" (Fombrun and Shanley 1990). Reputation is one way a firm can differentiate itself from competitors.

In today's technological world, reputation is ubiquitous as consumers can access online reviews on many products. A lost customer can affect future sales due to harsh online posts (regardless if they are unfounded). These feedback mechanisms (i.e. online and text-comment reviews) have been shown to partly influence a seller's credibility (Ba and Pavlou, 2002; Pavlou and Dimoka, 2006). Therefore, customer satisfaction is also about new customer revenue especially in today's connected society. As described in Connellan and Zemke's (1993) "customer retention is simply a matter of defining and measuring proper variables" (Connellan and Zemke, 1993). Reputation may be one of these variables.

Fombrun and Shanley (1990) further describes the importance of reputation: "a good reputation permits a company to command premium prices for its products, pay lower prices for purchases through its ability to leverage in negotiations, recruit the top candidates to its company, enhance employee morale and loyalty" (Kowalczyk, 2002). Specific skills, when executed proficiently, can raise a firm's reputation and help lower transaction costs. In short, reputation is good for business. How reputation can affect a firm's bottom line is the topic of the following sections.

## **3. Theory: Asset Specificity**

Of the five components of TCE outlined in Williamson (1983), this paper focuses on asset specificity. Williamson classified asset specificity into the following four categories: physical, site, human and dedicated (Williamson 1983). The first, physical, refers to fixed assets used in production. A company where a specific physical asset exists to produce a specific product, for example, can increase reputation due to being able to produce something where a rival firm could not compete. This reputation can translate into a heightened competitive advantage. The second, site, refers to the geographic location of a particular asset where relocation would incur significant costs. By virtue of proximity to either a customer or supplier, site specificity can have positive impacts as the immediacy to meeting an urgent request can be fulfilled and as a result increase the reputation inherent in a supplier/buyer relationship. The third aspect of asset specificity, human, refers to the acquired skills and knowledge of employees specific to a process or operation. A firm that rewards its employees through training, mentoring and



incentives can result in lowered rates of employee attrition, heightened ability to attract high quality employees and increased productivity. The fourth, dedicated asset specificity, refers to the investments made on fixed assets that are required to conduct business with a specific trade partner. Suppliers that consider a customer to be reputable will more likely invest in a specific fixed asset for that particular customer, and *vice versa*. In other words, if “firms are able to induce suppliers/customers to undertake more relationship-specific investments, then this may result in longer relationship duration since such investments are less valuable outside the relationship” (Raman and Shahrur, 2008). Each of these four components of asset specificity will further be examined in relation to reputation, using hypothetical examples of supplier relationships.

### **3.1. Physical Asset Specificity**

Highly specific or specialized physical assets can be used to differentiate a company from its rivals through improvements in efficiency, quality and/or productivity, and these improvements can result in a heightened competitive advantage. This has a ‘spill-over’ effect where reputation can be gained and this too can positively affect a buyer’s competitive advantage in its marketplace. For example, a specific machine which produces a superior product for a customer has dual benefits. First, the supplier who owns the specific machine may have a competitive advantage over rival firms. Second, customers may benefit due to receiving a better product, with the assumption that the supplier only sells this product to a specific customer. As result of an improved buyer supplier relationship both companies stand to benefit from lowered transaction costs. For example, Ford assembles cars from manufacturer components, some of which are outsourced. Some components are complex and require specialized machines to manufacture. As described by Vandergrift (1998) a strategic decision is whether to outsource a complex part such an air-conditioner assembly. Without the proper investment in a specific machine it would not be possible to manufacture the air-conditioner assembly in-house competitively. However, controlling quality and intellectual property is best done if the assembly is manufactured in-house. Ford might ask the question whether air-conditioners are a key differentiating factor as to why customers purchase their vehicles. What is the opportunity cost to invest alternatively in another specific asset? Can air-conditioner manufacturers also sell to other car original equipment manufacturers (OEMs) thereby lower costs through economies of scale? What does Ford want to be known for? Specializing in assets that have a high value-add is a good strategic initiative.

### **3.2. Site Asset Specificity**

The business benefit of geographic location can be due to being close to customers or suppliers or to a shipping corridor such as rail, waterway or highway. These are all factors where transaction costs vary based on geographic location. Costs are identifiable when close proximity results in reductions in inventory and other related processing costs (De Vita, 2011). Moreover, the costs to relocate certain assets (once in place) can be very high and are thus associated with a high degree of immobility (Williamson 1983). Site asset specificity can result in competitive advantage when rival firms cannot easily transfer their operations to other more advantageous locations. Site specificity can also provide competitive advantage through increased ability to develop business relationships due to proximity to customers and suppliers. A firm located near a port, highway and other major arteries of transportation, for example, can

be advantageous (especially if customer is not within close proximity) to lower transaction costs associated with logistics. Also, a particular advantageous location where there is a large pool of local skilled labour can help with attracting top talent.

### 3.3. Human Asset Specificity

Transaction costs of human capital relate to the managing and training of a firm's employees. When a firm's asset is specific, it has an inherent value to a particular buyer. The specificity of skills can be measured in terms of how transferable it is in the marketplace – the more specific the less transferable or portable (Iversen and Soskice 2001). Investing in human capital, such as training on a highly specialized machine, software, or management program can increase the specificity of human capital. “Completely general training increases the marginal productivity of trainees by exactly the same amount in the firms providing the training as in other firms. [...] Completely specific training can be defined as training that has no effect on the productivity of trainees that would be useful in other firms” (Becker, 1993). In general, “if you give your employees the chance to learn and grow, they'll thrive—and so will your organization” (Spreitzer and Porath, 2012). The positive outcome of skills training is that it increases performance (Teodora et al, 2013) and improves company reputation (Suttapong et al, 2014). A good reputation also positively affects relations with customers and may also attract well-educated employees, which can result in higher productivity (Rose and Steen, 2004). Higher productivity is a function of training and hiring skilled employees and similarly, a reputable firm will be able to attract and retain top talent.

### 3.4. Dedicated Asset Specificity

An example of dedicated asset specificity can be found in supplier contract negotiations. In contract negotiation, the associated cost to cover all aspects with respect to roles and responsibilities of each party needs to be reflected in the contract. A firm benefits in lowering transactions costs as the organizational culture and reputation increase the level of mutual trust (Obloj and Obloj, 2006). When trust is high and reputation is positive there is less emphasis on the contract as being the sole decision to proceed. There may be less re-negotiating and emphasis on the legal framework due to the existing business network. Reputation is evident in many cultures when conducting business and can be found in *blat* in Russian (Ledeneva, 2009), *wasta* in Middle Eastern culture (Meed, 2006), *sociolismo* via 'market socialism' in Cuba (Ritter, 2014), the “old boys' club” in Anglo-Saxon culture (Inci and Parker, 2013), and *dignitas* in Roman culture (Elwitt, 1977).

An extreme example of dedicated asset specificity can be found in the *keiretsu* business networks that formed in Japanese business culture. These networks have such strong dedicated asset specificity that U.S. antitrust regulators have criticized them as business ‘cartels’ (Davidow, 1993). Within these closed networks the “supplier relationships in Japan are efficient due to more effective coordination and more complete information sharing” (Dyer, 1996). Transaction costs are significantly lowered through “the ability of the Japanese value chain to ‘learn’ and quickly develop high quality, complex products” (Dyer, 1996). When select suppliers are part of the *keiretsu*, each respective supplier can develop their asset specific focus and maintain their competitiveness in the global marketplace. In the U.S., firms are more vertically integrated than in Japan. As a result it is harder for firms to maintain asset specificity advantage in the absence of a strong supplier relationship (Dyer, 1996). As the common

business saying goes ‘do what you do best and outsource the rest’ is best implemented if a reputation and strong supplier relationships exist.

#### **4. Reputation as an asset**

Assets are used to facilitate operations in a business and can be used to acquire new business. Reputation is not a purchasable item and therefore is difficult to quantify; however, reputation has the ability to lower transaction costs (Dyer and Chu, 2003). In an attempt to find out the components of corporate reputation a survey of 650 CEOs almost three-quarters listed ‘trustworthiness’ and ‘high-quality products and services’ as the most important followed by ‘high-caliber management team’, (43 percent); ‘the sense the company adds value to all customer transactions’, (39 percent); ‘the impression that the company conducts business in a caring way’, (28 percent); and ‘an established reputation for innovation’, (23 percent) (Winkelman, 1999). The stated components are key differentiators that CEOs monitor and invest in that are part of a firm’s value-added practices.

To measure reputation as an asset, research by Cravens et al. (2003) suggests a reputation index be weighed on the following “specific measures relating to: products, employees, external relationships, innovation and value creation, financial strength and viability, strategy, culture, and intangible liabilities” (Cravens et al., 2003). As described, reputation is a multifactorial entity and these factors are weighted differently for each firm. For instance, a firm that relies heavily on outsourcing has to be cognizant of, and monitor, its external relationships as a key component to its reputation and business. Moreover, *ceteris paribus* a technological firm will vie for skilled human capital more successfully if it is perceived in a reputable and positive light with respect to its workforce. Depending on the operations of the firm key reputation drivers vary.

Since reputable companies are better able to secure more business, this trait should be considered an asset. “In time, favourable perceptions crystallise into the intangible asset of a corporate reputation. These reputations have economic value because they affect a company’s bottom line” (Fombrun, 2000). To evaluate the true value of reputation is inherently difficult and is sometimes seen as goodwill on a financial statement. The justification to spend funds on reputation often has to be made by appealing to public relations and marketing departments but should to be done through return on investment reasoning.

“Reputations are not built quickly, nor can they be bought and sold. A firm with a positive reputation can enjoy a significant competitive advantage, whereas a firm with a negative reputation, or no reputation, may have to invest significant amounts over long periods of time to match the differentiated firm” (Kowalczyk, 2002). Long-term relationships are an outcome of trust between the buyer-seller over a period of time. This social connection where both trading partners are benefiting from the outcome of their transactions “has been suggested that the study of business relationships must take into account not only the characteristics of the transaction in question, but also the characteristics of the relationship itself” (De Vita, 2011). The dedication to reputation needs to consider the individual transaction as well as the relationship as a whole, in order for the company to benefit over the long-term. Assets add value to a company’s business. The dedication to reputation is one value-added initiative that CEOs consider to be good for business.

## 5. Conclusion

The explorations in this paper suggest reputation may be of key importance to customers and suppliers. The adherence to developing reputation with respect to asset specificity and *vice versa* creates a positive spillover where both influence each other in positive ways. Firms with strongly positive reputations are able to achieve competitive advantage over their rivals through lowering their transaction costs. This advantage may take a number of forms, and can be realized through the four channels of asset specificity described in this paper. Reputation can be a powerful force for improving a company's bottom line.

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## **IMPORTANCE OF ETHNICITY AND DIASPORAS AS ACCESS GATEWAYS TO BUSINESS EXPANSION**

## **VAŽNOST NACIONALNOG PODRIJEKLA I DIJASPORE U EKSPANZIJI GOSPODARSKOG RASTA**

### ***ABSTRACT***

*The purpose of this paper is to examine the influence of leveraging ethnicities and diasporas in business development. More specifically, this paper develops the idea of ethnicity to facilitate expansion in both foreign and local ethnic markets and diaspora contributions to their home economies in both remittances and foreign direct investment. A consideration of ethnic marketing segmentation, company strategy abroad, governmental policy and cultural sensitivity is presented in relation to vying for new markets.*

**Key words:** *Diaspora, ethnic marketing, liability of foreignness, investment, remittances*

### ***SAŽETAK***

*Svrha ovog rada je ispitati utjecaj nacionalnog porijekla i dijaspore u razvoju gospodarstva. Točnije, ovaj rad proučava mogućnosti utjecaja nacionalnog porijekla dijaspore u razvoju tržišta na nivou stranog i lokalnog etničkog gospodarstva, a također doprinosi dijaspore u gospodarstvu domovine u smislu vlastitih i stranih ulaganja. U razmatranje su uzete u obzir etničke segmentacije marketinga, strategije tvrtke u inozemstvu, politike vlade i kulturne sensibilitnosti u odnosu na konkurenciju u novim tržištima*

**Ključne riječi:** *Diaspora, etničko tržišta, odgovornis, strano tržišt, investicije, monetarne transakcije*

## **1. Introduction**

Businesses today face increased international competition due to improved communication networks, ability to travel and increasing number of market participants. Being able to open new markets and sustain existing ones is good for business. Businesses need to expand their local market while vying for new markets internationally. If various ethnicities exist locally, a business could make a decision whether to market to this group. It could also leverage its ethnicities to work globally. Unfortunately, information on understanding cultures is still lacking. For instance, an investigation into this market segment could include concepts such as “ethnicity, acculturation, enculturation, assimilation and mobilization, integration vs. distinctiveness, and use them as springboards for further discussion of ethnic consumer behavior.” (Cui, 1996) This paper introduces the ways of ethnic marketing can be conducted highlighting the importance of harnessing the diaspora as a potential way to address this. If you do not have reference or context for understanding the specific culture, then suboptimal business outcomes may occur. One of the ways to make connections is through government-promoted student exchanges with other countries; however, this will not instantly increase market access but will help bridge the gap. Governments can also aid in creating policies that streamline financial inflows from foreign sources, especially those from its diaspora as they are more likely to be connected to their country of origin. Businesses and the investor stand to benefit from similar efforts focused on connecting to diasporas and through ethnic marketing.

## **2. Merits of Ethnic Marketing**

Ethnicity and globalism connect world economies through people of different origins. The importance of connectedness of ethnicities in today’s society enables entrepreneurial businesses both small and large to expand their markets. Especially due to ease of international mobility, communication platforms, ubiquity of information and financial flows the role of ethnicity as a connector across jurisdictions is increasingly important. These connections provide a means to enable business to access international markets. To illustrate Unified Engineering.com Corp. a small Canadian engineering and manufacturing firm, recently completed a project in Saudi Arabia with no previous experience in that market (Veckie and Veckie, 2015). The firm was able to achieve success in terms of completing the project to specification, on time and within budget. This was dependent on the firm’s employees understanding of the specific ethnic market. Due to fluency in Punjabi and Pakistani languages, as well as a local understanding about cultural interactions and expectations, barriers in conducting business were lessened. The end result was efficient workflow and a satisfied customer.

In economics literature, cultural barriers have been referred to as liability of foreignness (Zaheer and Mosakowski, 1997; Jisun and Sung, 2010; Nkongolo-Bakenda and Chrysostome, 2013; Zhou and Guillén, 2015), which takes into account such items as inefficiencies and costs of business abroad. These are the result of a number of factors, such as: higher coordination costs, unfamiliarity with the local culture and other aspects of the local market, a lack of information networks or political influence in the host country, or the foreign firm’s inability to



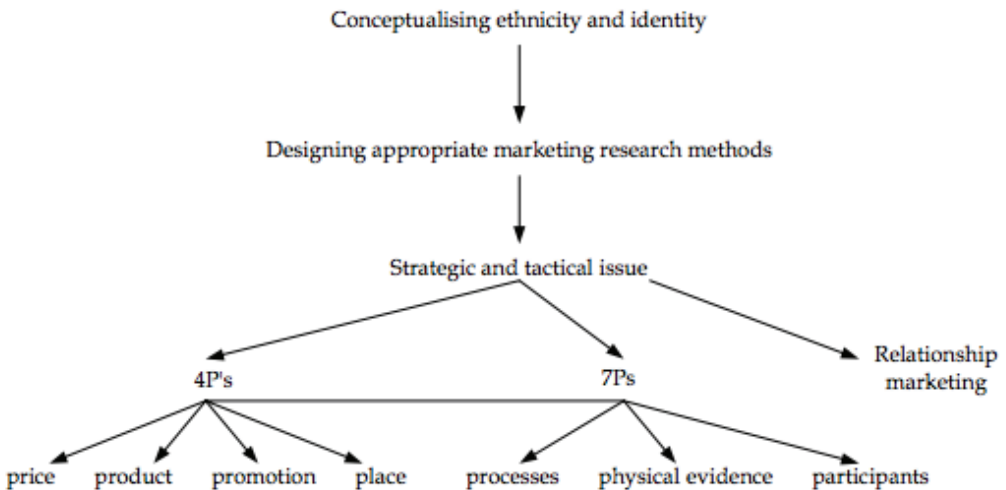
appeal to nationalistic buyers (Zaheer and Mosakowski, 1997). These costs are hard to offset because they are unknown to a firm's local business practices. A firm's ability to harness linguistic and social mores on an international project facilitates business by lowering the liability of foreignness.

Emphasis on ethnic markets is becoming increasingly important for brands to reach out to (Brand Strategy, 2005). It is particularly "apparent in the US where marketers have 'skimped' on marketing to some ethnic groups because they do not know how to communicate with them" (Burton, 2000). Those who elicit feedback from cultures and ethnicities they would like to target, stand to benefit. For instance, in some parts of traditional Chinese culture each year is associated with an animal. NSW Lotteries in Australia launched a 'lucky monkey' lottery that drew on the Chinese Lunar New Year as its theme. "Every new lunar year a scratchie would be launched in the theme of that year – a rooster, dog, pig, rat, ox, tiger, rabbit, dragon, snake, horse, goat or monkey." (Shea, 2005) The 'lucky monkey' lottery has been the best-selling scratchie of any type for over 13 years. Tapping into ethnic markets has to be done cautiously; obtaining feedback from ethnic communities to which one would like to market must be approached judiciously. As explained by NSW Lotteries communications manager, John Vineburg "Certainly we sought more cultural sensitivity in dealing with the Lunar New Year for Chinese, Vietnamese and, these days Korean communities, than St Patrick's Day" (Shea, 2005). If feedback is not sought or is disregarded it potentially could backfire. As is evident with the following car manufacturers – Ford Fiera means 'old ugly woman' in Latin American countries; Mazda Laputa means 'prostitute' in Spanish, Toyota MR2 (pronounced "merdé") means 'crappy' in French (Ricks, 2009). The lack of obtaining feedback from the local population through ethnic marketing can lead to various setbacks that impede desired business objectives.

Another potential setback occurs if a company chooses to simply sponsor an event as opposed to understanding its ethnic market segment and how its brand would be accepted. Pino Migliorino who is a Managing Director of Cultural Perspectives, an agency specializing in niche and ethnic marketing, states some pitfalls to avoid "Stay away from anything that is contentious, things like alcohol and certain communities, gambling and certain communities. Sponsorship of community events by a gaming organization is not culturally sensitive because it is promoting behaviour that potentially has a negative outcome" (Shea, 2005). Simply sponsoring a cultural event is not culturally appropriate and sensitive because it does not resonate with that ethnic group.

Prior to focusing on an ethnic group, an organization must understand its size, demographics and overall potential of product or service to justify the extra marketing cost. A way to delve deeper is through market segmentation by "identifying sufficient behavior differences between the ethnic minority and the majority to constitute a distinguishable market segment" (Lindridge and Dibb, 2003). A conceptual framework, presented in the diagram below, was presented by Dawn Burton (2000), which examines ethnicity can be examined and integrated in marketing theory. The conceptual framework goes from broad-based theorizing of the ethnic group through to relationship marketing and appends three additional Ps (processes, physical evidence and participants) to the commonly known four Ps (price, product, promotion and place). This one particular example of how an organization can conceptualize ethnic marketing in order to better understand and analyze a given target market.

*Scheme 1: Conceptualising ethnicity and identity*



*Source: Integrating Ethnicity into Marketing Theory and Practice: a conceptual overview (Burton, 2000)*

Burton’s theoretical approach to conceptualizing ethnicity and identity serves as an example of an attempt to relate how the individual functions of market analysis relates to the overall picture of business strategy. However, this paper deals with practical applications of leveraging various ethnicities in differing strategic capacities to facilitate their business objectives. For example, it could be to send an employee abroad who is originally from that area and knows the local cultural. Another capacity could be drawing upon feedback from ethnicities as to what marketing campaign would be appropriate to attract customers. Regardless, marketing and conducting business with ethnicities has its benefits by being able to enter into new markets.

### **3. Importance of Diaspora Networks**

The diaspora network is an example of utilizing ethnicity for firms to connect with new customers. “Diasporans are migrants who proactively maintain psychological, communicational, and sometimes material ties to their countries of origin” (Brinkerhoff, 2011). Connections of ethnicity based on ancestry can function as a way to open international borders. The diaspora is another avenue for networking to take place because the inclination of the diaspora to maintain ties to their native country. “Diasporan motivation to contribute to development in their places of origin is likely to be for identity expression, maintaining or acquiring power or other resources, or both” (Brinkerhoff, 2009). This motivation can be harnessed in the interest of achieving business objectives.

A survey conducted by Saxenian (1999) reports that half the foreign born entrepreneurs in the USA have business relations in their home countries. For instance, 52% of US entrepreneurs from India have business deals with India. There are other positive outcomes when the diaspora “create social and economic links to their home countries, they simultaneously open foreign markets, identify manufacturing options, and technical skills in growing regions [of their home country]” (Saxenian, 2002). Financial inflows from diasporas have many positive spillover effects that can benefit both the host and home country. Leveraging ethnicities and diasporas can be critical to understanding the local environment and conducting business in a new market.

When business is conducted in a new market several benefits occur --- both to the host country and the market entrant. In order to attract new business a developing country, to make itself an attractive destination for foreign-direct investment (Mlambo, 2005) and remittances (Mallick, 2012; Bang, 2003), should consider its governmental policies: such as, rule of law, citizenship and property rights. This would strengthen the capacity for the diaspora and others to develop greater trade relationships. As expanded by Nkongolo-Bankenda and Chrysostome (2013) the “receptivity of the home country’s government can be a critical factor in the emergence of diaspora international entrepreneurship” (Nkongolo-Bakenda and Chrysostome, 2013). Some governmental policy initiatives to abet trade are: allowing dual citizenship (Jeon and Ahn, 2004), government diaspora agencies and investment, bureaucracy, ease of starting a business, customs, delays, bribery, country image, effectiveness of its judicial system, and infrastructures (Kapur 2007; Jones 1999; Agunias 2009; Tomas 2009; Newland 2010; Newland and Tanaka 2010; Plaza and Ratha 2011). These factors have different levels of significance regarding foreign-direct investment. Let’s benchmark the value of spending based on the diaspora population – 830,000 Salvadorans remitted in excess of 3.1 Billion US on items linked to their home country, while 200,000 Ghanaians remitted in excess of 1.2 Billion (Orozco, 2008). To extrapolate linearly, if there are 1.2 million Croatians (State Office for Croats Abroad, 2015) living in the U.S. then approximately 4.5 Billion US can be linked back. To put into perspective this amount represents just over 5% of Croatia’s GDP which is in line to World Bank’s 2010 migration and remittances report: “remittances amounted to 1.9 percent of GDP for all developing countries in 2009, but were nearly three times as important (5.4 percent of GDP) for the group of low-income countries” (World Bank, 2010). Governments concerned with how their policies rank in terms of ease of doing business can benchmark their diaspora population by country and compare it to remittances received as a percentage of GDP. It is interesting to note that diaspora remittances have been evaluated in terms of percent of GDP and further have been positively correlated with currency stability and other beneficial factors such as country wellbeing (Singer, 2010; Ratha, 2003). Business residing in the home country as some of this financial inflow could go into purchasing part of their business. With the funds a business could then improve its competitiveness by investing in ways to improve its production for instance. In short, remittances and foreign direct investment from a diaspora are some ways to positively affect the economic standing of the home country and businesses that reside there.

#### **4. Conclusion**

The world is a cultural mosaic. Due to mobility of its people ethnicity is factor that binds regions and countries together. The ease of communication has even further brought people

together which might make it more possible to tap into the diaspora network. A business that employs multiple ethnicities can leverage their understanding and connect with customers abroad. Further, these ethnicities can be an unforeseen connecting piece to develop new business channels and lower liability of foreignness. Harnessing various diasporas to understand consumer behavior in foreign markets can provide a competitive edge over rival firms. In addition, local marketing efforts can be refined to engage ethnic populations in order to reach a new customer base. Financial inflows to a country in terms of remittances and foreign-direct investment are important avenues through which the diaspora can contribute substantially to economic well-being. Businesses would do well to consider the merits of engaging the diasporas of the world.

## 5. Discussion

Diasporas originate both from developed and developing countries. It would be interesting to know how a developing country such as Croatia with a fairly homogeneous ethnic group could market globally to other ethnicities. For example, Croatia produces wine and could sell wine abroad based on ethnic tastes. However which wine would be most palatable? The Gewurztraminer is a wine that is well suited for spicy food (Lawrason, 1996) such as some types of Asian food. By employing a local consultant from that region could potentially provide information about the specific tastes and preferences as well as the appropriate channels to market this type of wine. With the right pairing of wine varieties for instance and further market surveys and analysis a new market can be efficiently accessed.

Wine is one example of a local product that can be sold abroad. To expand into foreign markets governments especially those of developing countries have to aid diaspora entrepreneurs to facilitate trade. "Until very recently it was illegal in Croatia to name a company in any language other than Croatian or a dead language like Latin. For example, Croatian startup WhoAPI, which provides information on internet domains, is officially named Pametni upiti d.o.o." (Rooney, 2013). Developing countries need investment to grow. Government should facilitate this by creating effective policies and utilize the diaspora to increase global visibility to garner international investment.

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**DEVELOPMENT TRENDS OF INFORMATIZATION IN THE FUNCTION  
OF BUSINESS CHANGE MANAGEMENT IN CROATIAN COMPANIES**

**TRENDOVI RAZVOJA INFORMATIZACIJE U FUNKCIJI  
UPRAVLJANJA PROMJENAMA HRVATSKIH PODUZEĆA**

**ABSTRACT**

*This paper discusses the development trends of informatization in the function of the business change management in Croatian companies. This study is a review of the trends in development of informatization and factors of change management based on data collected from 50 large and medium-sized companies in Croatia. After analyzing the data, we systematized and analyzed factors of change management using complementary and comparative approach.*

*The aim of the research is to systematize the factors of business change management, identify key factors and trends in strategic development of informatization of business systems, and analyze the modalities, the direction and intensity of the impact of trends in informatization on change management, by components (factors) and in a synergistic manner.*

*In this paper we investigate the influence of strategic factors (trends) of development of business informatization on business change management factors to identify and systematize factors that promote alignment between business and IT strategy and factors of apps support to business system. The impact of strategic factors of informatization on business change management in Croatian companies has been investigated and presented using correlation-based techniques.*

*The paper is structured in six interrelated parts. In the first section, the introduction, we discuss the features and trends in development of informatization as a function of business change management system. The second section discusses the features of computerized business in the example of Enterprise 2.0. In the third part, we systematize and describe the strategic characteristics of business system as factors of change management that define the level of shift from traditional to computerized operations. The fourth part presents and analyzes the results of the research of impact of strategic factors of business informatization on the factors of change management. In the fifth part, based on the results of research, we form and present a model of the impact of factors of business informatization on*

*the factors of change management. A summary of the paper's main points has been included in the conclusion section.*

**Keywords:** *trends of informatization development, change management, strategic attributes, architecture, factors of informatization, correlation*

## SAŽETAK

*U radu se razmatraju trendovi razvoja informatizacije u funkciji upravljanja promjenama hrvatskih poduzeća. U istraživanju trendova razvoja informatizacije i čimbenika upravljanja promjenama prikupljeni su podaci od 50 velikih i srednjih tvrtki u Hrvatskoj. Na temelju obrađenih podataka, čimbenici su komplementarno i komparativno sistematizirani i analizirani.*

*Cilj istraživanja je sistematizirati čimbenike upravljanja poslovnim promjenama, identificirati ključne čimbenike i trendove strateškog razvoja informatizacije poslovnog sustava, te istražiti, analizirati i objasniti modalitete, smjer i intenzitet utjecaja trendova informatizacije na upravljanje promjenama po komponentama (čimbenicima) i sinergijski.*

*U istraživanju utjecaja strateških čimbenika (trendova) razvoja informatizacije poslovnog sustava na čimbenike upravljanja promjenama identificirani su i sistematizirani čimbenici povezivanja informacijskog i poslovnog sustava i čimbenike aplikativne potpore poslovnom sustavu. Utjecaj strateških čimbenika informatizacije na upravljanje poslovnim promjenama u hrvatskim tvrtkama istražen je i prezentiran metodom korelacijske povezanosti.*

*Rad je strukturiran u šest međusobno povezanih dijelova. U prvom dijelu, uvodu, razmatraju se značajke i trendovi razvoja informatizacije u funkciji upravljanja promjenama poslovnog sustava. U drugom dijelu razmatraju se značajke informatiziranog poduzeća na primjeru koncepcije poduzeća 2.0 U trećem dijelu sistematizirau se i opisuju strateška obilježja poslovnog sustava kao čimbenici upravljanja promjenama koje definiraju razinu pomaka od tradicionalnog prema informatiziranom poslovanju. U četvrtom dijelu prezentiraju se i analiziraju rezultati istraživanja utjecaja strateških čimbenika informatizacije poslovnog sustava na čimbenike upravljanja promjenama. U petom dijelu, temeljem rezultata istraživanja, oblikuje se i prezentira model utjecaja čimbenika informatizacije poslovnih sustava na čimbenike upravljanja promjenama. Sinteza rada predstavljena je u zaključku.*

**Ključne riječi:** *trendovi razvoja informatizacije, upravljanje promjenama, strateška obilježja, arhitektura, čimbenici informatizacije, korelacija*

## 1. Introduction

At the beginning of the first decade of the 21st century, the development of information and communication technology (ICT) brought about great changes. Take a case like web that at the time was an essentially read-only Web on which you could only browse the published content, which has changed into a read-write Web on which you can publish your own content, giving the final shape of a social web or Web 2.0. This transformation involves the emergence of new tools such as blogs, forums, wikis, social networks and the like. The transition from traditional to computerized business can be illustrated by comparing the concepts of Enterprise 1.0 and Enterprise 2.0. This transition was not abrupt as it could be concluded from the new version name (with an emphasis on web technology). The transition is gradual and is not over yet, and the term Enterprise 2.0 is really just a name for the change that started happening even before the term was thought out. The aim of the introduction of information technology in business is to enhance cooperation both among employees and constituents within the



enterprise and between enterprises and business partners to allow for collecting, creating, organizing and sharing data, information and knowledge in a faster and better way (Humski, 2012).

According to O'Reilly (2005), Web 2.0 is the second phase of the web development that has inherited the dominant model of web application aimed at publishing, with dynamic and flexible web services that are more responsive to user actions. Shortly after the appearance of the Web 2.0 paradigm, McAfee [5] presented the idea of the application of Web 2.0 technologies in business and in doing so created the concept of Enterprise 2.0. By implementing Web 2.0 technologies in business processes, an information management process can be upgraded with knowledge management and business intelligence. Main benefits of knowledge management and business intelligence are increased productivity and employee satisfaction, and better decision making. In addition, employees are no longer passive recipients of information but are more engaged in the process of content creation (O'Reilly, 2005).

A central element of Enterprises 2.0 is collective intelligence according to which employees who work together on a common project through the exchange of knowledge and experience contribute to increasing the value of knowledge which ultimately leads to easier and faster problem solving. Maturing new technologies in business will allow us to leave cooperative forms (division of labor, where each person is responsible for a certain part of the job) behind; cooperation is increasingly being replaced by collaboration (working together in order to solve a problem). (Orehovečki et al., 2008).


Companies that are able to adapt their information systems to new paradigms of Enterprise 2.0 through a series of generally simple applications enable rapid sharing of knowledge both among employees and between the organization and its environment. In fact, this type of applications is based on cooperation and dynamism, the ability to easily connect and transfer information in new contexts, which contributes to the openness of the enterprise and its better perception of customer needs. The information system of such an organization becomes a reflection of organizational autopoiesis and is no longer strictly a complex technical system but user-oriented interconnected series of applications that allows managers and employees rapid knowledge exchange and dissemination throughout the organization. In this matter, Enterprise 2.0 is not a complete replacement for traditional information systems, but a supplement that provides organizations with greater flexibility and faster restructuring depending on the changes in their environment (Žugaj, Schatten, 2009).

Concepts of traditional enterprises (1.0) and computerized web enterprises (2.0) are not independent, but rather complementary to each other. This means that the concepts of computerized enterprises to a lesser extent replace, and more complement the concepts of traditional enterprises. The free form of emerging world described as Enterprise 2.0 is not an evolution of the structured world of Enterprise 1.0; in practice these two concepts exist as intertwined points of tapestry that define a complete picture of how modern computerized enterprise looks like (Bardoliwalla, 2009).

## **2. Factors influencing management of change from traditional to computerized business**

Factors influencing the management of change from traditional to computerized business have been systematized according to research findings presented within E2 Conference on innovation management using business apps (Enterprise 2.0 Conference, 2009). Factors of change management have been presented as strategic attributes of a company in the context of the relationship between traditional and computerized business (see table 1).

**Table 1** Scale of estimation between traditional business and business informatization

Attributes	Traditional business	Scale  estimation	Business informatization
Purpose	Growth, Size	5 4 3 2 1 0 1 2 3 4 5	Development, Quality
Resource	Capital, Labor, Material Resources	5 4 3 2 1 0 1 2 3 4 5	Information, Knowledge
Motive	Short-Term, Profit	5 4 3 2 1 0 1 2 3 4 5	Long-Term, Success
Environmental relation	Competition	5 4 3 2 1 0 1 2 3 4 5	Cooperation
Objectives and manner of functioning	Efficiency, Execution of Tasks	5 4 3 2 1 0 1 2 3 4 5	Success, Actions, Results
Functioning in an environment	Procedural, relatively fast	5 4 3 2 1 0 1 2 3 4 5	Flexible, Adaptive, Momentary (Prompt)
Strategy	Production Planning	5 4 3 2 1 0 1 2 3 4 5	Production in line with market needs
Business perspective	Business function	5 4 3 2 1 0 1 2 3 4 5	Business process
Organizational unit	Department	5 4 3 2 1 0 1 2 3 4 5	Cross-functional team
Focus for employees	Supremacy, Competitiveness	5 4 3 2 1 0 1 2 3 4 5	Participation, Cooperation
Business tasks	Closely defined	5 4 3 2 1 0 1 2 3 4 5	Flexible, Comprehensive
Information systems	Complex technical system	5 4 3 2 1 0 1 2 3 4 5	Business apps
Relationship between people and technology	Technology driven by IT experts	5 4 3 2 1 0 1 2 3 4 5	Technology driven by users
Openness of enterprise	Departments and clear boundaries	5 4 3 2 1 0 1 2 3 4 5	Unmarked boundaries
Value chain	Supplier and consumer oriented	5 4 3 2 1 0 1 2 3 4 5	Linking business oriented

Source: Authors according to Enterprise 2.0 Conference, May 2009

In the survey questionnaire respondents were invited to assess attributes of the company in terms of the relationship between traditional and computerized business processes by bolding or underlining the appropriate response

Strategic attributes have been analyzed and assessed in terms of the relationship between the traditional and computerized business using rating scale method. Table 1 parallely shows attributes of traditional

business (column to the left of the rating scale) and the attributes of computerized business (column to the right of the rating scale). The attributes may be mutually contradictory, but also complementary to each other (can also be used in combination and synergy). Directions and intensities of orientation as shown in the table can be determined on the rating scale (5- 0 - 5). Scores going down to the lowest score possible (-5) mean greater traditional orientation, while high numbers (going up to 5 as the highest score possible) mean a strong focus on computerized business. Scores in the middle or equal to zero mean more moderate orientation with the possibility of combining the opposite attributes.

For example, a score of 5 for Strategy on the right side indicates that the company is fully oriented to production and market needs, while zero score for Environmental relation reveals a combination of competition and cooperation.

#### **4. Enterprise architecture and factors in Information systems management**

The role of information system in business management has long been irreplaceable, but complex relationships between business processes and information systems can create difficulties. Business architecture provides concepts for the information system development process to align with the business life cycle, but it is also used to improve business processes. Aligning IT and business system is a key factor of success of the company.

Ross (2007) defines enterprise architecture as the organizing logic for business processes and IT capabilities reflecting the integration and standardization requirements of the firm's operating model [8]. Business architecture provides concepts for aligning business strategy and business processes with the information system development process. Enterprise architecture is a discipline for proactively and holistically leading enterprise responses to a changing business environment.

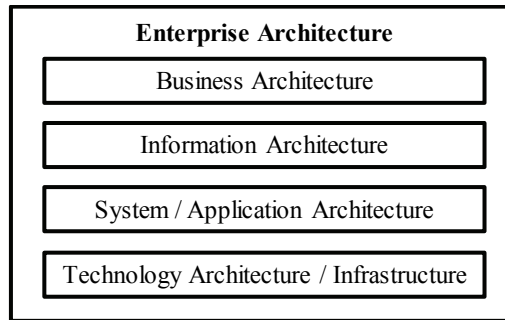
Business architecture framework describes the business model and the considered area, the model of the new system, the model of technological solutions, the model of components of the information system and the model of development and use of the information system. The Zachman Framework (1987) for Enterprise Architecture provides a structured way to view an enterprise and its main perspectives (data structure, functions / processes, users, location, time and motivation). In his article titled 'A Framework for Information Systems Architecture' Zachman laid the foundation for enterprise architecture in a form as we see it today - as comprehensive business and technology architecture. Zachman's approach to enterprise architecture puts the spotlight on information technology, and enterprise architecture is thus defined as the blueprint for infrastructure of organisational information (Zachman, 1987).

TOGAF (The Open Group Architecture Framework) is perhaps the most popular enterprise architecture framework today, established under the auspices of The Open Group (TOG). TOGAF can be seen as a multidimensional framework for developing and managing the lifecycle of enterprise architecture. TOGAF is modeled at four levels, as illustrated in Figure 1 (Ylimaki, 2006):

1. Business Architecture, which defines the business strategy, management, organization and business processes in an organization / company;
2. Information architecture, setting out the model and structure of the information system and the concepts of information system development and management;
3. Applications Architecture, setting out architectural blueprint & guidelines to be respected in the implementation of application systems, business applications and their interaction and relationships;

4. Technical or technological architecture that describes the hardware, software and network infrastructure required for the smooth execution of critical applications.

*Figure 1 Levels of Enterprise Architecture*



*Source: Ylimaki, 2006*

Identifying key factors of business system informatization and strategic development of enterprise informatization, is the foundation for developing a methodological framework for the development of strategic information systems. Comparative analysis of the key factors from the perspective of the period of development of information systems shows the basic trends in the development of information technology from the viewpoint of its application in the business and provides valuable data and information in defining the guidelines of the strategic development of informatization.

#### **4. Correlations between the factors of business system informatization and strategic attributes of business system**

This chapter presents and analyzes the results of the research on the impact of the strategic factors of business system informatization on the factors of change management. The impact of strategic factors was explored on the basis of data collected from Croatian companies through survey questionnaire on the factors. The concept of research was based on a study of development of information systems in companies in the United States conducted by the Management Information Systems Research Centre (MISRC) at the Minnesota University and Society for Information Management (SIM) (Brancheau, J.C. et al., 1996).

By identifying the key factors of business system informatization, a methodological frame of the strategic development of information systems can be built. Continuous research within the defined time periods allows for comparative analysis of the issues that impact the information systems management, revealing trends and offering information relevant to forecasting the development of informatization. In other words, comparative analysis of the results of researches by specific time period offers a mean of identifying issues, which are growing in relevance with the trend of continuous growth, or show a decreasing trend or have varying trends where trend of changes and return to previous position is recorded (Brancheau, J.C. et al., 1996., Vukmirović, S., Čapko, Z. 2009., Vukmirović, S., Čičin-Šain, M., 2012.) The research on key issues in information systems management in the Croatian companies was made on data collected from 50 large and medium-sized companies in Croatia from 2011 to 2014, of which 41 companies responded to all questions.

Identification and systematization of key issues of information systems management (ISM) was done according to the concepts of Niederman et al., 1991. According to this methodology, these factors have been systematized into four groups (Brancheau et al., 1996.):

- 1) Business relationship (BR): these issues deal with concerns external to the IS department. They focus on managing the relationship between IS and the business.
- 2) Technology infrastructure (TI): these issues deal with technology concerns. They focus on the integration of technology components to support basic business needs.
- 3) Internal effectiveness (IE): these issues focus internally on the IS function. They are concerned with those essential activities comprising the bulk of the IS function's work.
- 4) Technology application (Apl): these issues focus on the business application of specific information technologies.

Key issues of information systems management could be represented as factors of business system informatization. By integrating groups of factors of Information systems management and the enterprise architecture domains it can be concluded that the identification and systematization of the factors that affect Information systems management as done according to the Niederman concept, correspond to the levels of enterprise architecture as shown in Scheme 1:

- 1) Factors of Business relationship (BR) correspond to the Business Architecture level;
- 2) Factors of Internal effectiveness (IE) correspond to the Information Architecture level;
- 3) Factors of Technology application (Apl) correspond to the Applications Architecture level;
- 4) Factors of Technology infrastructure (TI) correspond to the Technological Architecture level.

Correlations between factors of business system informatization and strategic attributes in Croatian companies are shown in Matrix 1. The correlations identified between factors as indicated in Matrix 1 provide significant information and generate guidelines for the development of informatization of business systems for enterprise change management. Matrix 1 presents correlation coefficients that indicate the impact of the factors of business systems informatization on the strategy attributes of a business system (factors of change management). The correlations that are significant at the 1% significance level are bold and underlined, while those at the 5% significance level are bold and italic.

In estimating effects of the impact of the strategic factors of business systems informatization on the strategic attributes (factors of change management), or the relationship between the two variables we used a rating scale according to Petz (2007) as shown in Table 2.

*Table 2 Example of rating scale for interpreting strength of relationship between variables*

<b>Interval of correlation coefficient (R)</b>	<b>Strength of correlations</b>
0.00 to 0.20	insignificant
0.20 to 0.40	easily broken
0.40 to 0.70	truly significant
0.70 to 1.00	very strong

*Source: Petz (2007)*

*Matrix 1 Calculating correlations between the factors of business system informatization and strategic attributes of business system*

No	The Issues in Information Systems Management	Strategic Attributes of Business System														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Staff IT education	0,1	<b>0,4</b>	0,1	-0,1	0,2	0,2	-0,2	<b>0,3</b>	<b>0,4</b>	0,2	<b>0,5</b>	0,1	0,2	0,0	<b>0,5</b>
2	Internet services in networking between business systems	0,0	0,2	-0,1	0,2	0,2	0,2	0,0	<b>0,3</b>	0,1	0,1	<b>0,4</b>	0,0	0,1	<b>0,4</b>	<b>0,4</b>
3	Internet services in inter-organizational networking with other companies	0,2	0,2	0,2	0,0	0,2	0,3	<b>0,3</b>	0,0	0,0	0,1	0,0	0,2	0,1	0,2	0,1
4	Systems (applications) for Enterprise Resource Planning (ERP)	-0,1	0,0	-0,1	<b>0,3</b>	0,0	-0,2	0,1	<b>0,4</b>	-0,1	0,2	0,2	0,1	-0,2	0,0	0,1
5	Data warehouses, online analytical data processing and business intelligence	-0,2	0,1	-0,1	0,1	0,0	0,0	-0,1	0,3	0,0	0,1	<b>0,3</b>	-0,1	0,0	0,2	0,1
6	Cloud Computing	0,1	<b>0,4</b>	0,1	0,1	0,3	0,2	0,3	<b>0,4</b>	0,1	0,3	0,3	0,2	0,0	0,0	0,2
7	Tools for online collaboration and workflow management activities	0,2	<b>0,5</b>	<b>0,4</b>	-0,4	0,0	-0,1	-0,1	<b>0,3</b>	0,0	0,1	0,2	0,0	0,0	-0,1	<b>0,3</b>
8	The level of management and staff understanding on the role of information system in business system	-0,1	0,3	0,1	0,0	0,2	0,1	0,2	0,1	0,1	0,1	0,2	0,0	0,2	0,1	0,1
9	Organisational learning	0,0	0,2	0,2	0,0	0,3	0,1	0,2	0,3	0,1	-0,1	0,0	0,1	-0,1	-0,1	0,1
10	Organisation and positioning information service	0,2	<b>0,3</b>	<b>0,3</b>	-0,1	<b>0,4</b>	0,0	0,2	0,2	0,2	0,2	0,3	<b>0,3</b>	0,2	0,2	<b>0,5</b>
11	IT staff's competency level	-0,2	0,1	-0,2	0,1	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	-0,2	0,1	0,0
12	Strategically oriented IT education for managers	<b>0,3</b>	<b>0,3</b>	<b>0,4</b>	-0,1	<b>0,5</b>	<b>0,3</b>	0,2	0,2	<b>0,5</b>	0,1	0,3	0,2	0,2	0,2	<b>0,3</b>
13	The use of information system in the integration of business functions	0,0	0,0	0,1	0,1	0,2	0,2	0,2	0,1	0,3	0,2	<b>0,5</b>	0,0	0,1	0,3	0,2
14	Managing user orientted computing	-0,2	0,0	-0,2	0,3	0,1	0,1	0,0	0,1	<b>0,3</b>	0,1	<b>0,6</b>	0,1	0,1	0,3	0,3
15	Alignment between information system and organisation structure	0,0	0,2	0,2	0,1	<b>0,5</b>	<b>0,4</b>	<b>0,4</b>	0,1	0,1	0,3	0,3	<b>0,4</b>	0,0	0,2	0,3
16	Alignment between information system and business strategy	0,1	0,2	0,1	0,3	0,2	0,1	0,1	0,3	0,1	0,3	<b>0,3</b>	0,1	0,0	-0,1	0,1
17	Web 2.0	0,0	0,3	0,2	-0,2	0,1	0,1	-0,1	0,0	0,2	-0,2	0,1	-0,2	0,0	0,1	0,3
18	E-learning	0,3	<b>0,4</b>	<b>0,3</b>	0,1	0,3	0,2	0,1	0,3	0,3	0,2	0,3	0,3	0,2	-0,1	0,2

Source: Authors' calculation

Correlation coefficients which are calculated and presented in table 3 indicate the impact of the factors of business systems informatization on the strategy attributes of a business system (factors of change management). The correlations that are significant at the 1% significance level are bold and underlined, while those at the 5% significance level are bold and italic.

Correlation coefficients were calculated using SPSS. Figure 2 shows correlation calculation using SPSS on an example of the impact of strategy oriented IT education (factor of informatization, VAR00027) on organizational structure (strategy feature of informatization, VAR00009). Scheme 2 reveals a significant correlation between variables with a correlation coefficient of 0.48. Calculation of significance level indicates that correlation is significant at the 1% significance level.

**Figure 2** Calculating correlations using SPSS

```

CORRELATIONS
/VARIABLES=VAR00009 VAR00027
/PRINT=TWOTAIL NOSIG
/MISSING=PAIRWISE.
    
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		VAR00009	VAR00027
VAR00009	Pearson Correlation	1	<b><u>.480**</u></b>
	Sig. (2-tailed)		<b><u>.002</u></b>
	N	41	40
VAR00027	Pearson Correlation	<b><u>.480**</u></b>	1
	Sig. (2-tailed)	<b><u>.002</u></b>	
	N	40	40

\*\* . Correlation is significant at the 0.01 level (2-tailed).

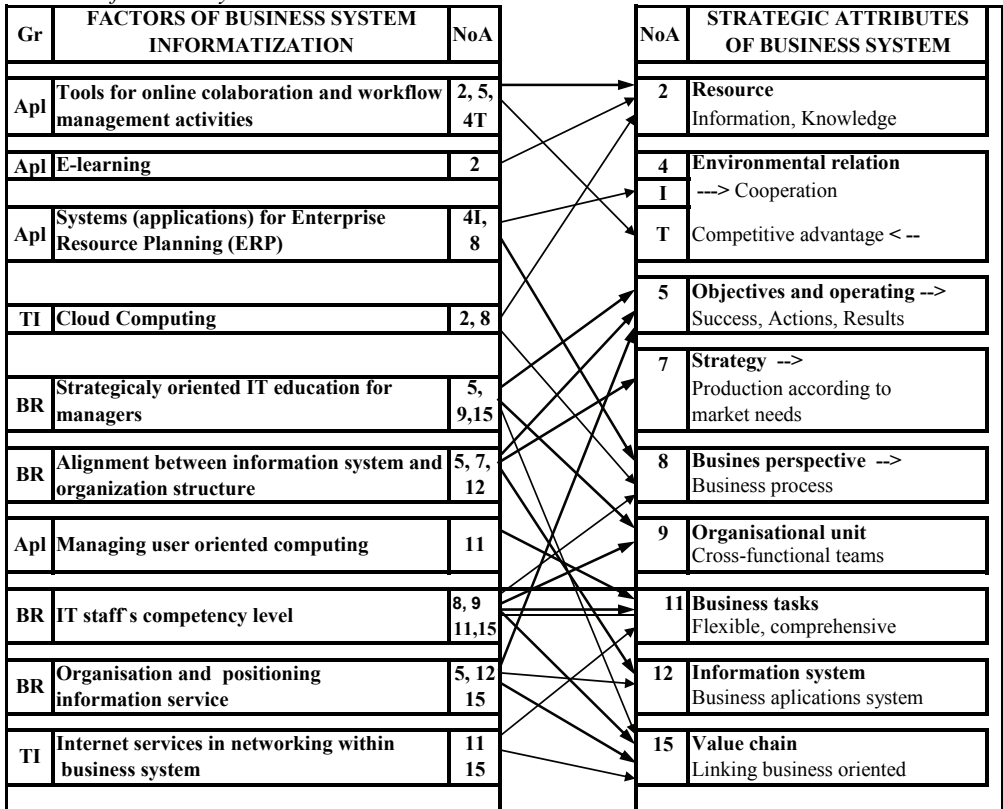
Source: Authors' calculation using SPSS

### 5. Model of the impact of factors influencing business systems informatization on the strategy attributes of business system

Based on the correlations as calculated in the table we were able to construct a model of the impact of the factors of business systems informatization on the strategy attributes of business system (factors of change management). To construct a model, we isolated factors and attributes indicating significant correlation, and most prominent. As shown in Figure 3. strategy attributes are designated by ordinal numbers (left rectangle), and IT factors in the right rectangle are associated with ordinal numbers of those strategy attributes indicating significant correlation. The bold arrows indicate correlation at the 1% significance level.

Each factor of business system informatization has been associated with a label (abbreviation) which indicates to which group the factor belongs, as defined according to a study made by MIRSC and SIM as described in the chapter. Specifically, 'BR' means a group of factors influencing Business-IT alignment, 'Apl' stands for factors of Business support systems, and 'TI' indicates factors of Information and communication (technological) infrastructure. The model indicates that the factors affecting business relationship (BR) have the greatest impact on the business strategy features, which determine the trends of change management, revealing a distinctive importance of the IT education factors.

**Figure 3** Model of the impact of factors influencing business systems informatization on the strategy attributes of business system



Source: Authors

## 6. Conclusion

In the study of change management in Croatian companies within the context of computerized business, we identified and analyzed strategy attributes of business system as factors that affect the management of change from traditional to computerized business. The factors were ranked according to the ratings of management on the intensity of their use and significance in the informatization of business system. The research results indicate that the majority of the considered strategy attributes of the company (factors of change management) tend to computerized operations, with the following strategy attributes having the greatest impact: Purpose, Motive and Information Systems. Negative mean values that reveal moderate tendency to traditional business go with the following strategy attributes: Organization, Openness of the enterprise, and Value chain. Business strategy attributes have been systematized from the perspective of the management of change from traditional to computerized Operations in two categories: shift and sinergy.

In exploring the impact of the strategic factors of business systems informatization on the factors that affect change management we identified and systematized the factors of business relationship (BR) and



factors of technology application (TA). The impact of IT strategic factors on business change management in Croatian companies has been investigated and presented using a correlation method, wherein the calculated correlation coefficients were tested for 1% and 5% significance level. Based on a correlation matrix we were able to construct a model of the impact of factors affecting business systems informatization on the strategy features of business system (factors of change management). Identified correlations and the model of the impact of strategic factors of business systems informatization on the factors of business change management provide important information and generate strategic directions for future development of business systems informatization for business change management.

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**EMPIRICAL ANALYSIS OF WIND POWER GENERATION  
PROFITABILITY IN CROATIA\***

**EMPIRIJSKA ANALIZA ISPLATIVOSTI ULAGANJA U  
VJETROELEKTRANE U HRVATSKOJ**

**ABSTRACT**

*There is an ever-growing importance of renewable energy sources in today's world. The need for the renewable energy emerged due to the perception of scarcity of fossil fuels, their high costs, as well as their geopolitical concentration and oligopoly of certain companies and countries. One of the renewable energy sources, which is very popular in Croatia, is the wind power. A significant hurdle in assessing the viability of investing in wind farms is the stochastic nature of wind, variable and often hidden costs of construction and maintenance, which depend on the position of wind farms, as well as their relatively low efficiency. All of these factors make the wind farms completely dependent on the heavily subsidized renewable electricity prices. When calculating the cost-effectiveness of a complex project such as the wind farm, it is not possible to use traditional methods of valuation, such as the method of net present value and internal rate of return. Under the national strategy of promoting renewable energy, wind farms have been given top priority as an alternative energy source, but due its unpredictability, investors are not fully confident in the viability of such projects. The purpose of this paper is to investigate the reality of assumptions behind the classical valuation of wind farm projects by using Monte Carlo simulation. Unlike the traditional methods, Monte Carlo simulation provides a broader and a more realistic view of the project valuation and provides an insight into the key variables that determine the investment's profitability. It also provides us with input/output flexibility, and possibility to adapt to market changes. Our results show that investing in wind farms in Croatia, under the current circumstances, is only marginally profitable. Although traditional valuation methods suggest the opposite, detailed analysis shows a lot of critical points and project viability seems highly questionable.*

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**Key words:** Profitability analysis, Energy, Wind power, Renewable energy, Croatia

## SAŽETAK

Obnovljivi izvori energije u današnjem svijetu imaju izuzetno veliku važnost obzirom da je rezultat korištenja fosilnih goriva veliko narušavanje prirodne ekosfere i povećanje antropogenske emisije stakleničkih plinova. Potreba za obnovljivim izvorima energije javila se zbog percepcije oskudnosti fosilnih goriva, visoke cijene, kao i njihove geopolitičke koncentriranosti i oligopola pojedinih kompanija i zemalja. Jedan od obnovljivih izvora energije, koji je veoma popularan u Hrvatskoj su vjetroelektrane. Veliki problem kod ocjene isplativosti projekata izgradnje vjetroelektrana je nepredvidivost vjetra, teško određivi i često skriveni troškovi izgradnje i održavanja koje ovisi o položaju vjetroelektrana, te njihova relativno niska efikasnost koja uvelike ovisi o subvencioniranim cijenama otkupa električne energije. Pri izračunu isplativosti kompleksnog projekta kao što je izgradnja i eksploatacija vjetroelektrane, nije moguće koristiti tradicionalne metode vrednovanja investicija, kao što su npr. metoda neto sadašnje vrijednosti i interne stope rentabilnosti. U nacionalnoj strategiji poticanja obnovljivih izvora energije vjetroelektrane su dobile veliki značaj kao alternativni izvor energije, no zbog njene nepredvidivosti povrata uloženi sredstava, investitori nisu u potpunosti sigurni u isplativost takvog projekta. Upravo zbog toga, svrha ovog rada je istražiti realnost klasičnog vrednovanja projekata izgradnje vjetroelektrana korištenjem Monte Carlo simulacije distribucija vjerojatnosti. Monte Carlo simulacija, za razliku od tradicionalnih metoda, pruža širi i realniji uvid u vrednovanje projekta te također daje uvid u kritične varijable na koje treba obratiti pozornost, a koje imaju najveći utjecaj na profitabilnost ulaganja. Također daje mogućnost fleksibilnosti inputa i outputa, odnosno mogućnosti prilagođavanja (korigiranja prvobitnih odluka) u skladu s tržišnim promjenama. Na temelju izračuna isplativosti ulaganja u vjetroelektrane na prostoru Hrvatske zaključeno je da je ova vrsta projekata granično isplativa. Iako nam tradicionalne metode izračuna isplativosti sugeriraju suprotno, detaljnijom analizom vidljivo je da projekt ima puno kritičnih točaka što i samu isplativost ulaganja čini veoma upitnom.

**Ključne riječi:** Analiza isplativosti, Energetika, Vjetroelektrane, Obnovljivi izvori energije, Hrvatska

### 1. Introduction

A wind power plant uses wind as its fuel for the production of electricity and is seen as a source of energy that does not emit greenhouse gases in the generation phase. Unfortunately it is often overlooked that in the machinery production and wind farm construction phases a significant amount of greenhouse gases are emitted and therefore we can say that wind power plants are “quasi CO<sub>2</sub> neutral”. A wind farm (WF) consists of several components: pole, blades, housing, rotor, brake, power transmitter, control and monitoring systems, substations, transformers, cables, wires and other associated structures. The wind power plant converts the kinetic energy of the wind into mechanical energy, and through the generator it is converted into electrical energy. The harnessing of wind power as a renewable energy source has gained popularity in Croatia during the last several years. The technological feasibility of employing large WFs to produce electricity, together with the large amount of available wind energy, is the source of their attractiveness. Given the relatively high starting investment costs, volatile nature of the wind and technological limitations of wind power generators the realization of this potential becomes constrained by financial considerations. Besides the popularity of “green” and “renewable” energy and the positive consumer perception of companies promoting such trends and technologies the main driver of investing into renewable energy in Croatia is the feed-in tariff system. Croatian feed-in tariff system pays out a premium over the market price to the investors in order to promote investments into this sector. Since Croatia does not produce wind turbines, blades, poles etc. from a strictly macroeconomic perspective this

sort of financial incentives do not create any benefits for the state but represent only expenses. Furthermore, the import of equipment worsens the country's trade balance and since a lot of investors are foreign the funds paid through the feed-in tariff are eventually siphoned from the country. Besides the general concern for the environment the only logical reason for giving a privileged position and incentives to WFs as opposed to the traditional power generators are the European 2020 renewable energy goals.

Despite the wide range of studies and policy statements about the capital cost estimates and guaranteed returns the question remains whether investing in WFs is profitable when taking into account all of the critical. In order to answer this question we investigate the viability of WFs in Croatia. Building on the previous studies in this area we extend the classical profitability analysis by performing Monte Carlo simulations of all the critical factors and evaluate their impact on the profitability of WFs. The rest of the paper is organized as follows: in the Section 2 we present the technical boundary conditions of the analyzed wind power generators. Section 2 continues with the analysis of WF construction and operational costs. In section 3 we set up our simulation model used to analyse the profitability of WFs and present our results. Final section concludes.

## **2. Wind power and wind farms**

Given that wind energy is one of the renewable energy sources, its purchase price is co financed by the state. This is the practice in most EU countries including Croatia. This means that the state is obligated to buy the electricity produced from renewable energy producer at a predetermined price. Currently Croatia has a feed-in tariff system under which the state pays a predetermined price for electricity produced from renewable sources depending on the type of the source and the installed power. The purchase price for electricity produced from wind is 0.72 HRK(0.0973 €)/kWh for plants up to and including 1 MW, while for power plants larger than 1 MW of installed power the price is 0.71HRK(0.0959 €)/kWh (HROTE, 2014).

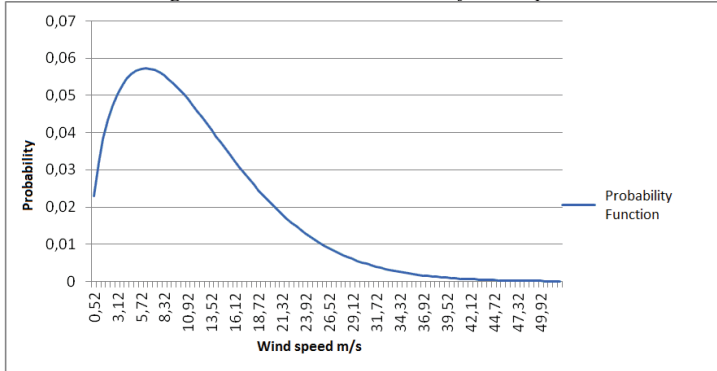
Croatia has tens of locations suitable for WFs. Measurements of speed, direction and frequency of wind showed that the utilization of wind potential is more suitable in the Adriatic coast than in the continental Croatia. The most interest was shown for the locations around Zadar, Sibenik, Knin, Split and Dubrovnik. Currently there are 16 WFs that supply electricity to Croatian power system. Their installed capacity is 339.25 MW and they annually deliver around 730 GWh of electricity, which accounts for 79% of electricity produced from renewable sources (HROTE, 2014).

Expansion of wind power generation in the upcoming years is expected, because in addition to the great interest of investors, by joining the EU, Croatia has to meet obligations under the EU Commission Directive 2013/18/EZ which demands that by the end of 2020, the minimum share of the electricity produced from renewable energy sources is 20% of the total final consumption of electricity (HROTE, 2015).

### **2.1. Technical boundary conditions of the wind turbines**

For the purposes of this study, the expenditures and revenues are projected from the already existing WF Vratarusa (installed power 42 MW). We have taken WF Vratarusa as our starting point because the construction, operation and production of electricity are very similar to other planned projects on the Adriatic coast. The WF Vratarusa uses 14 Vestas V90 wind turbines, each with 3MW of nominal power. We analyse a WF with just two Vestas V90 wind turbines. According to the official technical specification wind turbines start producing at a wind speed of 3.5 m/s, and shut down at 25 m/s. Wind turbine achieves the maximum power at a wind speed of 15 m/s and that output level is maintained up to 25 m/s when it shuts down. Wind speed can be best described by the Weibull distribution and as such it is the most widely used distribution to display the probability distribution of the meteorological phenomena (Poje, 1996, 6; Jeromel, Malačić, Rakove, 2009, 94). The average annual wind speed at 80 meters height in the area we analyse is 7.31 m/s (MHS, 2013). Weibull distribution of our wind speed data is given in figure 1.

**Figure 1: Weibull distribution of wind speed**



Source: Authors

## 2.2. Wind farm building expenditures

Almost 75% of the total WF costs are connected to the investment costs, such as: turbines, foundations, electrical equipment, land rent, connection to the power grid etc. Obviously the fuel and labour costs have almost no effect on the price, so we can say that WFs are capital-intensive compared to conventional technologies such as gas fired power plants. The following table shows the typical expenditures of building WFs.

**Table 1: Expenditure structure of a typical 2MW wind farm installed in the EU**

	INVESTMENT (€1000/MW)	SHARE IN TOTAL COSTS %
Turbine	928	75,6
Connection to network	109	8,9
Foundations	80	6,5
Land rent	48	3,9
Electrical installations	18	1,5
Consultants	15	1,2
Financial expenses	15	1,2
Road construction	11	0,9
Control systems	4	0,3
<b>TOTAL</b>	<b>1227</b>	<b>100</b>

Source: Windenergie, 2009, p. 9

When these investments are added to the cost of operation, maintenance, administration, insurance and other costs we get the total cost of production of electricity from wind power. The investment in the construction of WF Vratarusa averaged 4,428,571 € (at 7.4 HRK/€ rate 32.771.425 HRK) per wind turbine. Croatian Bank for Reconstruction and Development offers special interest rate of lending for renewable energy projects. The interest rate on these loans is fixed at 4% per year, with a fee of 0.8% and the loan can be approved for up to 75% of the total investment (HBOR, 2015).

Wind turbines, just like all other industrial equipment, need maintenance which constitutes a large share of the annual operational costs. Maintenance costs are comprised of: insurance, regular maintenance, repairs, spare parts and administration. While costs such as insurance or regular maintenance are relatively fixed because they can be planned, costs which include spare parts and repairs are much harder to predict and identify. According to the experience from Germany, Spain, Great Britain and Netherlands, costs are estimated to be between 0.012 and 0.015 €/kWh. Approximately 60% of these costs are connected to the maintenance of turbines (Wind Energy,

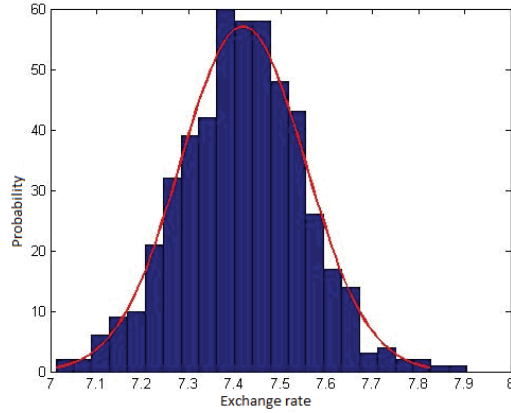
2013, 9). A Bloomberg (2012) survey disclosed that the average cost of installed MW of wind power is 19.200 € which is more than 50% less compared to just the maintenance costs in 2001, while these costs are 38% lower than they were in 2008. According to the Bloomberg (2012) survey, which was conducted with 38 major wind turbine manufacturers and maintenance service providers, there are two reasons for such a drastic decline; First, the average price of the total maintenance services has declined due to the increased competition, the desire of the manufacturers to sign service maintenance contracts and greater durability of new turbines. Second, the average duration of contract has risen from 4.5 years in the 2008 to 6.9 years in 2012, since the producers want to lock in the long-term contracts. Part of the reason for such a large drop in maintenance costs also lies in the increased demand for wind turbines, thus achieving greater competition and economies of scale. Number of installed WFs in the EU grew considerably over the past years, from 814 MW in 1996 to 128.8 GW in 2014, which is an annual growth of 30.5% (EWEA, 2015, 3).

### **3. Investment evaluation under uncertainty conditions**

Monte Carlo simulation is a simulation using random number generator and is useful for forecasting, estimation and risk analysis. Its' basic principle is the calculation of the distribution function of random variables. It is necessary for each random variable to generate a set of samples to be subjected to a given theoretical distribution, then for each set of samples we calculate the part of the function being simulated. The simulation starts with the selection of key variables and determining their probability distributions. Having determined the parameters of the probability distribution for each variable all the variables are combined with each other by calculating the net present value. This process is repeated several hundred times until we get a representative probability distribution of possible future net present values. The mean distribution is the expected value of the project, while the standard deviation of the distribution is a measure of volatility for the evaluation of the project (Žiković, Fatur, 2011, 177).

In case of WF our revenues consists of the guaranteed purchase price and the total production of electricity. However, when using Monte Carlo simulation we have to account for the likelihood of the speed of wind, which we do by using the Weibull distribution. Our total production of electricity is the probability function of wind speed and technical characteristics of the wind turbine. The expenditures consists of capital expenditures and variable/operational costs. Repayment of the loan needed for the investment has a Euro currency clause, meaning that the loan annuities change depending on the HRK/€ FX fluctuations. Monthly HRK/€ exchange rates are obtained from the official website of the Croatian National Bank (CNB, 2015). Based on the log likelihood results of fitting different distributions to the monthly FX data we find that normal (Gaussian) distribution give a very good fit to the empirical data. The empirical distribution of HRK/€ FX rate with a superimposed normal distribution (mean = 7.42, st. deviation = 0.13497) can be seen in the following figure.

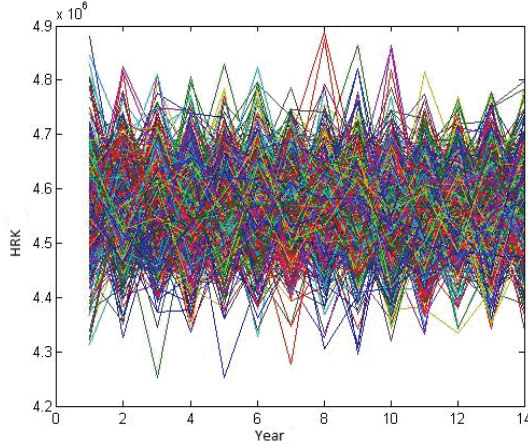
**Figure 2:** Empirical and the normal distribution of HRK/€ exchange rate



Source: Authors

We multiply the annuity in € with the HRK/€ FX distribution to obtain the distribution of the value of annuity in HRK. Simulated annual annuity movements are shown in the following figure.

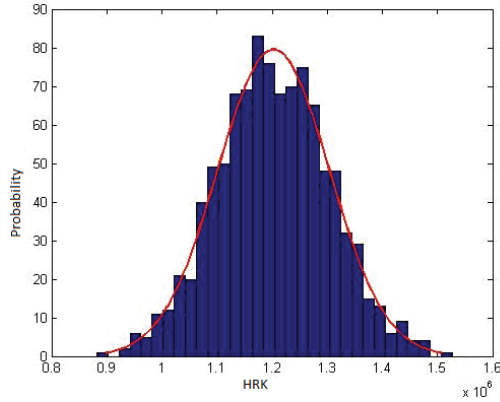
**Figure 3:** Simulated annual annuities in HRK



Source: Authors

For the yearly operational costs normal distribution, with the mean of 1.2 million HRK and standard deviation of 100.000 provided a very good fit to empirical data, which is visible from the following figure.

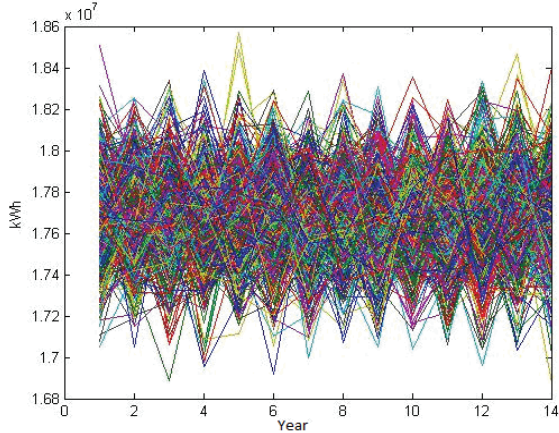
**Figure 4: Operational costs in HRK**



Source: Authors

Based on the Weibull distribution of wind speed and technical characteristics of Vestas V90 turbines we performed the Monte Carlo simulation. The results show that the production of electricity (in kWh), for the duration of the signed contract with the state (14 years), would range between 17 and 18.4 million kWh per year, which can be seen in the following figure.

**Figure 5: Annual production of electricity in kWh**

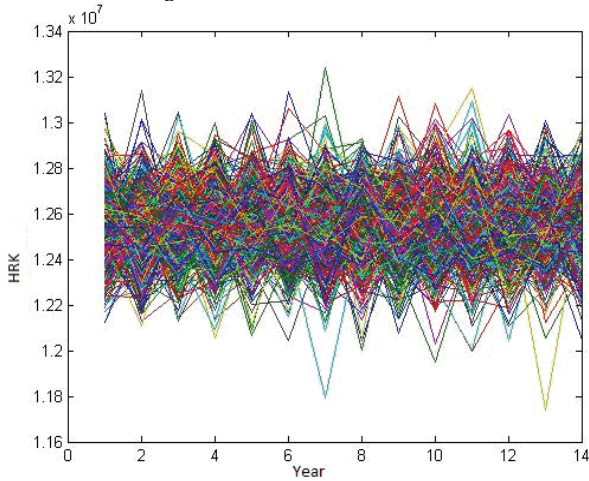


Source: Authors

Total revenue would range, taking into account the purchasing price of electricity (0.71 HRK/kWh), between 12 and 13.1 million HRK. Annual revenues in HRK are shown in figure 6.



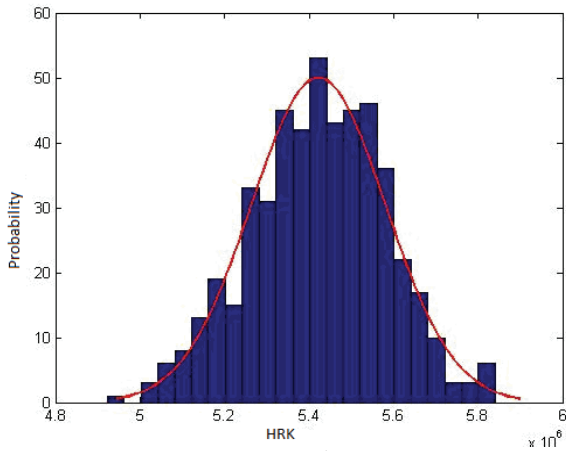
**Figure 6: Annual revenues in HRK**



Source: Authors

The annual net profit, after subtracting the distributions of operational costs, annuities and income tax, would be between 5 and 5.8 million HRK, as shown in figure 7.

**Figure 7: Distribution of annual net profit in HRK**



Source: Authors

With the obtained probability distribution function of annual net profits we can determine the central and extreme values of the internal rate of return (IRR) and the results are shown in table 2.

**Table 2: Simulation based internal rate of return for the WF project**

Year	min	mean	max
0	-53.864.286	-53.864.286	-53.864.286
1	5.001.325	5.422.100	5.805.157
2	5.001.325	5.422.100	5.805.157
3	5.001.325	5.422.100	5.805.157

Year	min	mean	max
4	5.001.325	5.422.100	5.805.157
5	5.001.325	5.422.100	5.805.157
6	5.001.325	5.422.100	5.805.157
7	5.001.325	5.422.100	5.805.157
8	5.001.325	5.422.100	5.805.157
9	5.001.325	5.422.100	5.805.157
10	5.001.325	5.422.100	5.805.157
11	5.001.325	5.422.100	5.805.157
12	5.001.325	5.422.100	5.805.157
13	5.001.325	5.422.100	5.805.157
14	5.001.325	5.422.100	5.805.157
<b>IRR</b>	<b>3,7%</b>	<b>4,9%</b>	<b>6,0%</b>

Source: Authors

When calculating the IRR of this project in the classical way, with constant values, the obtained IRR equals 5.7%. From the table 2 we see that the average IRR obtained by using the Monte Carlo simulation is lower than given by the classical approach. The IRR value of 5.7% given by the classical method of calculating the profitability of the project, in our simulation is only possible under the best case scenario, a set of assumptions that has a low probability of occurring. The most likely internal rate of return will amount to 4.9%, which is 0.8 percentage points less than given by the classical calculations of the cost-effectiveness of the project. If we assume a discount rate of 5% we can conclude that the net present value of this project will only be positive under the best case scenario. The most likely outcome (4.9%) would give us a marginally negative net present value. The results obtained by using the Monte Carlo simulation are different from the classical calculation of profitability, and based on Monte Carlo simulation results it is possible that the investor could withdraw from the project.

#### 4. Conclusion

The efficiency of WF construction project has been assessed using the Monte Carlo simulation based calculation of internal rate of return (IRR). Based on the classical evaluation of the project by the internal rate of return, using constant values and estimates, we obtain an IRR of 5.7% which would yield a positive net present value if using a 5% discount factor. However, the classical, constant value approach fails to evaluate an important fact, namely the production possibilities of wind generators, the characteristics of the wind speed in the area, exchange rate fluctuations and changes in variable costs. Taking these variables into account, we see that the project is less profitable, and that the expected internal rate of return equals 4.9%. On the positive side the internal rate of return of the lower limit (worst case scenario) is also positive and amounts to 3.7%. However, the net present values are negative, except in the best case scenario version. Taking this into account, investors should carefully reevaluate the investment in WFs and all the risks that they entail. With no additional government incentives related to the co-financing of interests or co-financing land rents, investments in WFs in Croatia can be considered only marginally profitable.

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## **CONSTRUCTION OF INFRASTRUCTURE AND MODELS OF SCIENTIFIC RESEARCH WORK IN THE CASE OF THE PROJECT "SLAVONIAN NETWORK"**

### **IZGRADNJA INFRASTRUKTURE I MODELI ZNANSTVENO- ISTRAŽIVAČKOG RADA NA PRIMJERU PROJEKTA „SLAVONSKA MREŽA“**

#### **ABSTRACT**

*State of technical infrastructure systems in the Republic of Croatia is below EU average, i.e. in many areas regarding current level of development, equipment, business operation and use of infrastructure systems, Croatia lags behind most of the EU countries. This is reflected on inefficient business operations, high unemployment rate, lower standard of living of the inhabitants and high debt of Croatia. The paper points to: (a) the need to examine the issues in a longer time horizon and (b) the importance of five essential elements in respect to infrastructure development; These are: (1) the exponential growth of scientific knowledge in the world, (2) narrower specific areas of scientific disciplines and narrow specialization of experts, (3) processes of increasing community dependence on technical systems, (4) the increasing investments in infrastructure systems in EU and (5) the growing importance of electronic communication and supranational connectivity of network infrastructures. The analysis of practices shows that Croatia does not have a sufficient number of experts for development and management of infrastructure nor will it have them in the future – unless the process of education begins. The structure of the problems within infrastructure – planning, design, construction and maintenance of infrastructure and business management of infrastructure organizations requires amendments to the curriculum in the graduate program of technical and social sciences, with update of the existing courses and implementation of new ones. Also – in the time frame from 2020 to 2030 – there is a need to initiate a multidisciplinary post-graduate studies programme in the field of infrastructure, and a model of organization of this studies programme in J.J. Strossmayer University of Osijek is proposed, the intention being for this studies programme to be a gravitation point for students from twenty countries.*

**Key words:** *Broadband, infrastructure, networking, scientific research*

#### **SAŽETAK**

*Stanje tehničkih infrastrukturnih sustava u RH nije ni u prosjeku EU, tj. u mnogim područjima izgrađenosti, opremljenosti, poslovanju i korištenju infrastrukturnih sustava RH zaostaje za*

većinom zemalja EU članica. To stanje se u praksi manifestira neučinkovitim privrednim poslovanjem, velikom nezaposlenosti, nižem životnom standardu stanovnika i velikoj zaduženosti naše zemlje. U radu se ukazuje na potrebu sagledavanja problematike u dužem vremenskom horizontu i na važnost pet bitnih elemenata razvoja infrastrukture, a to su: (1) eksponencijalni rast znanstvenih spoznaja u svijetu, (2) sve uža područja znanstvenih disciplina i specijaliziranost stručnjaka, (3) sve veća ovisnost društvenih zajednica o tehničkim sustavima, (4) sve veća ulaganja u infrastrukturne sustave unutar EU te (5) sve veći značaj elektroničkih komunikacija i nadnacionalnog povezivanja mrežnih infrastrukture. Analiza pokazuje da u RH ne postoji dovoljan broj stručnjaka za razvoj i upravljanje infrastrukturom niti će ih biti u bliskoj budućnosti ukoliko se već danas ne počne s procesom edukacije. Planiranje, projektiranje, izgradnja i održavanje objekata te poslovanje infrastrukturnih organizacija zahtijeva dopune nastavnih planova i programa u dodiplomskom i diplomskom studiju tehničkih i društvenih znanosti dopunama sadržaja postojećih kolegija i uvođenjem novih kolegija. Isto tako – promatrajući u vremenskom horizontu do 2030. godine – ukazuje se potreba i za pokretanjem multidisciplinarnog doktorskog studija iz područja infrastrukture. Predlaže se model organizacije ovakvoga studija u Osijeku koji bi mogao biti centar kojem gravitiraju regije iz dvadesetak zemalja.

**Ključne riječi:** *infrastruktura, širokopojasni pristup, umrežavanje, znanstveno-istraživački rad*

## 1. Introduction

Providing community services (water distribution, wastewater removal, public lighting), transportation of energy (electricity, gas, heat, oil), transportation of people and goods (roads, railroads) and electronic communication services are all in the function of individuals or conducting economic activities. All these activities have a share in the corresponding infrastructure that was created and was adapted to needs of life. The exponential growth of scientific understanding and the change in technology are reflected on the need for an adequate infrastructure. The experience concerning specific characteristics of infrastructure was acquired in specialized enterprises. A characteristic of construction of every type of infrastructure is its position in space. Limited space resources have resulted in a need for space arrangement. A choice for market economy resulted in a significant change of established practice. The relationship between owners of infrastructure have been broadened to include the owners of land on which this infrastructure was built, all for the purpose of regulating property relations. Also, a switch of construction and maintenance activity to commercial outsourcing outside of original companies resulted in a break in systematic experience gathering. Another consequence of market criteria are new relations between owners and users of infrastructure and immediate surroundings.

Since Croatia is a member state of the EU since 2013, greatest efforts have been dedicated towards achieving EU standard, especially considering that Croatia is below EU average in some infrastructure sectors. This also led to a break in continuity of investment in infrastructure as well as to a degrading in work experience on all levels, from planning, project making and construction to infrastructure maintenance. It has been observed that multidisciplinary knowledge is required as an adequate response to new challenges. A major purpose of this paper is to initiate a discussion on the need of creation of a specialist, multidisciplinary, post-graduate studies programme in the field of infrastructure and to initiate the deepening of existing programmes and introduction of new ones, whose content and acquired knowledge would significantly contribute to the development of economy.

## 2. Starting points for proposal consideration

At this point, it is necessary to consider the problematic on a longer time period and to realize the importance of five essential elements for infrastructure development:

1) Exponential growth of scientific understanding in the world,

- 2) Narrowing fields of specialization and focusing of experts on ever narrower research topics
- 3) Processes of ever increasing dependance of social communities on technical systems
- 4) Ever increasing investment in infrastructure systems in the EU
- 5) Ever increasing importance of electronic communication and supranational connection of network infrastructure

## **2.1 Exponential growth of scientific understanding**

New cultural knowledge and understanding grow exponentially in time. The time necessary for doubling knowledge is ever shorter. According to published scientific papers, scientific knowledge (measured by the number of patents and the number of original articles published in world magazines) is being doubled the fastest in the field of nanotechnology – in less than two years. In the field of global warming, prions, computer programming, cell research and epidemiology the time period is five years. In other areas, the time necessary for the doubling of knowledge is between 10 and 15 years. Raymond Kurzweil (a noted theoretician of artificial intelligence) points to the possibility of double exponential growth of human knowledge with the help of intelligent machines and points to the possibility that after 2020, scientific knowledge will double every couple of months.

## **2.2. Ever narrower field of scientific disciplines and increasing specialization of experts**

The development of science gives simultaneous birth to two separate processes: a) differentiation and b) integration of knowledge; the research results in the process of specialization and differentiation of fields of knowledge, or, the development of new scientific disciplines which cover ever narrower fields of reality; humans adopt more "shattered" knowledge of the world, this being the outcome of ever greater specialization. Different opinions exist concerning this process:

- a) *Science today is a partial practice of research;* (M. Životić)
- b) *The destiny of scholars of every scientific discipline is to focus on ever narrower field of research in his area of specialization and to consume ever increasing amount of knowledge;* (J. Gribbin)
- c) *One of the traits of today's science (and scientists) is a limitedness in their own, very narrow field of research. Apart from few undoubtedly useful aspects of specialization in science, the problem of communication barrier arises, not only between scientists and non-scientists but also among scientists of different branches themselves. Even scientists from the same branche oftentimes have a hard time communicating amongst themselves due to the accentuated focus on only one kind of issues.* (S. Kutleša)

According to estimates of a number of authors, at the end of the 20th century, the number of scientific disciplines passed the 2000 mark, with some estimates even talking of tens of thousands of disciplines. At the same time, the process of differentiation is coupled by a dialectical process of integration of knowledge and science which leads to connections between scientific disciplines and interdisciplinary and transdisciplinary research. In theory and practice, the border between scientific disciplines such as physics – chemistry, chemistry – biology, economics – political science often disappears. Contemporary research requires an integration of science, but – it needs to be said – this does not mean abolishing individual scientific disciplines. [1]

## **2.3. Dependance of man on nature, society and infrastructure technical systems**

Through the progress of civilization (culture, technology and economy) humans become less and less dependent on conditions of nature in their surroundings and more and more dependent on social relations and technical systems, Therefore peace, democracy and tolerance (within civil society) are basic elements for the development of economy and technology in the world up to the end of the 20th century, whereas at the beginning of the 21st century human societies are becoming more and

more dependent on infrastructure technical systems in transport, energetics, water supply, waste management and electronic communications. [1]

#### **2.4. Investments in infrastructure systems are ever increasing worldwide**

European Union, by way of European structural and investment funds (ESIF), secured investments until 2020 for all the regions in the amount of 453 billion euros. The access to information and communication technologies (including investment in broadband network) as well as its quality and use are for the first time ranked as top priority. A significant amount of investment (up to 80%) are planned to be non-refundable. The potential investment market will additionally include the funds of national economies and private investors.

#### **2.5. Electronic communications and network infrastructure**

Economy, public administration, education and scientific and research work today depend on the establishment of developed communications network for a fast and efficient transfer of information. The development of fast access networks today has the same revolutionary effect that construction of roads had in the Roman Empire or the development of electro-energetic network and railways had one hundred years ago. Modern electronic communications, especially Internet, significantly changed people's lifestyle in the last twenty years. The transfer of data and information has been sped up, coupled with increased quality and reliability, the cost of doing business has been decreased, business transactions have also been sped up and fast access to information on the global market has been enabled. New investment funds, goods and services have been developed, the amount of accessible information in the public and private sector has been increased. The new IT is a foundation for the development of economy and society of knowledge. The information and knowledge took the place of capital by becoming the foundation of individual and social growth and development; information and knowledge = capital. Estimates indicate that digital content and applications will almost entirely be delivered through Internet by 2020. The development of better quality, faster, more reliable and cheaper public services in economy, public sector (healthcare, education, culture...) and public and regional administration and encouragement of growth of rural areas depend on the broadband access coverage level, enabling high speed Internet, of a given territory. In Digital Agenda 2020, Europe recognized electronic communication infrastructure as important for the development of society.

### **3. State of infrastructure systems in the Republic of Croatia**

- The amount of infrastructure in Croatia is visible from table 1. Each from the listed infrastructure systems is important for the proper functioning of the state, be it through providing services to citizens or as economic activity.
- The total value of infrastructure in Croatia is estimated at one third of the value of all the living quarters in Croatia.
- Economic indicators show that it is reasonable to assume that individual infrastructure system can have an important effect on the life of citizens, economy and it can also increase the efficacy of existing infrastructure.
- Regulatory agencies in Croatia are tasked with assuring that infrastructure-related business is conducted in a transparent manner according to clearly defined market principles.
- Legal regulation of infrastructure systems is different. The infrastructure system in its completeness (apart from public lighting) is of special interest for the state, so that owners of the real estate must accept expropriation. In case of roads and railroads, complete (total) expropriation is usually the norm, whereas limited (partial) expropriation is conducted for other infrastructure, with relevant obligations being marked in the land registry.
- In case of complete and limited expropriation, the owner receives a compensation. In the case of



electronic communications infrastructure, it is paid out on a yearly basis, whereas in the case of private ownership the compensation can be paid out at once for up to 20 years in advance.

- It has been observed that development and exploitation of infrastructure mimics the origins of rent economy. This is especially true for electronic communications infrastructure, in case of which a payment of rent was proscribed in 2008 for all the real estate on which electronic communications infrastructure was based. Croatian regulatory agency for the field of electronic communications (HAKOM) proscribed a set of prices for the usage of extra capacity in order to prevent a monopoly on developed electronic communication infrastructure.

*Table 1 Length of infrastructure in the Croatia*

<b>Infrastructure</b>	<b>Length /km/</b>	<b>Reference source</b>	<b>Commentary</b>
Water distribution	44367	DSZ/2012	
Wastewater removal	10539	DZS/2012	
Public lighting	2158		estimate
Electric energy	147365	HERA/2013	
Gas	21239	HERA/2013	
Heat	428	HERA/2013	
Oil	622	HERA/2013	
Electronic communications infrastructure	81300	HAKOM/2013	
Roads	26960	MPPI/2013	Not including minor roads
Railroads	2722	MPPI/2013	From 2014, railroad was in HAKOM's jurisdiction
Total	337700		

*Source: DSZ/2012; HERA/2013; HAKOM/2013; MPPI/2013*

- The capacity of rent economy (not including roads and railroads) is estimated at 0,5 – 2 billion kunas per year.

- Damaging of infrastructure is a criminal offence, sanctioned by article 216 of the Penal code of the Republic of Croatia.

#### **4. Future development of infrastructure systems in the Republic of Croatia**

According to plans of development of the Republic of Croatia for the next ten years, up to 10 billion Euros from various sources will be invested in water distribution, wastewater removal, energy, transportation and electronic communication infrastructure. These developments include planing, project-making, construction and maintenance of infrastructure objects. All of this as well as usage of these services and management of infrastructure organizations will require highly educated experts for the solution of business and development problems. Furthermore, significant interdisciplinary scientific research will also be necessary.

A sufficient number of such experts does not exist in Croatia, nor will they be available in the future, unless a process of education does not begin today. The structure of today's infrastructure problems requires an update of existing plans and programs in graduate studies of technical and social sciences, both in existing courses and through introduction of new ones. Also, in the time frame from 2020 to 2030, a need for the initiation of multidisciplinary PhD studies programme in the field of infrastructure is also suggested.

An evidence in favor of the above explained consideration can be found in the practice of ten of the world's leading universities which initiated such studies programmes in the last couple of years:

- EPSRC Centre for Doctoral Training in Future Infrastructure and Built Environment (The University of Cambridge, UK); [5]

- Urban Planning and Design; Transportation and Infrastructure (Harvard University, Cambridge, MA) [6]
- Centre for Doctoral Training in Sustainable Infrastructure Systems (University of Southampton, Southampton, UK) [7]
- Ph.D. Program in Infrastructure and Environmental Systems (INES) (The University of North Carolina at Charlotte, USA) [8]
- International Graduate Program in the Field of Civil Engineering and Infrastructure Studies (The University of Tokyo) [9]

Below are the theses for discussion that the authors wish to initiate, expecting a response from the state, scientific community as well as other participants whose business focus is connected to infrastructure. Our wish is to initiate a thorough education of experts for infrastructure management.

## 5. Study levels

Keeping in mind the strong growth of requirements coupled with constant technological innovations in the field of infrastructure, the transfer of new knowledge in this area – in organizational sense – needs to be organized on three levels of university studies: doctoral, specialist and graduate. In addition to these levels, life-long learning programme also needs to be instituted.

In the construction of such a concept, knowledge in the field of technical and social sciences is necessary in order to enable both the providers and the users of services to develop simultaneously – because only in this way can optimal economic effects for the community be achieved.

### 5.1. Doctoral studies

The complete scientific level would be undertaken in the form of a doctoral studies program. This program is based on a scientific synthesis of existing knowledge and skills and on a model of infrastructure development according to the triple helix matrix (scientific community – system architects – state). [10] [11] [12] A constant verification of competences is expected from the candidates after the end of their doctoral studies program by giving scientific review to their research works. A broad base of candidates of various profiles for this study ensures a base that can be capable of connecting scientific realizations, the needs of the state and that can be capable of educating necessary experts for planning, construction and managing systems.

#### 5.1.1. Prospective candidates of the doctoral programme

Doctoral interdisciplinary studies in the field of infrastructure is accessible to engineers or students with graduate education from technical universities in the field of electrotechnics, software engineering, machinery, construction, architecture, land measurement, traffic, information science as well as to graduate students in the field of economics, law and sociology.

The studies programme should have a regional character and it is therefore proposed that the program be realized in the English language. Apart from students from Croatia, and keeping in mind future needs, interest from students from Austria, Bulgaria, Bosnia-Herzegovina, Montenegro, Greece, Kosovo, Hungary, Macedonia, Moldavia, Romania, Slovakia, Slovenia, Serbia and the Ukraine can be expected.<sup>1</sup>

#### 5.1.2. Professors of the doctorate studies programme

Professors on this doctoral studies programme can be only individuals with a doctorate in science with following conditions being fulfilled:

- having a minimal level of associate professor,
- at least three published scientific papers in the last three years in the field connected to the content of the course they are to teach,
- having a certificate of fluency in the English language

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<sup>1</sup> These markets need to be researched and an appropriate marketing campaign needs to be undertaken.

The formation of the studies programme requires experts in the field of: electrotechnics, machinery, land measurement, architecture, traffic, information science and software engineering, economics, law and sociology. The selection of candidates would be public and would be points based.

#### 5.1.3. Institution organizing the doctoral programme

This doctoral studies programme would be organized and lead by Josip Juraj Strossmayer University in Osijek.

### 5.2. Specialist studies programme

The specialist studies programme would include students who are currently working with infrastructure systems, with the programme being focused on skills and knowledge which are required in the individual systems. This type of studies programme would serve as a verification for knowledge in the field of infrastructure and would help the students in their life-long learning. With the end of the specialist studies programme the knowledge acquired by the student (ECTS points) would be recognized in entering the doctoral studies programme. The candidates of existing specialist studies of faculties at J.J. Strossmayer University would be motivated to write their seminar papers on the topic of infrastructure.

Selected experts, students of the doctoral studies programme would lead exercises with the students of the specialist studies programme and would pass their specialist experience on to them. In this context, it is important to mention that a specialist interdisciplinary studies programme in regulation of electronic communications market has been recently organized at the Faculty of Electrotechnics and Computer Science in Zagreb (candidates: engineers of electrotechnics, economists and jurists).

### 5.3. Undergraduate studies programme

Undergraduate studies programme in the field of infrastructure would be undertaken in different courses on the faculties from which potential candidates for the doctoral programme would be recruited. The lecturers on these courses would be select experts with practical experience.

### 5.4. Lifelong learning

Lifelong learning would be undertaken under the auspices of Ministry of sea, transportation, traffic and infrastructure with cooperation of the academic community, expert chambers, institutes and expert associations.

## 6. Scholarship

Scholarship fees for the specialist and doctoral studies would be paid by the students (or their employers) and public funds. Students of the doctoral studies programme working on an infrastructure project can repay their scholarship costs by working on the said project, or as lecturers in the postgraduate studies programme.

## 7. The concept of the doctoral studies programme

### 7.1. Competences to be achieved

Excellent knowledge of the types and purposes as well as the principles of energy, telecommunication, gas, oil, water supply, sewage, heat and transport infrastructure (roads, railways, waterways, airports) in stages:

- Planning
- Design
- Construction

- Maintenance

## 7.2. The fundamental areas of the doctoral studies programme

The content of each course is a topic of discussion. The following are the working titles of courses of doctoral studies:

- Economic importance of infrastructure
- Legal regimes on real estate and infrastructure
- Spatial planning infrastructure
- Designing infrastructure
- Building Infrastructure
- Maintenance of infrastructure
- IT systems and infrastructure
- The sociological significance of infrastructure
- Infrastructure, environment and cultural heritage

## 8. Conclusion

J.J. Strossmayer University in Osijek could be the organizer of a multidisciplinary studies programme on all levels with the purpose of educating experts in infrastructure management. In East Slavonia, revolutionary first considerations of a multidisciplinary approach to planning and development of significant infrastructure capacities are to be observed. The description of the organizational forms which resulted in the above mentioned considerations are beyond the immediate topic of this paper. It is from this very knowledge however that we gather strength to try a new expert and organizational advance in this area, by promoting systematic education for infrastructure management.

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## **IMPACT OF FORMAL AND LIFELONG LEARNING ON EMPLOYABILITY AND ECONOMIC DEVELOPMENT OF EASTERN CROATIA**

### **UTJECAJ FORMALNOG I CJELOŽIVOTNOG OBRAZOVANJA NA ZAPOŠLJIVOST I RAZVOJ GOSPODARSTVA ISTOČNE HRVATSKE**

#### ***ABSTRACT***

*In recent years, there has been a decrease in financing of formal education due to the changes in trends in demographic structure and slow growth of the economy, but also due to the more dynamic changes dictated by the labour market. Role of state in financing is important, but the role of other scientific and educational public and private institutions in designing the necessary models of education are also significant and it is shown that the process of establishment of education programs has to continually adapt to the market needs, mainly through stronger connection and contacts with the economy. Human resources are not fully utilized and adjusted to the needs of the economy. This paper shows average trends of education through European standards comparable with Croatian standards, which, on an annual basis, follow the achievements in line with the strategy Europe 2020, as well as certain concepts of lifelong learning, which should ultimately bring specific recommendations.*

*Performance recommendations, in accordance with the established goals, are focused on defining realistic competencies and skills that would improve performance of employability in the economy of eastern Croatia. The aim of the research arises from the analysis of more practical forms of education and stronger networking of educational programs with economic entities on the example of engagement of individuals in designing their own business ventures and simultaneous search for further competences in education vertical.*

**Key words:** *state, human resources, formal and lifelong learning, educational institutions, local economy.*

## SAŽETAK

*U zadnjih nekoliko godina došlo je do smanjenja financiranja formalnog obrazovanja zbog promjena trendova u demografskoj strukturi, sporom rastu gospodarstva ali i trendova koje diktira tržište radne snage. Uloga države u financiranju i ostalih javnih i privatnih subjekata u kreiranju potrebitih modela obrazovanja je značajna, pri čemu je put obrazovanja sve prilagođeniji potrebama tržišta što bi u konačnici trebalo efikasnije doprinijeti mogućnostima razvoja gospodarstva na središnjoj i regionalnoj razini. Budući da se i u Republici Hrvatskoj rađaju tzv. z-generacije, da je sve veći broj starijih koji žele učiti glavna zadaća države, regionalnih jedinica vlasti te obrazovnih institucija bi trebala biti usmjerena na prepoznavanje i kreiranje učinkovitijih programa cjeloživotnog obrazovanja. Ljudski potencijal nije dovoljno iskorišten i prilagođen potrebama gospodarstva zbog sporosti i neprilagođenosti ka promjenama te trendovima koji se u gospodarstvu dinamičnije izmjenjuju nego što je to bilo nekad. U radu su prikazani prosječni trendovi obrazovanja kroz europska mjerila usporediva sa hrvatskim mjerilima koja na godišnjoj razini prate postignuća sukladno strategiji Europa 2020. kao i određenih koncepcija cjeloživotnog učenja, što bi u konačnici trebalo donijeti određene preporuke. Preporuke rada su usmjerene na definiranje ključnih kompetencija ljudskih potencijala u svrhu definiranja praktičnijih vidova obrazovanja koji bi imali učinkovitiji utjecaj na razvoj gospodarstva istočne Hrvatske.*

**Ključne riječi:** država, ljudski potencijal, formalno obrazovanje, cjeloživotno obrazovanje, regionalno gospodarstvo.

### 1. Introduction

Many answers related to the interpretation of the dynamics of development and understanding the employability trends and education are ambiguous and have to be perceived and explored together with the policies and economies of country and EU Member States. For the purpose of understanding of the problem, it is necessary to embrace countries diversity, primarily visible in the economic indicators, but also in specific cultural, demographic and industrial differences that are present from the historic days until the present evolutionary changes, used by countries to preserve the economic sovereignty, identity and recognisability. Observation and analysis of each local environment is based primarily on the population, levels and categories of education of the population, opportunities for employability, opportunities for creating new jobs and new businesses and perspectives that each local environment seeks in order to improve the lives of the entire local population. Creating a positive environment that would ensure prosperity in terms of faster employment and better education for young people and other age groups is a challenge for every local environment, as well as for eastern Croatia.

Concepts of education and lifelong learning should have a better correlation with the needs of the labour market. That correlation allows economic entities to be more involved in the creation of future development perspectives of eastern Croatia, allowing intense and more cohesive cooperation with entities that come from the segment of education.

### 2. Education and lifelong learning

Education is the process where its content continuously evolves and determines the social manifestations of the categories of external and internal environment in which the most important activity a learning process, which further on influences economic, cultural, social and technical changes in line with the development and achievements of civilization. One of

the most important changes that have a very strong impact on education is the advanced development of technology and innovation.

There is no doubt that a new era of internationalization of trade and services, information society and scientific and technological process bring more and more need for continuous regulation of standards focused on redefinition of teaching and learning process.

Education, therefore, should provide basic and broad general knowledge that will be the backbone for further specialized trainings of the individuals, but also it should provide knowledge and competences, which will secure employment and financial security of the individual. Today, education includes much broader population where the most important role is taken over with the concept of lifelong learning that promotes open, mobile and innovative society.

In the previous period (2004-2012) certain changes that occurred, suggest strategic direction of education in the Republic of Croatia, in terms of primary and secondary education and higher education, as can be seen in the simple analysis in Table 1.

**Table 1: The structure of education in the Republic of Croatia from 2004 to 2012**

Year	Students – completed primary school	Share per year	Students – completed high school	Share per year	Students who graduated from institutions of higher education		Studenti - završen studij	The number of higher education institutions	State budget expenditures (education)
		% as compared to 2003		% as compared to 2003	SPECIALIZED COLLEGE	UNIVERSITY FACULTY	% as compared to 2003		In thousands of HRK
2003	<b>51.211</b>	-	<b>47.092</b>	-	<b>6.489</b>	<b>9.243</b>	-	-	<b>6.806.803</b>
2004	<b>50.088</b>	0%	<b>48.548</b>	0%	<b>8.029</b>	<b>9.362</b>	0%	<b>102</b>	<b>7.244.730</b>
2005	<b>50.173</b>	0%	<b>47.698</b>	-2%	<b>8.458</b>	<b>9.732</b>	4%	<b>103</b>	<b>7.642.395</b>
2006	<b>49.578</b>	-1%	<b>46.551</b>	-4%	<b>8.919</b>	<b>10.647</b>	14%	<b>110</b>	<b>8.213.730</b>
2007	<b>46.814</b>	-7%	<b>45.823</b>	-6%	<b>9.929</b>	<b>11.040</b>	18%	<b>114</b>	<b>9.293.917</b>
2008	<b>46.328</b>	-8%	<b>44.506</b>	-8%	<b>10.247</b>	<b>15.326</b>	64%	<b>115</b>	<b>10.247.052</b>
2009	<b>47.578</b>	-5%	<b>45.331</b>	-7%	<b>9.905</b>	<b>20.251</b>	116%	<b>126</b>	<b>10.395.997</b>
2010	<b>47.630</b>	-5%	<b>44.810</b>	-8%	<b>9.670</b>	<b>22.708</b>	143%	<b>132</b>	<b>10.277.096</b>
2011	<b>49.586</b>	-1%	<b>42.669</b>	-12%	<b>11.153</b>	<b>25.335</b>	171%	<b>133</b>	<b>10.483.615</b>
2012	<b>47.959</b>	-4%	<b>43.248</b>	-11%	<b>11.557</b>	<b>25.407</b>	171%	<b>134</b>	<b>10.520.709</b>

Source: The author's creation according to official data of the Statistical Office, available at: [http://www.dzs.hr/Hrv\\_Eng/letopis/2011/SLJH2011.pdf](http://www.dzs.hr/Hrv_Eng/letopis/2011/SLJH2011.pdf) (Accessed 12 Mar 2015)

Table 1 shows that there are significant differences between the trends in the primary and secondary education, when compared with higher education. With the introduction of the Bologna process, statistics in the field of higher education was improved, specifically increased number of graduates and institutions that offer higher education. Proportion of educated individuals has increased by 50% - 180%, which indicated that the strategic framework of education offered by Bologna process is accepted.

Due to the low fiscal budgetary capacity, state funding was not significantly increased. It can be concluded that the number of universities in the Republic of Croatia has increased significantly, but this can also be considered as a result of certain political and economic strategic activities.

On the other hand, analysis of education, scope of employment and the volume of investment observed by counties show a different interpretation of numbers. Specifically, number of students with a certain level of education, number of employees in all businesses in correlation of actual financial investment by the state, allocated to the segment of the



development of education, in accordance with the geographical origin.

Lifelong learning refers to all learning activity undertaken throughout life to improve knowledge, skills and competences within individuals personal, civil, social or professional activity. It includes learning at all stages of life (from early childhood to old age) and in it can be: formal, non-formal and informal (Agency for Vocational and Adult Education, 2015).

The concept of lifelong learning is often replaced with the term lifelong education, but it is important to point out that the two terms are not synonymous (Marcetić, Krstanović, Uzelac, 2010:2). Education includes only organized learning processes, and broader concept that includes unintentional, unorganized and spontaneous knowledge gained throughout life.

Lifelong learning is a basic requirement of dealing with contemporary postmodern world, extending the concept of education of youth and adults to formal and informal adult education, including empirical learning of young people and adults.

Lifelong learning in the modern world is becoming the key of increased competitiveness in the labour market, long-term employability and higher levels of economic benefits. Changes in education and upbringing of youth cannot meet the different developmental needs, because they cannot be accurately predicted. Therefore, "half-life" of different types of knowledge is becoming shorter, i.e. half-life of knowledge is the number of years for which 50% of knowledge is obsolete (Buljubašić-Kuzmanovic, 2009: 53). Today is already considerably shorter than working life and especially of life span, and still is being shortened (Pastuović, 1999: 38). This resulted with the idea of lifelong learning in order to prolong the life span of knowledge.

Below *Table No. 2* shows the percentage of people involved in lifelong learning process in Croatia compared to the EU countries.

**Table 2:** *Lifelong learning, is in parallel with the EU 27*

	Unit	2010.	2011.	2012.
<b>EU 27</b>	%	9.1	8.9	9.0
<b>Hrvatska</b>	%	2.2	2.3	2.4

Source: The author's creation according to the official website of the Statistical Office of the European Communities. available at: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=0&language=en&pcode=tsdsc440> (Accessed 8 Dec 2013)

Data is collected from the Labour Force Survey in the European Union and can be applied to entire education or training, even if not relevant for the subjects in current or future job. The period from 2010 - 2012, shows that a small percentage of the population in Croatia is involved in lifelong learning process, consequently, with small increases of the percentage up to 0.1%. The latest data from 2012 show increase of 2.4%, which is inadequate for further development.

In 2011, 9.6% of women and 8.2% men were involved in lifelong learning processes. The Republic of Croatia is country with lowest rates of adults involved in lifelong learning processes. From this, we can see that there is a great need for the implementation and presentation of lifelong learning in eastern Slavonia, since additional learning processes and trainings may contribute to optimal restructuring and improving the performance of the labour market (Statistical office of the European Communities, 2014).

## 2.1 Types of Lifelong learning

Types of lifelong learning may vary according to the following criteria: according to the degree of organization, conditions in which learning takes place, which is based on: space, equipment, number and quality of textbooks, qualifications of teachers and trainers, the methods of learning / teaching, functionality and applicability of knowledge, skills and attitudes and degree of certification of educational outcomes. According to these criteria, types of lifelong learning are: formal education, non-formal education, informal education and unintentional or empirical learning. (Pastuović, 2008:256).

Formal education is education that represents the most organized form of learning. Formal education is formally structured, organized by educational institutions, resulting with acknowledged certificate, i.e. diploma / degree. Diploma / degree acknowledge certain level of education. Primary and secondary schools, colleges, universities and other official institutions carry out formal education.

Non-formal education is organized learning which does not result with acknowledged certificate or diploma / degree. Non-formal education is a systematic and organized educational activity that can be implemented in schools and non-school organizations, and includes the people of all age groups; from children to elderly people. The completion of some types of non-formal education can result with certificate, but not with acquired professional qualification.

Informal education is self-education that is carried out according to individual learning projects where person that designed learning project is learning as well. It is a form of intentional learning and it is less organized than non-formal education.

The main characteristics of informal learning are: lack of organization from the outside, informal structures. The decision are taken by student and is a pure form self-managed autonomous learning that comes from experience and situational challenges and takes place during daily life and work.

Unintentional or experiential learning takes place in various life roles: the role of students, labour, family / parenting, political, recreational, war and other roles. It is gained through work and different life situations, and it is not motivated by learning, but with the satisfaction of various economic, social and self-realizing motives.

## 2.2 Financing lifelong learning at the state level

Financing of education and lifelong learning in Croatia is marginalized what is best seen in the state budget where education is not priority.

In addition, statistically the allocations in education in the Republic of Croatia are much smaller than in other EU member states. In the last few years, allocations in financing education in relation to the total expenditure of the budget of the Croatian were about 9% in comparison to the overall allocations.

Also the allocation for education in the last few years has not been increased, which shows that there is no clear guideline of optimal financing of education, where in financing of lifelong learning there are different indicators.

Lifelong learning represents a particular trend when it comes to financing. When observed vertically, financing of life long leaning was brought to the regional and local levels. This is important when thinking of eastern Croatia and further prospects of the concept lifelong learning. *Table No. 3* shows the institutions that support lifelong learning in Croatia.

**Table 3: Institutions that support lifelong learning in Croatia (shown in HRK millions)**

Year	2009	2010	2011	2012
The Agency for education	112.573.133	42.931.747	40.974.559	37.919.096
The Agency for Science and Higher Education	19.649.622	20.733.942	20.150.643	21.065.599
Agency for Mobility and EU Programmes	-	21.058.604	46.459.583	69.043.283
Agency for Vocational and Adult Education	19.649.622	55.605.442	62.826.957	57.043.204
<b>Total</b>	<b>151.872.378</b>	<b>140.329.735</b>	<b>170.411.742</b>	<b>185.071.182</b>
<b>Ministry of Science, Education and Sports</b>	<b>12.077.596.176</b>	<b>11.787.323.085</b>	<b>11.931.135.509</b>	<b>11.978.726.926</b>

Source: The author's creation according to the official data of the Ministry of Science, Education and Sports. available at: <http://public.mzos.hr/Default.aspx?sec=3281> (Accessed 20 Dec 2013)

In the framework of financing of lifelong learning by the state within the budget, the following institutional forms of activities and entities are included in lifelong learning processes:

- National contribution to the program for lifelong learning
- Development of the adult education system
- IPA I 2009 implementation of the youth program and implementation of programs for lifelong learning
- Youth in Action and Lifelong Learning
- Administration and management of the Agency for Vocational and Adult Education
- Promoting a culture of learning; week of lifelong learning
- Expert counselling activity
- The Council for Adult Education
- Development of Vocational Education System
- Development of the adult education system
- IPA IV 2007 which includes strengthening the human capital and employment and strengthening social inclusion and integration of people with disadvantage.

These programs were initially introduced in 2009 and they represent a change in the implementation and development of education and learning, showing significant expansion of formal education and creating necessary connections with the real labour market.

The concept lifelong learning is becoming a necessity and has an increasingly important role in building of the skills and competencies of individuals in the process of education.

Lifelong learning is the foundation for personal development and continuous adaptation to changing environment both in the individual's personal life, in the workplace and in society. Lifelong learning contributes to faster and easier response to the needs of the economy and society, and thus reduces the relative slowness of formal education at all levels.

However, the proportion of the population in Croatia, in age between 25 and 64, participating in education and training through the system for education of adults, according to data from 2011, is low, amounting only 2.3%, while the EU average is 8.9%.

Large proportion of the population of adults in Croatia are no longer competitive in the labour market, certain groups of people are already socially excluded, and many people need improvement and upgrade of their key competencies.

With Croatian accession to the European Union and adoption of the Operational Programme

Human Resources Effective 2014 - 2020, lifelong learning has the potential for significant momentum, as it has, with the above mentioned funding programs, possibility to use European Social Fund (ESF).

The European Social Fund is one of the fundamental structural instruments of the EU, which provides to member states support in investments in human capital and strengthening the competitiveness of the European economy. (Ministry of Regional Development and EU Funds, 2015). ESF is an important instrument of the European Union aimed at the implementation of measures to strengthening of human capital and improving the adaptability of workers and enterprises. It also encourages social inclusion of disadvantaged groups, by preventing discrimination, in particular through the reform of the education system in order to increase the employability in the labour market, the relevance and quality of initial vocational education, trainings and higher education and continuous improvement of employees' competencies to create innovative knowledge-based economy.

Furthermore, the ESF encourages networking activities of higher education institutions, research organizations and businesses in order to develop human capital in science and research. (Operational Programme Human Resources 2014 - 2020)

Number of people who participated in the training, lifelong learning and other educational programs in the Member States are presented in further text.

### **3. The position of Croatia in education**

Text below shows position of the education in Croatia, in comparison with the objectives of the strategic framework "Education and Training 2020", as well as the position of Croatian counties in education, in order to see the position of the region in relation to the rest of the Croatia. "Education and Training 2020" (ET 2020) is a strategic framework for cooperation in education and training in Europe.

ET 2020 provides common strategic objectives for the EU Member States, including the set of principles for achieving these goals, as well as the usual methods with priority areas for each periodic operation cycle, which consists of 6 defined criteria:

1. average of at least 15% of adults should participate in lifelong learning
2. share of 15-year-olds with poor performance in reading, mathematics and science should be less than 15%
3. share of 30-34 years of age with a high level of education should be at least 40%
4. share of individuals that are abandoning education and training early should be less than 10%
5. At least 95% of children between 4 and start of primary education should participate in early childhood education
6. share of individuals (20-34 years of age) leaving education, 1 to 3 years before the reference year and are employed should be at least 82%

Below, Table 4 shows Croatia's progress in achieving the objectives of the Strategy.

**Table 4: Indicators of Education of the Republic of Croatia according to the guidelines objectives of ET 2020**

	<b>OBJECTIVE OF THE STRATEGY 2020</b>	<b>RH</b>
Lifelong learning	Min. 15%	2,5%
Bad results of 15-year-olds	Max. 15%	17,3%
The share of people 30-34 with a university degree	Min. 40%	26%
The proportion of those who leave education	Max. 10%	5%
Early Childhood Education	Min. 95%	72%
Those who are employed, but gave up school	Min. 82%	54%

Source: The author's creation according to official data pages Statistical Office of the European Communities (Eurostat). available at: <http://ec.europa.eu/eurostat> (Accessed 15 Mar 2015)

Indicators that compare parameters are significantly different. Huge differences are present in most categories, except in the area of 15-year-olds with poor performance. The differences can be explained in two ways, mainly if we take into account that the structure in other European countries conditions the need to achieve these goals. Looking at the characteristics that are related to lifelong education in Croatia, it is evident that the population does not gravitate to education in the field of lifelong learning.

### **3.2 County Development Index**

Table 5 compares development index of Croatian counties in relation to the share of educated population. Development Index takes into account the average income per capita, the average original income per capita, unemployment rate, population movement and the share of educated population in the population ranging from 15-65 years disaggregated by development index and groups.

Assessment and classification of counties based on development

County	Values of the basic indicators				Values of standardized indicators in relation to the national average				DEVELOPMENT INDEX	GROUPS			
	The average income per capita	Average original income per capita	Average unemployment rate	Status of the population	The share of educated population in the 16-65 years old population	The average income per capita	Average original income per capita	Average unemployment rate			Status of the population	The share of educated population in the 16-65 years old population	
	2010-2012	2010-2012	2010-2012	2010-2001	2011	2010-2012	2010-2012	2010-2012			2010-2001	2011	
Virovitiško-podravska	10.000	1.590	25,0%	92,2	63,31%	1,65%	11,83%	0,00%	17,17%	5,30%	<75%	I	
Brodsko-posavska	10.455	1.381	25,6%	96,7	60,75%	0,00%	0,70%	2,71%	69,14%	47,64%	15,43%	<75%	I
Vukovarsko-srijemska	20.398	1.441	25,4%	95,1	60,31%	9,81%	3,76%	4,97%	50,30%	44,68%	15,73%	<75%	I
Bjelovarsko-bilogorska	21.087	1.688	23,0%	92,4	65,52%	23,98%	10,55%	29,47%	19,61%	19,87%	23,29%	<75%	I
Podravske-slavonska	20.780	1.368	19,5%	93,9	67,92%	14,02%	0,00%	64,80%	37,06%	35,83%	33,81%	<75%	I
Sisačko-moslavačka	25.439	2.338	24,1%	90,8	72,31%	64,20%	49,63%	17,81%	1,14%	64,39%	38,70%	<75%	I
Ogješko-baranjska	24.508	2.111	23,4%	96,9	73,08%	54,30%	38,27%	24,71%	59,46%	66,46%	46,07%	<75%	I
Karlovčka	20.633	2.187	20,1%	91,6	74,25%	77,15%	41,14%	50,00%	10,53%	77,17%	56,34%	<75%	I
Koprivničko-krizevačka	22.997	2.650	16,4%	95,3	82,46%	36,89%	66,01%	106,89%	53,32%	0,00%	50,19%	<75%	I
Ličko-senjska	24.731	2.702	18,3%	90,7	73,73%	56,70%	68,69%	97,69%	0,00%	73,73%	64,52%	<75%	I
Međimurska	22.080	1.725	14,0%	99,6	71,20%	28,21%	18,37%	130,22%	101,40%	57,10%	66,65%	<75%	I
Krapinsko-zagorska	25.632	1.772	12,9%	95,0	66,67%	64,24%	20,81%	131,76%	49,50%	47,05%	73,24%	<75%	I
Šibensko-kninska	24.552	2.823	17,3%	96,5	78,96%	54,89%	64,64%	87,34%	100,72%	108,00%	88,03%	75-100%	II
Varaždinska	25.799	2.079	12,5%	97,2	74,46%	68,18%	36,56%	136,20%	74,47%	78,52%	86,34%	75-100%	II
Splitško-dalmatinska	20.019	3.080	19,5%	104,2	83,06%	70,54%	88,67%	64,80%	154,04%	135,13%	83,75%	75-100%	II
Zadarska	24.833	3.174	15,1%	109,1	77,67%	50,60%	83,00%	109,58%	211,23%	101,52%	106,39%	100-125%	III
Dubrovačko-neretvanska	27.446	3.460	13,3%	104,0	83,74%	69,11%	109,70%	127,60%	152,47%	138,34%	120,84%	100-125%	III
Zagrebačka	26.658	2.628	11,2%	106,5	76,82%	108,59%	75,08%	149,76%	180,68%	93,68%	124,23%	100-125%	III
Primorsko-goranska	32.713	4.757	12,7%	99,3	94,97%	143,57%	174,46%	154,20%	98,24%	147,46%	136,21%	>125%	IV
Istarska	31.987	4.894	7,8%	104,1	80,75%	134,80%	181,01%	183,15%	153,41%	119,88%	155,80%	>125%	IV
Grad Zagreb	42.175	6.987	10,6%	101,9	86,83%	244,20%	238,25%	154,81%	127,78%	160,27%	186,44%	>125%	IV
Republika Hrvatska	28.759	3.310	16,0%	99,4	77,7%	100,00%	100,00%	100,00%	100,00%	100,00%			
max	42.175	5.987	25,9%	109	86,9%								
min	10.455	1.368	7,8%	91	62,5%								

Assisted areas

Previous Table No. 8 is taken from the official site of the Ministry of Regional Development and EU Funds, and it shows that the development index moves in proportion to the share of educated people in several counties.

Therefore, there are no exceptions in any county. It is evident that there are significant differences between counties that are located in the inland of the Croatian when compared to Zagreb, the northern part of the Croatian and other counties, which gravitate towards the sea. Osijek-Baranja County has a slightly better position compared to other counties in the inland due to the strong influence of the University, and the fact that Osijek is largest city in the region.

#### 4. Human capital observed through entrepreneurial activity and innovation

With aim to analyse the impact of human capital as a function of socio - economic development of the region, entrepreneurial activity and innovation are taken as the basis for economic development and as such, are analysed in the continuation of this work.

##### 4.1. Entrepreneurial activity on the example the Centre for Entrepreneurship

Table below presents analysed data of the Centre for Entrepreneurship in Osijek with the aim to provide insight into the impact of human capital of formal education in socio - economic development of the region.

Centre for Entrepreneurship is an association with the mission to promote proactive spirit and culture of entrepreneurship between the civil society, academic and business communities, institutions, public administrations and citizens through the exchange of ideas, information and knowledge necessary to increase competitiveness, personal development and the development of local communities that contributes in improving the entire Croatian economy. It encourages the creation of an entrepreneurial culture, entrepreneurial mind-set and behaviour in everyday life and in the workplace through information, advice, training, networking and implementation of various projects.

Table below gives the information on clients that used Centre for consultation in the period of 2012 -2014, in order to determine level and nature of their education.

Main reasons for visiting the Centre were opportunity for an entrepreneurial venture, need to enter into entrepreneurship, expansion of existing businesses, business development and so on. All reasons indicate on the proactive entrepreneurial behaviour, which is a significant driver of economic development.

**Table 6:** *Entrepreneurial activity of clients of the Center for Entrepreneurship in Osijek from 2012 to 2014 due to the level of education*

<b>TERTIARY EDUCATION</b>	<b>145</b>	41,55%
Higher school	29	
College	114	
Doctorate	2	
<b>SECONDARY EDUCATION</b>	<b>204</b>	58,45%
Low skilled worker	5	
Skilled worker	7	
High school	192	
<b>TOTAL</b>	<b>344</b>	

Source: The author's creation according to official data of the Center for Entrepreneurship in Osijek

From a total of 344 clients in period 2012-2014, 41.55% had completed higher education (college, university or doctorate). Secondary education had a 58.45% of clients (low skilled worker, skilled worker or high school). These data give an insight in the formal education of clients. Additionally, it would be useful to explore the needs of clients for additional forms of education related to lifelong learning. This findings would represent significant help in creating the necessary further training programs for the real market.

Table 7 presents the clients of the Centre for Entrepreneurship in the period from 2012 until 2014 year, with main reason for visiting the Centre was recognized entrepreneurship opportunities.

Unlike entrepreneurial activity out of necessity, entrepreneurship opportunities increased economic potential and development.

**Table 7:** *Entrepreneurial activity of opportunities clients Center for Entrepreneurship in Osijek from 2012 to 2014 Due to the level of education*

TERTIARY EDUCATION	34,55%
SECONDARY EDUCATION	65,45%

Source: The author's creation according to official data of the Center for Entrepreneurship in Osijek

34.55%, of clients that recognized the opportunity in the market and for that reason decided to collaborate with the Centre for Entrepreneurship had high level of education, and 65.45% had secondary level education.

Table 8 shows the clients of the Center for Entrepreneurship in Osijek with completed secondary and university education, presented according to the natural and social sciences.

**Table 8:** *Entrepreneurial activity of clients of the Center for Entrepreneurship in Osijek from 2012 to 2014 due to the view of the nature of education*

	SECONDARY EDUCATION	TERTIARY EDUCATION
Natural sciences	47,31%	32,84%
Social sciences	52,69%	67,16%

Source: The author's creation according to official data of the Center for Entrepreneurship in Osijek

47,31% clients of the Centre with secondary, had natural sciences background, and 52.69% Social Sciences. When looking to the clients with university education, 32.84% had a degree in natural sciences, and 67.16% in social sciences.

## 4.2 Innovation as a development potential

In fact, when thinking about how to connect development and formal education, without statistics and numbers that have already been explored, different approach was chosen. Desired way of comparison was that individuals with secondary education have the same starting position as individuals with high education, and that they can be compared.

Individual innovation was taken as a basis for this comparison. Innovation is the basis of development, not only development of the businesses but also development of the activities and finally, the development of the state.



The data was found on the Internet at various sites, such as fairs innovation, international exhibition of inventions ARCA, INOVA etc, researching what percentage of innovators had a university degree, and how many have completed secondary school.

49 different projects in last two years was taken into account (from already developed business with generating incomes, but also those waiting for investors and thus represent growth potential) and 87.55% of innovators had higher education.

This reveals the connection between development and degree of formal education. Of course, not as the sole condition, but as a definite advantage. In this study, only individual projects were taken into account.

**Table 9:** List of innovation with the education of their innovators

Ser.No.	Innovation	Innovators	Degree
1.	Farmeron	M. K.	University degree
2.	Hrvatska aplikacija za brže zvanje taksija u New Yorku	M. Š.	secondary education
3.	Hrvatska aplikacija za brže zvanje taksija u New Yorku	T. C.	secondary education
4.	Myrio - digitalni shop asistent	I. M.	University degree
5.	Infraredesign maskirna uniforma -dualni dizajn na tekstilu i koži	I. Ž. S.	University degree
6.	Infraredesign maskirna uniforma – dualni dizajn na tekstilu i koži	K. P.	University degree
7.	Infraredesign maskirna uniforma – dualni dizajn na tekstilu i koži	J. Ž. V.	University degree
8.	Infraredesign maskirna uniforma – dualni dizajn na tekstilu i koži	V. Ž.	University degree
9.	Detox-Destress Lavander	R. L.	University degree
10.	Detox-Destress Lavander	I. L.	University degree
11.	Naprava za izradu čevapa	K. Š.	secondary education
12.	Naprava za vezanje brodova	M. V.	University degree
13.	Društvene igre "Osvoji Jadran" i "Mediterraneut"	S. V. Č.	University degree
14.	Upravljanje procesima	T. L.	University degree
15.	Višenamjenska didaktička RGB konzola – igračka	A. O.	secondary education
16.	LED Display	B. I.	secondary education
17.	Vakumski motor „Jedač plamena“	M. P.	University degree
18.	TTK – Tvornica turbina	M. A.	University degree
19.	Squee	I. I.	University degree
20.	Squee	K. K.	University degree
21.	Squee	I. K.	University degree
22.	Madbarz	N. M.	University degree
23.	Madbarz	L. M.	University degree
24.	PhotoMath	D. S.	University degree
25.	BabyWatch	S. M.	secondary education
26.	SalesPod	M. L.	University degree
27.	Nikel probiotik krema	M. B.	University degree
28.	Sustav za dezinfekciju kamiona za smeće	N. K.	secondary education
29.	Nadogradivi produžni kabel	D. F.	University degree
30.	Hidraulični podupirač	P. M.	secondary education
31.	Hidrolazur	N. M.	University degree
32.	Postupak i stroj za kompleksnu pripremu	P. L.	University degree

Ser.No.	Innovation	Innovators	Degree
	tla i sjetvu		
33.	Terrestrica	S. N.	University degree
34.	Dvodijelni poklopac za lampione	V. T.	University degree
35.	WhoAPI	G. D.	secondary education
36.	WhoHack	E. B.	University degree
37.	PHARE	D. Z.	University degree
38.	CIPMANN	M. Č.	University degree
39.	CIPMANN	N. R.	University degree
40.	Multifunkcionalne ženske cipele	V. V.	University degree
41.	Trodjelni podizač mreže plivarice	P. B.	secondary education
42.	Projekt milenijskog kotača	Z. D.	University degree
43.	Endy Motors	E. Š.	University degree
44.	Peri & Dery	A. P.	University degree
45.	Bipolarni tranzistor s horizontalnim tokom struje	T. S.	University degree
46.	Metode za slijepo razdvajanje signala	I. K.	University degree
47.	3D Hologramski Display	I. K.	secondary education
48.	Aplikacijama do bolje socijalne uključenosti – ICT-AAC	V. P.	University degree
49.	Automatska vizualna inspekcija kvalitete proizvoda	S. L.	University degree

Source: The author's creation

SSS – 11 → 22,45%

VSS – 38 → 77,55%

Total - 49

The structure of innovators in terms of qualifications and formal education indicates that, in much bigger proportion, innovators are individuals with university degree.

It would be desirable to examine the nature and characteristics of innovation and initiated businesses and gather information on skills and competencies that should and must be offer in the labour market, especially since innovation and conceptual content is always related to development and future use which can certainly affect better planning and creation of a continuing education program.

## 5. Conclusion

Depopulation and the aging of population are two important processes that characterize the demographics in Croatian from 1990 until today. Projections up to 2050 suggest a tendency of increase of aging of the population, but also the aging of the population in the working age, as well as significantly reducing the number of children in high school age. Such changes in natural dynamics, migration balance and in the age structure of the population, significantly affect the reproduction of the labour force, which affect the total work potential and labour productivity, and the overall economic development of the Croatian, and with it the perspective of the eastern Croatian.

The characteristics of formal educated in Croatia are such that they cannot contribute to the instant employability which is partly the reason an economic stagnation.

Frameworks of lifelong learning offer better prospects, but are also ways of measuring the need to educate those who require flexible and adaptable systems to create a continuing education program and research, with the need to implement more dynamic and more

frequent review and periodic revisions in line with labour market demands.

According to the World Bank successful transition of countries in the knowledge society includes long-term investments in education, development of innovative capabilities, modernization of information and communication infrastructure and effective legal and economic framework. Accordingly, it is clear what steps have to be taken in eastern Croatia. That is also visible by the examples of entrepreneurial activity and innovation, which represent a reference framework for the creation of further needs for individuals with proactive role in generating employability and creating additional value for the economy. These examples represent the trends in the creation of a continuing education program, because they are aimed at better identification of the needs and desires of individuals for this form of education.

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## **HUMAN CAPITAL DIMENSION IN ENTREPRENEURSHIP DEVELOPMENT - CROATIAN EXPERIENCE**

### **LJUDSKI KAPITAL U RAZVOJU PODUZETNIŠTVA – ISKUSTVO HRVATSKE**

#### ***ABSTRACT***

*This paper tries to present development of entrepreneurship through human capital dimension from the SME and entrepreneurship development policy maker point of view. An insight to the transition process in Croatia in the last two decades shows that the process of creating favourable political and economic environment for the entrepreneurship development was contemporary with the transition to the market economy. The core of this manifold transition was the transition process of human resources. Croatia invested budgetary funds and provided systematic support for the needs of entrepreneurship development especially targeting SME sector and trying to boost the local and regional socio-economic development.*

*The improvement of intellectual capacity on the institutional as well as on entrepreneurs' level was the backbone of the Croatian systematic support model of entrepreneurship development that lasts twenty years now since the first Government Programme on Entrepreneurship and SME Development in 1997.*

*Within this Programme framework two capital national projects have the human capital dimension enhancement as core target on the long-term basis, the Entrepreneurship Promotion and Entrepreneurship Education.*

*There are streamlined efforts in the past two decades to widely spread the entrepreneurship education. The Croatian national authority for SME policy has recorded continuity in education and training for entrepreneurship. The National Framework Curriculum recognizes the entrepreneurship as one among eight basic key education competencies as well as the Strategy for Entrepreneurship Education Development 2020.*

*The entrepreneurship and/or entrepreneurship economics studies are included through higher education institutions. However, the entrepreneurship on the primary and secondary school levels is still extracurricular.*

*This fact further supports the importance of the activities implemented by the South East European Centre for Entrepreneurial Learning among eight countries to introduce the entrepreneurship as a key competence at all levels of formal, non-formal and informal education.*

*The intellectual capacity building of the supporting entrepreneurial infrastructure staff is crucial for local and regional socio-economic development. It is still an on-going process that targets the institutions which meet the entrepreneurs' needs for counselling and consulting services, business information and training. The entrepreneurial network comprises 21*

*Regional Development Agencies, and about 80 entrepreneurial centres, entrepreneurial incubators throughout twenty one county of Croatia.*

**Key words:** *Human capital, Entrepreneurship development, Life-long entrepreneurial Learning, Socio-economic development, Croatia*

## **SAŽETAK**

*Cilj ovoga rada je prikazati ljudski kapital u razvoju poduzetništva sa stajališta kreatora politika za razvoj sektora maloga gospodarstva i poduzetništva.*

*Uvidom u dva posljednja desetljeća tranzicijskog procesa u Hrvatskoj prepoznaje se istodobnost kreiranja povoljnog političkog i gospodarskog okruženja za razvoj poduzetništva s nastajanjem tržišne ekonomije. U srcu tih višeslojnih procesa događala se i tranzicija ljudskog kapitala. Hrvatska je ulagala proračunska sredstva u sustavnu potporu razvoju poduzetništva, posebice sektora maloga gospodarstva u cilju jačanja lokalnog i regionalnog društvenog i gospodarskog razvoja.*

*Okosnica modela dvadesetogodišnje sustavne potpore razvoju poduzetništva u Hrvatskoj bilo je jačanje intelektualnog kapaciteta institucija i poduzetnika, počevši od prvog Programa razvitka poduzetništva i maloga gospodarstva Vlade Republike Hrvatske 1997. U ovom Programu dva su nacionalna kapitalna projekta promicala dugoročno jačanje razvoja ljudskog kapitala: Projekt promidžbe poduzetništva i Projekt obrazovanja za potrebe poduzetništva.*

*Obrazovanju u poduzetništvu u protekla je dva desetljeća posvećena posebna pozornost, što svjedoči o kontinuitetu politika poduzetništva. Nacionalni okvirni kurikulum, kao i Nacionalna strategija za razvoj poduzetničkog učenja do 2020. uključuju poduzetništvo kao jednu od osam ključnih kompetencija. Studiji poduzetništva i/ili ekonomije poduzetništva postoje na razini visokoškolskog obrazovanja. Pa ipak, poduzetništvo još uvijek nije uključeno u kurikulume osnovnih i srednjih škola.*

*Tim više dobiva na značaju pristup uvođenju poduzetništva kao ključne kompetencije u sve razine formalnog i neformalnog obrazovanja što ga istovremeno u osam zemalja jugoistočne Europe implementira Regionalni centar za razvoj poduzetničkih kompetencija za zemlje jugoistočne Europe.*

*Jačanje intelektualnog kapaciteta ljudskih resursa unutar mreže poduzetničkih potpornih institucija od ključne je važnosti za društveno-gospodarski razvoj na regionalnoj i lokalnoj razini. Prepoznajemo ga kao sustavno razvijajući proces u institucijama koje odgovaraju zadovoljavanju potreba poduzetnika kroz usluge poslovnog savjetovanja, konzaltinga, poslovnih informacija i poduzetničkog usavršavanja. U dvadeset i jednoj županiji Republike Hrvatske ta mreža obuhvaća 21 Agenciju za regionalni razvoj i oko 80 poduzetničkih potpornih institucija, kao što su poduzetnički centri i inkubatori.*

**Ključne riječi:** *Ljudski kapital, Razvoj poduzetništva, Cjeloživotno poduzetničko učenje, Društveno-gospodarski razvoj, Hrvatska*

### **1. Introduction**

If a thorough insight into the transition process in Croatia is followed in the last two decades its main issue is development of entrepreneurship through human capital dimension. A deep insight shows that the process of creating favourable political and economic environment for the entrepreneurship development was contemporary with the transition to the market economy.

Human capital as a basic national resource and if it is well recognized, should affirm an individual entrepreneur and his/her contribution to the overall economic development of the country. But, to come to this point was almost twenty year's process. The most difficult part of it was the change of mentality thus, it could be affirmed it is still ongoing process.

The Croatian systematic support model of entrepreneurship development started in 1997 with first Government Programme on Entrepreneurship and SME Development. Within these Programme framework two capital national flagships projects gave strong impact on the long-term basis<sup>1</sup>, the Entrepreneurship Promotion Programme and Entrepreneurship Education of the Teacher/Trainers of Entrepreneurship, Advisers and Promoters of Entrepreneurship (Entrepreneurship for 21<sup>st</sup> Century Manual, 1999).

## **2. National programme for the Entrepreneurship Promotion**

National Entrepreneurship programme since 1997 with comprehensively designed activities led to creation a favourable climate and positive attitude among the public regarding private entrepreneurship as well as providing information on the business and investment stimulating measures implemented by Croatian Government, counties, cities and municipalities to all interested parties (Karajić, 2004, 12-15).

The promotion of entrepreneurship was carried out on all levels, from state authorities to city and municipal authorities, employing various media (television, radio, press, etc.). A variety of specialized publications were issued in order to provide more information to all interested parties.

Researches were done on population attitude toward entrepreneurship, business preferences among potential entrepreneurs and case studies of ex and operating small entrepreneurs in order to increase both the promotional and educational effects of Entrepreneurship Promotion programme aspects. Research results were used as recommendations for promotional campaign concept.

Promotional activities are an ongoing process aimed to raise awareness on entrepreneurship development with long term impact to create an affirmative environment the core of entrepreneurship culture. In broader sense such framework further contributes to the economic development on local, regional level creating sensible national impact.

Particularly, promotional measures and activities were focused on two target groups:

Those encouraged starting own small business:

- Unemployed
- Employed threat with job lost
- Women
- War veterans and handicapped, and

Those who should be sensibiliser on entrepreneurial spirit:

- Pre-school and School children
- Students
- Young graduates

The concept of entrepreneurial society starts with early age and the bottom line of this model is the human capital enterprising capacity development that builds step by step the culture of entrepreneurship in broader society.

In pursuit of a new 'Enterprise' and 'Entrepreneurship' Paradigm for Learning (Gibb, 2001, 233-269) the author emphasizes the imperative on a more conceptual level as the pursuit of entrepreneurial behaviour seen as a function of the degree of uncertainty and complexity in

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<sup>1</sup> Government of the Republic of Croatia adopted five four-years Programme on Entrepreneurship and SME Development so far 1997-2000; 2001-2004; 2004-2007; 2008-2012; 2013-2016 currently under implementation.

the task and broader environment that leads to a conclusion that a wide range of stakeholders are being confronted with the need for entrepreneurial behaviour, almost potentially everyone in the community. Entrepreneurship is therefore not solely the prerogative of business, the Author concludes.

### **3. National Programme of Entrepreneurship Education**

The first national network of Teacher/Trainers of Entrepreneurship was created both on national and regional levels. The candidates were selected through a public bid widely published throughout the Croatian media. The selection criteria were high education from any technical or social field, professional background i.e. one third from academic background, one third consultants and one third real economy. For the candidates being entrepreneur high education was not a prerequisite. Additional selection criteria were regional representation, representation of women as well as an age between 30 and 50 years.

„The project of education for teachers/trainers, advisers and promoters of entrepreneurship,, that started in 1997, resulted in the year 2000 with certification of 72 Teacher/Trainers, 150 Advisers and 250 Promoters of Entrepreneurship in Croatia. This respectable network of capacitated experts is aware of their own role in further training and education of human resources within their local and regional institutions.

Advisors and promoters were employees of the key economy stakeholders on the regional level: employees of the local self-government, chambers, cooperatives, employment agency and entrepreneurial centres. The critical mass of the representatives of the key stakeholders was created which encouraged the wide spread of concentric rounds of further education, continuing education of advisers and promoters and parallel education of different targeted groups of the entrepreneurs.

The results obtained after the first decade were surveyed and presented by the authors of the paper (Gregov, 2011, 433-454) the Analysis of Certified Teachers / Trainers of Entrepreneurship in Croatia. The paper tried to analyse the contribution of the „The project of education for teachers/trainers, advisers and promoters of entrepreneurship” rendered by the teachers/trainers of entrepreneurship toward positive entrepreneurship environment which enabled an increase of entrepreneurial activities in the Croatian society ten years afterwards. The major results show that they have disseminated practical knowledge and entrepreneurial attitudes among thousands of people, 70,000 estimated.

The Paper’s conclusion is that it is possible that education program, through appropriate selection, motivation of lecturers and candidates, masters interdisciplinary managerial skills for starting and running SMEs, to accept a holistic approach to entrepreneurship as a life philosophy and to upgrade adult teaching methodology to the level that it can be disseminated successfully to the people.

The SME policies were targeted to sensitise the youth from early age with entrepreneurship in order to prepare them for an independent participation in a small business and to develop own entrepreneurial capacities. However, the first decade finished with no introduction of additional entrepreneurship education program in primary and secondary school levels.

Consequently, Junior Achievement experience (EU Charter, 2004, 17) has been recorded in the Croatian self-assessment report on EU Charter’s principles implementation under section Identification of good practise and in the framework of the Programme on SMEs Support Development adopted by the Government of the Republic of Croatia for 2004.

The pilot project Junior Achievement implementation started in 1998 on the level of selected primary and secondary schools, but as regular subject in secondary schools curricula has been embedded only in few private secondary education. Among the first was private gymnasium

and economics school in Zagreb which already in 2003 recorded the outcomes of Junior Achievement project through:

Participation on Junior Achievement Europe 2004 Contest in London resulted that B. Kotruljević School in Zagreb has been entrusted to Chair the EUROOPEN the international organization for Exercise Company. Consequently, the EUROOPEN central office for Exercise Company in Croatia was founded.

The network of about thirty exercise companies has been established all over Croatia which was enabled to do a business with other EUROOPEN member countries. The EUROOPEN central office with seat in Zagreb helped the exercise company business performance in other Croatian secondary schools in cities of Slavonski Brod, Split, Zadar, Rijeka, Karlovac, Šibenik and Bjelovar.

#### **4. Entrepreneurship Teaching at Secondary Schools Studies**

The impact of Junior Achievement Project implementation in Croatia resulted with recognition of practical knowledge from Exercise Company and its consequent integration within economics subjects in the most of secondary schools. On public available the List of Secondary Schools in the Republic of Croatia there are registered 471 of secondary schools in total (The List of Secondary Schools, 2014) of economics i.e. ISCED3 level of formal education.

Additionally, ISCED 3 level of education is particularly foreseen in strategic EU entrepreneurship development documents (EC, SME Policy Index, 2012) and the latest outcomes reported shows that entrepreneurship as a key competence is embedded mostly in VET secondary schools i.e. economics and some craftsmanship schools. In general secondary schools according to Small Business Act for EU implementation report, there is still a gap in general part of secondary education schools i.e. gymnasium, lyceum, as well as in some VET schools in agriculture, tourism and similar.

#### **5. Entrepreneurship as a Key Competence Approach**

The momentum came through benchmark exercise in the implementation of the European Charter for Small Enterprises (EC, 2000) that was extended to the pre-accession region in 2003 when the EU enlargement process foresaw the entry of Croatia and other South East European countries.

The impact and potential of the European Charter implementation was foreseen as strong policy tool for promoting entrepreneurship learning in the pre-accession region. The knowledge and best practises exchange forced a need for a dynamic approach, effective and efficient dialog among group of the regional experts (Karajić, 2012, 247 – 256). A relative survey on the opinion of EU Charter's national co-ordinators demonstrated that eight countries needed an interaction in order to improve their entrepreneurial learning policy. As outcome of this process the Croatian State Authority for SME Policy development<sup>2</sup> was firm in decision to introduce entrepreneurship as compulsory study.

This decision was followed by the foundation of the South East European Centre for Entrepreneurial Learning<sup>3</sup> SEECCEL as regional institution and instrument for strategic

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<sup>2</sup> Successors in SME Policy development: Ministry of Economy; Ministry of SMEs; Ministry of Economy, Labour and Entrepreneurship; Ministry of Entrepreneurship and Crafts.

<sup>3</sup> SEECCEL has been founded as an independent institution by contract signed between Republic of Croatia, through Ministry of Economy, Labour and Entrepreneurship and Croatian Chamber of Economy registered at the Trade Court on July 28, 2009 with seat in Zagreb and International Governing Board in which eight SEE countries participate.



cooperation and strengthening the entrepreneurial capacity and competitiveness of human capital.

The main strategic goal of this instrument is to overtake the role on long-term basis to introduce the entrepreneurship as a key competence in all levels of formal, non-formal, and informal education.

The National Framework Curriculum (MSES, 2010) emphasizes the entrepreneurial learning as one of the core competencies. Its main education goal is development of personality traits, skills, abilities, and attitudes necessary for the action of the individual as a successful enterprising person. Also, the National Strategy for Entrepreneurship Education Development (GOV Croatia, 2010) defines the Entrepreneurship as one out of eight key competencies. However, in the curricula of the formal levels of education entrepreneurship as a cross curriculum is still not embedded.

The strategic development pillars for the period 2009-2012 were way the SEECEL implements the ISCED 2, ISCED 5/6 and Training Needs Analysis for SMEs at regional level. In the period 2013 - 2016, all ISCED levels are included in formal educational system as well as in non-formal learning. SEECEL continue to implements piloting in 4 secondary schools per each of eight countries of SEE, two general secondary schools and 2 VET secondary schools.

It might be opportune in conclusion to this part to cite (Čengić, 2005, 178) that "the future of the Croatian economy could be far more dependent on the reform of the education system than on the explicitly pro-entrepreneurial politics".

## **6. Entrepreneurship Teaching at Higher Schools**

The strengthening of private sector and individual entrepreneur's business performance capacities was a good opportunity to impose the entrepreneurship education introduction in higher schools.

Under Croatian authority of the Ministry of Science, education and Sport the Central register of accredited studies in higher education is recorded (MSES, 2014). The Entrepreneurship and/or Entrepreneurship Economics studies are included in the list of universities, universities of applied sciences and faculties listed per Counties of the Republic of Croatia. The Entrepreneurship and/or Entrepreneurship Economics studies are accredited at the University of Zagreb, University of Osijek, and University of Rijeka, on different faculties i.e. faculties of economics, agriculture, tourism, and like.

The other accredited higher schools and universities of applied sciences have the management studies. There are eight counties with accredited universities of applied sciences.

University of Applied Science VERN' in Zagreb is an example where the greatest group of 21 teachers/trainers of entrepreneurship participated in creation and launching of new entrepreneurship courses and curricula for under-graduate and graduate studies at polytechnics universities. In 2000 they have created and lunched professional undergraduate study in entrepreneurship and in 2005 specialist professional graduate study in entrepreneurial management. Another larger group of teachers/trainers in 1999 established Evening School of Entrepreneurial Management at the Zagreb World Trade Centre.

## **7. Entrepreneurial Institutional Support Network**

The development of the supporting entrepreneurial institutional support includes institutions which meet the entrepreneurs' needs for counselling and consulting services, business information and training at national, regional and local level. Through systematic implementation of Government Programme for SME development in the last two decades an

institutional network has been established that comprises 21<sup>4</sup> Regional development agencies, about 88<sup>5</sup> Entrepreneurial centres, 16 Entrepreneurial incubators, 10 agencies for local development and 35 Small business zones throughout twenty one county of Croatia.

The intellectual capacity building of the supporting entrepreneurial infrastructure staff is crucial for local and regional socio-economic development. It is still an on-going process that targets the institutions which meet the entrepreneurs' needs for counselling and consulting services, business information and training. The entrepreneurial network comprises 21 Regional Development Agencies, and about 80 entrepreneurial centres, entrepreneurial incubators throughout twenty one county of Croatia.

An assessment of the outcomes of 20 centres of excellence for business support (one per each county of Croatia) with upgraded capacity were done in 2014 under "e-Business" Project financed through IPA IIIC component for regional competitiveness<sup>6</sup>. 20 Centres of Excellence for Business Support were given a questionnaire that covered five key management practises; strategic planning; effective management; culture and communication; developing people; managing performance.

For this paper purpose an insight shall be given only to the strategic part of people development within twenty centres of excellence defining the needs through development plan. 36% of the interviewed institutions clearly understand that their people need to understand the processes involved in the development cycle and their role in them. Majority of interviewed Centres of Excellence for Business Support, 59%, consider that they do not need to carry out a formal evaluation of the investment made in developing the people.

The overall conclusions of above case study showed that changes in work culture and culture shift are needed in order to fully exploit the potential of the people in more than 50% of the assessed institutions.

The continues challenge of people capacity building within entrepreneurial supporting institutions is foreseen in a form of business improvement tool that changes the work culture in Croatia in order to teach entrepreneurs how to fully exploit the potentials of their employees and become more competitive on the global market.

## 8. Conclusions

Human capital dimension in the entrepreneurship development means efficiently structured social and economic model where the capacity building of entrepreneurship values, attitudes, knowledge and behaviour starts in early population age and continues lifelong through all levels of formal, non-formal and informal education.

It reflects Quadra Helix Model of development: Education/Academia – Public Sector – Business/SMEs – Civil Society that in Croatia is in its two decades lasting run, however each segment of it still seeks further capacity improvement, and fine tuning of own services delivery in wider society.

There are streamlined efforts in the past two decades to widely spread the entrepreneurship education. The Croatian national authority for SME policy has recorded continuity in education and training for entrepreneurship. The National Framework Curriculum recognizes the entrepreneurship as one among eight basic key education competencies, as well as the Strategy for Entrepreneurship Education Development.

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<sup>4</sup> Source: Ministry of Entrepreneurship and Crafts of the Republic of Croatia, The Croatian SME Observatory Report 2013, [www.minpo.hr](http://www.minpo.hr)

<sup>5</sup> Idem

<sup>6</sup> Idem

The entrepreneurship and/or entrepreneurship economics studies are included throughout higher education institutions. However, the entrepreneurship on the primary and secondary school levels is still extracurricular.

This fact further supports the importance of the activities implemented by South East Centre for Entrepreneurial Learning SEECCL among eight countries to introduce the entrepreneurship as a key competence in all levels of formal, non-formal and informal education through project piloting schools and education institutions in all eight countries of South Eastern Europe.

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## **THE EFFECTS OF MIGRATION ON DEMOGRAPHIC TRENDS AND LABOUR SUPPLY IN EAST CROATIA<sup>1</sup>**

### **POSljedICE MIGRACIJA NA DEMOGRAFSKA KRETANJA I PONUDU RADNE SNAGE U ISTOČNOJ HRVATSKOJ<sup>2</sup>**

#### **ABSTRACT**

*In Croatia, there are great differences in natural and mechanical population movements between individual counties. Counties with significant development lags in relation to the Croatian average record a higher negative migration balance, lower birth rates, higher death rates, and the population is growing older. The objective of the paper is to analyse natural and mechanical population movements in the counties of Osijek-Baranja, Požeško-Slavonia, Brod-Posavina, Vukovar-Srijem, and Virovitica-Podravina. This will be achieved by analysing 2001 and 2011 Census as well as analysing the available official data on migratory movements of the population between the counties and outside of the Republic of Croatia (RC) for the past five years. In the next step, on the basis of a calculation, the current population size in the above-mentioned counties and its (possible) decrease will be estimated in comparison with the 2011 Census. In the second part of the paper, life expectancy will be calculated for RC and East Croatian counties, because it is one of the indicators of the quality of life of the population and general level of development of an area. It will be estimated whether, and to what extent, East Croatia lags behind the Croatian average, and what are the effects of migration, especially of young, working-age population, on labour supply and developmental prospects of the economy.*

**Keywords:** *population, migration, labour, economic development*

#### **SAŽETAK**

*U Hrvatskoj postoje velike razlike u prirodnom i mehaničkom kretanju stanovništva pojedinih županija. Županije sa značajnim razvojnim zaostajanjima u odnosu na prosjek Republike Hrvatske bilježe veći negativan migracijski saldo, niže stope nataliteta, više stope mortaliteta, a stanovništvo stari. Cilj rada je analizirati prirodno i mehaničko kretanje stanovništva u Osječko-baranjskoj, Požeško-slavonskoj, Brodsko-posavskoj, Vukovarsko-srijemskoj i*

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*Virovitičko-podravskoj županiji. To će se napraviti analizom Popisa stanovništva iz 2001. i 2011. godine kao i analizom dostupnih službenih podataka o migracijskim kretanjima stanovništva između županija i izvan Republike Hrvatske za posljednjih pet godina. U sljedećem koraku, na temelju izračuna, utvrdit će se i procjena trenutnog broja stanovnika u navedenim županijama te njihovo (eventualno) smanjenje u odnosu na Popis 2011. U drugom dijelu rada, izračunat će se očekivano trajanje života za RH i županije istočne Hrvatske jer je ono jedan od pokazatelja kvalitete života stanovništva te opće razvijenosti nekog područja. Ocijenit će se postoje li i kolika su zaostajanja istočne Hrvatske za prosjekom RH te kakav utjecaj imaju migracije, posebno mladog, radno sposobnog stanovništva na ponudu radne snage i razvojne perspektive gospodarstva.*

**Ključne riječi:** stanovništvo, migracije, radna snaga, gospodarski razvoj

## **1. Introduction with the Literature Review**

The size and characteristics of the population, i.e. demographic factors, along with economic, social, political, and environmental factors, make a set of conditions, causes and effects of the unique process of social development. The total number and structure of the population have an impact on the share of working-age and active population, or labour force. Working-age population is the population of the working age, which is prescribed by the country's Constitution or legislation. Labour force implies total employed population and the unemployed job seekers. Population is the source of labour force, and this is why its developmental characteristics primarily determine the pace of the country's economic development (Wertheimer-Baletić, A., 1999).

By the second half of the 20<sup>th</sup> century, since the benefit of national economies has become increasingly influenced by the availability of human capital, i.e. development of human resources, demographers and economic theorists have only studied the relationship between population size and economic development. Back in the ancient times, the rulers were also interested in the population size, and thus in the number of tax payers and military obligors in particular. Views of the population have changed in some historical periods as well as individual countries. They primarily depended on the circumstances in which some societies and countries developed and the problems they were facing.

By studying the relationship between population size and economic development, economists analysed the population in the dual role: (1) as a source of labour force; (2) as consumers, i.e. factor of the internal market size.

In the 18<sup>th</sup> century, more pronounced negative attitudes started appearing in relation to population growth. In his work „An Essay on the Principle of Population“, Malthus argues that the disparity between population increase and possibilities of increasing food production is the cause of poverty, epidemics, wars, and all evil. Unlike Malthus, A. Smith in his major work „An Inquiry into the Nature and Causes of the Wealth of Nations“ argues that true wealth lies not in money, as mercantilists claimed, but rather in rewarding work. Therefore, the population increase is positive, but only under the assumption of training, increasing knowledge, and division of labour. Thus, Smith proposed children's education that would be financed by the society. In the 19<sup>th</sup> century, economists' opinions on the impact of the population increase on poverty i.e. social well-being were divided. J. S. Mill believed that workers' misery was caused because of their excessive number that generated strong competition. At the beginning of the 20<sup>th</sup> century, A. Marshall was renowned for noticing that increase of population might be negative for society in some circumstances, but at the same time, he argued that this increase allowed the division of labour, specialisation, mass production, and it therefore „must lead to a more than proportionate increase of enjoyment of

all kinds“ (Pjanić, 1957). In the first half of the 20<sup>th</sup> century, J. M. Keynes in his essay „Some Economic Consequences of a Declining Population“ points out that declining of the population could stop national economic growth and prosperity of the country. He advocated government investments in education, which is a useful investment, as well as investing in production, and he believed that the state should use additional education to allow retraining of employees who cannot stay on their jobs due to technological changes. More recently, the predominant concept is that of human capital and human resources. This means that the issue of population size is in the background of development challenges, and that population quality is a crucial precondition for development. The greatest contribution to the study of population quality was given by T. Schultz and G. Becker (Schultz, T., 1985).

In the 1960s and 1970s, development theorists started devoting more attention to the importance of labour force, education, and human capital for economic development, especially in developing countries. One of the most famous structuralists, H. Chenery, pointed out that gradual accumulation of human capital, not only physical capital, is one of the basic preconditions for development. In the past 20 years, even neo-liberalists, who advocate market-oriented approach, recognised population's health care and education; i.e. activities in the framework of which human capital is formed, as well as areas in which the government should intervene, not only because of market imperfections, but also because of the necessity of the development process. Advocates of endogenous, or new economic growth theories are focused on the explanation of that part of the growth rate which is in neo-classical equations marked as residual (Todaro, M. P., Smith, S. C., 2009). They point out that investments in human capital could in the long run contribute to economic growth (Römer), and some of them explain long-term economic growth solely as a result of accumulation of human and physical capital (Becker, Murphy, Tamura).

The objective of the paper is to analyse natural and mechanical population movements in the counties of Osijek-Baranja, Požega-Slavonia, Brod-Posavina, Vukovar-Srijem, and Virovitica-Podravina. This will be achieved by analysing the 2001 and 2011 Census as well as the available official data on migratory movements of the population between the counties and outside of the Republic of Croatia in the past five years (2009-2013). Also, the current population in the above-mentioned counties and its (possible) decline in relation to the 2011 Census will be estimated on the basis of calculation. Taking into account the overall negative population trends in the Republic of Croatia, life expectancy will also be calculated for the above-mentioned counties, and it will be estimated whether East Croatia lags behind the Croatian average and to what extent. Also, it will be estimated what are the effects of migration, especially of young, working-age population, on labour supply and developmental prospects of the economy, because young, working-age population is the source of labour force in the future.

## **2. Analysis of Demographic Trends, Employment and Unemployment in East Croatian Counties**

The dynamics and structure of population movements are formed by various factors: birth rate, death rate, and migration. The basic determinants of this process can be described as a natural and mechanical component of the total change in the population size.

### **2.1. Natural Change in Population**

The total population of a country or a settlement, as the most important demographic data, can be read in the Census. Total resident population of a country consists of all persons who have permanent residence in a particular area at the time of the Census. In the 2001 Croatian Census, in line with international standards, the concept of place of usual residence was

applied to define total population. According to this concept, total population of the country implies all the persons who have their place of usual residence in this country. Place of usual residence is considered the place where the person spends most of their time during the day regardless of short-term absence from this place (e.g. for reasons of going on vacation, a trip, medical treatment, a visit, etc.). According to the definition of the place of usual residence, total population comprises: persons who at the critical time of the Census continuously lived in their place of usual residence for at least 12 months; persons who during the 12 months before the critical Census day arrived to their place of usual residence with the intention of staying there for at least one year. The period of one year and longer, and the intention of presence/absence of at least one year are the main criteria for inclusion or exclusion of people from the country's total population (<http://www.dzs.hr/hrv/censuses/census2011/censusfaq.htm>).

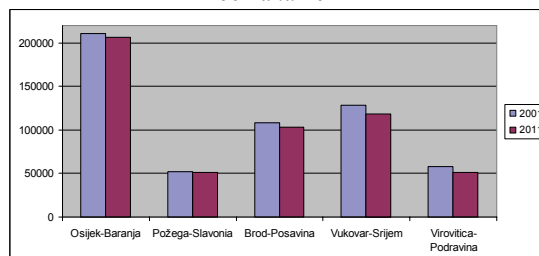
**Table 1:** Population of the Republic of Croatia and East Croatian Counties according to 2001 and 2011 Census

	2001	2011	Index 2011/2001
Osijek-Baranja	330506	305032	92,29
Požega-Slavonia	85831	78034	90,92
Brod-Posavina	176765	158575	89,71
Vukovar-Srijem	204768	179521	87,67
Virovitica-Podravina	93389	84836	90,84
Republic of Croatia	4437460	4284889	96,56

Source: CBS, 2001 and 2011 Census.

East Croatian counties had 805.998 inhabitants in 2011, which makes 20,67% of the total population of the Republic of Croatia. The County of Osijek-Baranja has the most inhabitants (305.032), and Požega-Slavonia the least (78.034). All counties, as well as the Republic of Croatia, recorded a decrease in the population in comparison with the 2001 Census (the greatest decrease was recorded in the County of Vukovar-Srijem, which had 12,33% inhabitants less than in 2001, and the smallest decrease was recorded in the County of Osijek-Baranja, with 7,71% inhabitants less than in 2001). It should also be noted that all East Croatian counties have greater decrease of the population than the Croatian average. In fact, Croatian population in 2011 decreased in comparison with 2001 by 3,44%, and all the analysed counties recorded a decrease from 12,33 to 7,71%.

**Chart 1:** Population Aged 15 to 64 (Working-Age Population) in East Croatian Counties in 2001 and 2011



Source: Authors' creation according to the CBS, 2001 and 2011 Census

The chart shows working-age population of East Croatian counties according to 2001 and 2011 Census. 557.808 inhabitants made work force in 2001, and 530.472 inhabitants in 2011 (representing a decrease of 4,9%). At the same time, the share of the working-age population in the counties in Croatia's total available work force was reduced by 1,27 percentage points,

from 19,72% to 18,45%. The majority of the population aged from 15 to 64 was residing in the County of Osijek-Baranja in 2011 (206.692 inhabitants), and the least in the County of Virovitica-Podravina (50.892), which also recorded the largest decrease of the number of working-age population in comparison with 2001 (11,98%).

Natural movement of the population implies the difference between the birth rate (natality) and death rate (mortality) of the population in a given time period (usually one year).

**Table 2: Natural Movement of the Population of East Croatia and Republic of Croatia in the Period between 2011 and 2013**

	2011 N	2011 M	2011 Balance	2012 N	2012 M	2012 Balance	2013 N	2013 M	2013 Balance	Total N	Total M	Total balance
Osijek-Baranja	2835	3914	-1079	2919	4096	-1177	2786	3825	-1039	8540	11835	-3295
Požega-Slavonia	691	1046	-355	736	1014	-278	703	1008	-305	2130	3068	-938
Brod-Posavina	1615	1958	-343	1563	2035	-472	1512	1917	-405	4690	5910	-1220
Vukovar-Srijem	1698	2269	-571	1772	2325	-553	1593	2261	-668	5063	6855	-1792
Virovitica-Podravina	816	1246	-430	793	1184	-391	790	1192	-402	2399	3622	-1223
Republic of Croatia	41197	51019	-9822	41771	51710	-9939	39939	50386	-10447	122907	153115	-30208

Source: Authors' creation according to statistical reports 1466, 1494, 1518.

In the period between 2011 and 2013, all the East Croatian counties had negative natural increase of the population, i.e. more inhabitants died than were born. The highest negative natural increase, i.e. natural decline, had the County of Osijek-Baranja in which in the above-mentioned period 8540 inhabitants were born, and 11835 died (natural increase of -3295 inhabitants, which makes 10% of the negative natural increase of the population of Croatia in this period). The smallest decrease of the population caused by negative natural increase had the County of Požega-Slavonia (-938 inhabitants).

Except for natural movements, change in the population is also affected by mechanical movements analysed below.

## 2.2. Migration

The term migration means spatial mobility, or mechanical movement of the population. Mobility is a more general concept than migration, because migration is spatial mobility of the population and, as such, only one of the components of the overall population mobility. The components of migration or mechanical movements of the population are immigration (moving in) and emigration (moving out) of the population. Unlike natural movement, which was originally a biological phenomenon, population migration are economic and social (social and political) phenomena (Družić, 2011).

In the period between 2009 and 2013, 60.638 persons moved abroad from RC, and 41.324 persons moved to RC (which makes a negative migration balance of 19.314 persons). In the same period, the same number of people moved out of the County of Vukovar-Srijem (4025) and Osijek-Baranja (3497) (Table 3). The fewest persons moved abroad from the County of Virovitica-Podravina (1674). Therefore, all East Croatian counties have a negative migration balance, i.e. greater outflow of the population to foreign countries than the inflow from abroad. Due to the application of the new Law on Residence (*The Official Gazette* No.



144/12 and 158/13), statistical data include people who left their place of residence for more than one year for reasons of temporary departure from Croatia, and reported their temporary departure to the Ministry of the Interior. For example, in 2013, 49,0% of Croatian citizens and 51,0% foreigners moved here from abroad, and 87,8% Croatian citizens and 11,7% foreigners moved out (citizenship was unknown for 0,5% persons). Of the total number of Croatian emigrants, most of them moved to Bosnia and Herzegovina (26,8%), and Serbia (26,2%). (CBS, Statistical Report 7.1.2., 2014).

In the same period (Appendix Table 6), a large number of residents left East Croatian counties and moved to other parts of Croatia. 27.928 people left the counties and moved to other parts of Croatia (mostly from the County of Osijek-Baranja and Vukovar-Srijem), and 16.348 persons moved from other parts of Croatia to some of the East Croatian counties (negative migration balance was 11.544 persons). The largest number of emigrants within Croatia was aged 20-39 (44,2%), while the share of women in the total number of emigrants was 54,1%. Ultimately, it should be pointed out that emigration only included persons who reported their temporary departure to the Ministry of the Interior. Thus, the data are not comprehensive and real changes will not be known until the next Census. Taking into consideration the previous analysis, the conclusion is derived that there is a decrease in the population in all East Croatian counties due to natural and mechanical movements of the population. Therefore, based on the data from the 2011 Census (Table 1), natural increase of the population (Table 2), and mechanical movements of the population of the Republic of Croatia and East Croatian counties (Appendix Tables 6 and 7), the estimated number of inhabitants on 1/1/2014 can be calculated below.

**Table 3:** *The Estimated Number of Inhabitants of the Republic of Croatia and East Croatian Counties on 1/1/2014.*

	Estimation 1/1/2014	Index 2014/2011
Osijek-Baranja	297994	97,69
Požega-Slavonia	74056	94,90
Brod-Posavina	152990	96,48
Vukovar-Srijem	171563	95,57
Virovitica-Podravina	81228	95,75
Total East Croatian counties	777831	96,51

*Source: Authors' calculation*

The largest decline of the population (5,10%) was recorded in the County of Požega-Slavonia, and the smallest in the County of Osijek-Baranja (2,31%). All the East Croatian counties recorded a decrease in the population higher than the Croatian average (which amounted 1,16% in the period between 2011 and 2013). This means that these counties lose their population faster than the rest of Croatia. With regard to the criteria set by the immigration countries, such as belonging to younger age groups and high education level, it can be concluded that these parts of the country, as well as entire Croatia, are abandoned by young, working-age population. This eliminates the preconditions for the formation of high-quality labour supply in the future, and for boosting economic development of these counties.

### **2.3. Employment and Unemployment, Labour Force**

Employment determines production capacities of the economy and affects the living standard of the population. Employees are defined as persons who have signed a work contract with an employer, for a fixed or indefinite period of time, regardless of the number of working hours and ownership of the legal person. Persons aged 15 - 65 who are capable or partly capable of

work, who are not employed, actively look for work and are available for work, and are registered in the Croatian Employment Service, are considered unemployed.

**Table 4: Number of Employed and Unemployed Persons in East Croatia and Republic of Croatia in the Period from 2011 to 2013**

	2011 E	2011 U	2012 E	2012 U	2013 E	2013 U	Index E 13/11	Index U 13/11
Osijek-Baranja	72887	32663	72395	34438	67695	36627	92,88	112,14
Požega-Slavonia	14276	5996	13998	6435	13381	6435	93,73	107,32
Brod-Posavina	26589	16906	26167	17197	25230	17912	94,89	105,95
Vukovar-Srijem	31869	18377	31892	19768	31160	21404	97,78	116,47
Virovitica- Podravina	14532	9395	13804	10180	13724	10470	94,44	111,44
Total	160153	83337	158256	88018	151190	92848	94,40	111,41
Republic of Croatia	1150307	305333	1148525	324323	1122885	345112	97,62	113,03
Total labour force E and U	243490		246274		244038		100,23	
Total Croatian labour force	1455640		1472848		1467997		100,85	

Source: CBS, statistical reports 9.2.4. 2011-2013 and <http://statistika.hzz.hr/>

All the East Croatian Counties in the period between 2011 and 2013 recorded an increase in the number of the unemployed and a decrease in the number of employed persons. The number of unemployed persons increased at a slower pace than the average number of the unemployed in the Republic of Croatia, which may indicate that, in these counties, more persons emigrate abroad and to other parts of Croatia looking for work. Also, total labour force in Croatia grows faster than the labour force of East Croatia (by 0,62 percentage points), and it should be pointed out that the labour force of East Croatian counties in 2013 decreased in comparison with 2012 when these counties recorded the greatest migratory movements in the reference period (Appendix Tables 6 and 7).

#### 2.4. Life Expectancy

Taking into consideration the established negative natural and mechanical population trends, life expectancy of the population of RC and East Croatian counties in 2001 and 2011 will be established below as one of the indicators of the quality of life and level of development of the population.

**Table 5: Life Expectancy of the Population of the Republic of Croatia and East Croatian Counties in 2001 and 2011**

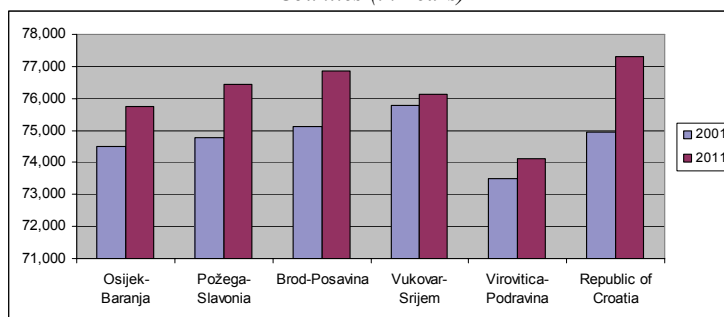
	2001	2011	Difference in years
Osijek-Baranja	74,506	75,734	+1,228
Požega-Slavonia	74,790	76,449	+1,659
Brod-Posavina	75,129	76,847	+1,718
Vukovar-Srijem	75,779	76,123	+0,344
Virovitica- Podravina	73,486	74,107	+0,621
Republic of Croatia	74,935	77,305	+2,370

Source: Authors' calculation

The average life expectancy in the Republic of Croatia in 2011 amounted to 77,305 years, and it was for 2,37 years longer than in 2001. This is the effect of an increase in the living standard, particularly health care and level of education of the population. However, in East Croatian counties, life expectancy grows much slower than the Croatian average. In the counties under analysis, the highest life expectancy was in the County of Brod-Posavina

(76,847 years), and this county also recorded the largest increase in comparison with 2001 (+1,718 years). The smallest increase was recorded in the County of Vukovar-Srijem (+0,344 godine), so that life expectancy in this county was 76,87 years. Of all the counties under analysis, the highest negative deviation from the Croatian average was recorded in the County of Virovitica-Podravina, where in 2011 the population lived 3 years and 2 months less on average in relation to the Croatian average (Chart 5).

**Chart 5:** Life Expectancy in 2001 and 2011 for the Republic of Croatia and East Croatian Counties (in Years)



Source: Authors' creation

Croatia, and East Croatian counties in particular, are facing a long-term trend of fertility decrease, and, consequently, ageing of the population. Fertility rates range below the level of simple reproduction of the population. The result of such developments are negative rates of natural population increase. The share of mature and old population has been increasing, and the working-age population has reduced its share in the total population. This also occurs due to natural and mechanical movements. Such trends have negative consequences for economies of certain counties and the entire country. This is a direct economic consequence of the negative natural increase, ageing and migration of the population. Economic growth is slowed down, i.e. counties do not achieve economic growth and development. Measures of pro-natal demographic policy should be used to fight these negative and unfavourable demographic trends, as well as investments in education and opening of work places that will employ young emigrants.

### 3. Conclusion

The size and characteristics of the population, i.e. demographic factors, along with economic factors, make a set of conditions, causes and effects of the process of economic growth and development. The total number and structure of the population affect the share of working-age and active population, or labour force. Analysis of natural change and migration of the population in the counties of Osijek-Baranja, Požega-Slavonia, Brod-Posavina, Vukovar-Srijem, and Virovitica-Podravina has shown that all the counties in 2011, in comparison with 2001, recorded a decline of the population, and this decline continued until 2014 due to higher death rate (than birth rate) of the population, as well as emigration of the population out of the Republic of Croatia and out of East Croatian counties. In particular, this refers to the migration of younger (educated) population that leaves the country searching for work. These processes reduce the number of (young) working-age population as a source of labour force in the future.

Life expectancy, which is one of the indicators of quality of life and general level of development of an area, grows at a slower pace in East Croatian counties in comparison with

the Croatian average, from which it may be concluded that negative demographic trends, among other things, affect the growing development lag behind the Republic of Croatia.

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**Appendix: Table 6: Migration of the Population from East Croatian Counties and the Republic of Croatia in the Period from 2009 to 2013**

	2009 I	2009 E	Balance	2010 I	2010 E	Balance	2011 I	2011 E	Balance	2012 I	2012 E	Balance	2013 I	2013 E	Balance	Total I	Total E	Total balance
Osijek-Baranja	441	618	-177	232	539	-307	401	611	-210	427	746	-319	395	983	-588	1896	3497	-1601
Požega-Slavonia	61	303	-242	43	291	-248	57	414	-357	67	589	-522	80	239	-159	308	1836	-1528
Brod-Posavina	336	827	-491	185	333	-148	248	325	-77	226	395	-169	216	695	-479	1211	2575	-1364
Vukovar-Srijem	429	804	-375	190	931	-741	311	772	-461	353	499	-146	325	1019	-694	1608	4025	-2417
Virovitica-Podravina	135	673	-538	79	252	-173	66	228	-162	82	285	-203	67	236	-169	429	1674	-1245
Republic of Croatia	8468	9940	-1472	4985	9860	-4875	8534	12699	-4165	8959	12877	-3918	10378	15262	-4884	41324	60638	-19314

Source: Authors' creation

**Table 7: Migration of the Population from East Croatia and the Republic of Croatia Between the Counties in the Period from 2009 to 2013**

	2009 I	2009 E	Balance	2010 I	2010 E	Balance	2011 I	2011 E	Balance	2012 I	2012 E	Balance	2013 I	2013 E	Balance	Total I	Total E	Total balance
Osijek-Baranja	1199	1587	-388	1120	1437	-317	1193	1537	-344	1100	1574	-474	1152	1771	-619	5764	7906	-2142
Požega-Slavonia	314	693	-379	333	592	-259	356	684	-328	337	625	-288	381	639	-258	1721	3233	-1512
Brod-Posavina	721	1218	-497	632	1184	-552	628	1240	-612	629	1159	-530	603	1413	-810	3213	6214	-3001
Vukovar-Srijem	845	1480	-635	756	1437	-681	726	1504	-778	734	1459	-725	751	1681	-930	3812	7561	-3749
Virovitica-Podravina	382	574	-192	289	555	-266	401	565	-164	411	655	-244	391	665	-274	1874	3014	-1140
Republic of Croatia	2779	2779	0	2584	2584	0	2851	2851	0	2761	2761	0	2995	2995	0	13973	13973	0

Source: Authors' creation

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**ANALYSIS OF FORMAL AND NON-FORMAL EDUCATION IN THE  
REPUBLIC OF CROATIA**

**ANALIZA FORMALNOG I NEFORMALNOG OBRAZOVANJA U REPUBLICI  
HRVATSKOJ**

**ABSTRACT**

*Creating contemporary economy based on knowledge is a necessary precondition when thinking about country's global competitiveness. Investment into human capital of national economy has a big influence on her competitiveness. The aim of this paper is to analyse human capital throughout formal and non-formal education. Conclusions are given analysing relevant statistic indications of education. Particular country and the republic of Croatia are compared in relation to human capital. Conducted analysis wants to establish the quality of human capital. The importance and role of non-formal education as a possibility of continuous education is additionally pointed out. Non formal learning enables you to gain new knowledge, abilities, skills and competences which increases both individual and society competitiveness.*

**Key words:** *human capital, formal education, non-formal education, competitiveness, lifelong learning*

**SAŽETAK**

*Stvaranje suvremenog gospodarstva utemeljenog na znanju nužan je preduvjet globalne konkurentnosti neke zemlje. Ulaganje u ljudski kapital neke nacionalne ekonomije u velikoj mjeri utječe na njezinu konkurentnost. Cilj ovoga rada jest analizirati ljudski kapital kroz analizu formalnog i neformalnog obrazovanja. Daju se zaključci analizirajući relevantne statističke pokazatelje obrazovanja. Uspoređuju se podaci pojedine zemlje i Republike Hrvatske vezano za ljudski kapital. Kroz provedenu analizu želi se utvrditi kvaliteta ljudskog kapitala. Posebno se ističe važnost i uloga neformalnog obrazovanja kao mogućnosti nastavka obrazovnog procesa. Kroz neformalno obrazovanje dolazi se do*

*novih znanja, sposobnosti, vještina i kompetencija čime se povećava konkurentna prednost pojedinca, a time i društva. Ljudski kapital formira se u formalnom i neformalnom sustavu obrazovanja. Formalno i neformalno obrazovanje dijelovi su procesa cjeloživotnog obrazovanja. Unapređenjem kako formalnog tako i neformalnog obrazovanja intenzivira se cjeloživotno obrazovanje, što za posljedicu ima unapređenje ljudskog kapitala.*

**Ključne riječi:** *ljudski kapital, formalno obrazovanje, neformalno obrazovanje, konkurentnost, cjeloživotno obrazovanje*

## **1. Lifelong learning as a key to competitiveness**

Education process today cannot be seen only as school education but has to be seen in the context of lifelong learning. Serious debates about lifelong learning occur and become more represented during the last century 1970s. Recognised importance of lifelong learning has become a part of education policies and strategies in all societies. Economy growth and competitiveness, as well as their sustainability, are impossible without investing into human capital. Human capital is being formed both in formal and non-formal education (Babić, 2004,33). Human capital cannot be formed without the vision and clear strategy of education process where the improvement of lifelong learning will have an important role. Lifelong learning is an inevitable tool in the whole education context. Society we live in is based on knowledge. Knowledge and knowledge management ensure sustainability and society development through improved employability and man force adjustment. European Parliament strongly encourages lifelong education seeing it as a key to ensuring society integration and equal opportunities and possibilities for everyone (Report on the European Commission report on the implementation, results and overall assessment of the European Year of Lifelong Learning, 1996). Knowledge and skills gained at home, in school, at college need to be expanded. Lifelong learning process is exactly what enables continuous education.

There are three types of education:

**Formal education:** organized learning, conducted through organized educational institutions, after a successful completion of the formal education a diploma (certificate) is gained, diploma confirms a certain level of education. Institutions that conduct formal education are: schools, colleges, universities and other official institutions<sup>1</sup>.

**Non-formal education:** conducted regardless of official educational system and usually does not lead to getting an official confirmation. Conducted through different activities by societies and organizations (non-profit organizations, civic organizations, unions). Serves as a supplement to formal educational system.

**Informalno učenje:** appears in every day life. What makes it different from formal and non-formal education is that it does not have to be conducted consciously so sometimes the participants do not necessarily recognize it. Common attribute of them all is that they increase knowledge and skills.

## **2. Non-formal education in the Republic of Croatia**

As well as all around the world, the importance and role of non-formal education as a lifelong learning segment has been recognized in Croatia. Non-formal education is getting bigger and bigger role in

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<sup>1</sup> International Standard Classification of Education (ISCED) was developed by UNESCO to make it easier to compare statistical data and indicators about education in different countries based on equal and internationally agreed terms; International Standard Classification of Education, 2000., Zagreb, Public Institute for Statistics (original: International Standard Classification of Education. 1997. Paris: UNESCO)

Croatia nowadays. As the conscious about lifelong learning is growing, Croatian Qualification Frame will also have an important role in the future. Croatian Qualification Frame should enable recognition of competences gained through non-formal education. Knowledge and skills that individual should gain through non-formal learning should be seen as mutual and reciprocal relationship between the society and the individual that is involved in non-formal learning process. The importance of mutual relationship was recognised in Croatia, and The Network of Young People of Croatia has launched The Catalogue of Programme of Non-formal Education in 2015. Before this catalogue there was no place about to post and get all the information about programmes that are conducted as non-formal education. Idea is to have both offers and needs for non-formal educational programmes at one place. Catalogue gives an overview of workshops, trainings, seminars and other educational programmes that organisations in Croatia conduct. Those programmes are not a part of formal educational system (schools, colleges, universities...). Different organisations have developed and they conduct quality educational programmes in different fields – from social, human, political to inter(cultural), economic or ecological. Catalogue gives an overview of these programmes, and is prepared for all citizens who want to improve or build their knowledge and skills through non-formal education. Catalogue is an excellent way to promote civic society organisations because it gives an opportunity to organisations to present their educational programmes and get to the user easily. Catalogue was a result of the project „New age of human rights and democracy in schools“ whose aim was to contribute and integrate the Civic Education in schools through cooperation of civic organisations and public institutions. The catalogue has a special value because it encourages the cooperation between schools and organisations in the local communities through integration of non-formal education programme. Non-formal education programme should be implemented in Civic education classes. Except for that, programmes presented in the catalogue could be an important tool for teachers' professional development in order to conduct Civic Education classes (<http://edukatalog.info/o-projektu>). Almost a half of the citizens are aware of different programmes conducted by different education institutions. If regions are compared, societies in different regions are not equally informed about non-formal education offers. Also, evidently there are different reasons why individuals get involved with non-formal education programmes (self-existence vs. personal needs) (Simel, 2011, 56).

### **3. Formal education in the Republic of Croatia**

Formal education is conducted based on the programme approved by Ministry of Science, Education and Sports with aim to gain professional knowledge, skills and competences. It includes basic primary adult education, secondary adult education and higher adult education. Formal adult education is conducted in accordance with special regulations for these kind of activities, except when there are rules provided by Law of Adult Education. According to the Law of Adult Education, formal education can be conducted by open universities, primary schools, secondary schools, universities, language schools, institutions that take care of people with special needs and disabilities and other institutions that fulfil the preconditions stated in the law.

According to the Croatian Qualification Frame, formal education in the Republic of Croatia has eight following levels:

1. primary education
2. vocational training
3. one year and two years long secondary vocational education
4. three year long vocational education and secondary grammar schools education, for and five year long vocational secondary education



5. professional study programmes with less than 180 ECTS points, professional specialist development and training, programmes for craftsmen with two years of evaluated experience
6. university undergraduate study programmes, professional undergraduate study programmes
7. university graduate study programmes, specialized graduate professional study programmes, postgraduate specialist study programmes
8. postgraduate scientific master study programmes and postgraduate doctoral study programmes, doctoral dissertation

Law about Croatian Qualification Frame was published on February 22 in 2013 in Public newspapers. Croatian Qualification Frame is an instrument that implements European Qualification Frame into the whole education system in the Republic of Croatia, and serves to connect qualifications gained after a level of education with qualifications in other European countries. Croatian Qualification Frame regulates the lifelong learning system and ensures pupils/students to have their qualifications (knowledge and skills) clearly defined on a certain level of education system both in the Republic of Croatia and abroad.

#### 4. Analysis of Croatian educational system, connection between educational system and competitiveness

Observing the workforce structure according to the level of formally gained professional qualification it is noticeable that the number of people with low professional qualification and unqualified people has decreased in a short period of time. The number of workforce with high and higher professional qualification has decreased.

**Table 1** Workforce structure according to the level of professional qualification (%)

	Employment				Unemployment
	1981.	1986.	1996.	2001.	2001.
Total	100	100	100	100	100
Uncompleted elementary school	19	17	9	5	3
Basic school (8 years)	21	20	21	18	16
Grammar school	48	49	53	59	71
2-year non-university degree	5	6	7	6	4
University and postgraduate degree	7	8	10	12	6

*Source: Bejaković, (2004, 9).*

It is apparent that the number of those who have not finished primary school has decreased from 20 % to just 5 %. Positive increase is seen with people who have finished high school, from 48 % to almost 60 %. Furthermore, the number of people who finished some kind of professional training has also increased, and the number of people with finished university degree has almost doubled.

Observing the indicators that refer to the usage of modern technology it is noticeable that Croatian workers do not use personal computers to do their work. Lacking the research, it can be estimated that the usage of modern technology at work is similar to the computer usage in everyday life (Lowther, 2004, 21). Algebra, Croatian leading IT educational center and Prizma agency have conducted a survey about the computer usage and IT literacy of Croatian citizens. The survey has shown that

computers are mostly used for work (30%), leisure time (30%), and education (24%), while 15% of the citizens do not use personal computers at all. Observing the structure of the employed people it is noticeable that Croatia is following EU countries with the number of workers who have finished their tertiary education. That does not mean competitiveness at modern work place, and it seems that Croatian education system does not give a sufficient amount of workers with knowledge needed. Also, taking a look at population indicators according to their professional qualifications it is clearly seen that is has not change in a period of almost ten years. If we ignore the structure of ones that are employed with the lowest level of education it can be said that there was no change of workforce in Croatia. Having known that in order to make the economy competitive there should exist an educated workforce (she is the national economy competitiveness holder), it can be seen that according to the workforce structure it cannot be expected from Croatia to become more competitive in international context.

**Table 2** *Distribution of working-age population, by education attainment and gender*

	2006. (%)	2013. (%)
Uncompleted elementary school	8,5	1,6
Basic school (8 years)	6,7	11
Grammar school	60,4	62,6
2-year non-university degree	7,9	8,1
University and postgraduate degree	16,5	16,7
Total (Persons in employment)	100	100

*Source: authors' adjustment according to Statistički ljetopis Republike Hrvatske 2007 and 2014*

As it can be seen from the table 2, in the structure of employed population there is only 25% of those who have higher or high education, and, comparing shown years, that number has increased for only 0,5 % . That level of education (high and higher education) is connected with highly developed skills needed for knowledge economy and with higher salaries. Therefore, one of the key indicators is the workforce's readiness to fulfil the requirements of knowledge economy having more educated people in workforce.

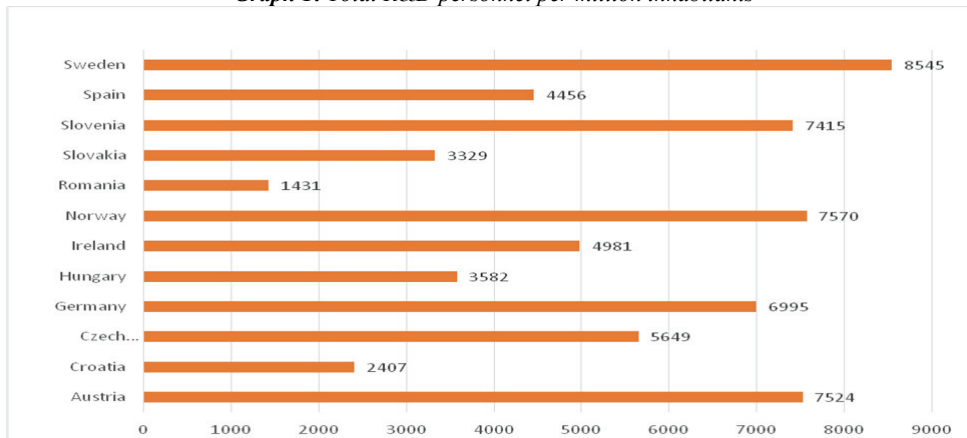
National council for competitiveness has set out the strategic aim for the Republic of Croatia to have 29% highly educated people in Croatian workforce by 2010 (available at: <http://nvk.multilink.hr/dokumenti/>). From the table 2 and as previously mentioned, it can be seen that by 2013, inclusive, that aim has not been achieved. Moreover, there is a 5 % of getting behind the aim. The Republic of Croatia is, according to other criteria like the average number of students per 1000 citizens, at the bottom of these indicators.

According to the number of employed and work capable population, Croatia is also at the bottom when comparing it to the EU countries. Countries that have been into transition process, Czech Republic and Slovenia, have 10 % more employed people than Croatia (Sundać & Fatur Krmpotić, 2009, 323). There are only 3,91 % people working at knowledge intensive high technology sectors. Countries like Bulgaria and Romania, that became a part of European Union in 2007, have a bigger number of employed people in high technology sector. Croatia should strive to the percentage Slovenia has, it almost has 8 % of population employed in knowledge intensive sectors (Sundać & Fatur Krmpotić, 2009, 324).

There is an interesting number of researchers per million citizens according to which Croatia is last but one. Only Romania has a less number of researchers per million citizens than Croatia. That means that

in 2012 there were 2407 per million citizens in the Republic of Croatia. All of the countries in the transition, except for Romania, that had had a similar past to Croatian one have a much greater number of researchers per million citizens. Scandinavian countries are at the top of the chart.

**Graph 1: Total R&D personnel per million inhabitants**



Source: authors' adjustment according to <http://data.uis.unesco.org/#>

## 5. Final reflection

Both formal and non-formal education are parts of lifelong learning process. To be competitive on the market means to be a part of the lifelong learning process. The Republic of Croatia is faced with the challenges of improving its own highly proficient workforce so it could compete with employed population of other EU countries. In order to improve competitiveness of its own workforce it is necessary to use the opportunities of currently existing educational system, but also to ensure the availability of non-formal education. Non – formal education covers educational programmes that improve literacy, expand primary education, enable mastering new skills and better usage of educational resources. Since non-formal education can prepare every individual for the workforce market it is necessary to implement it more eagerly. Non – formal education, because of its quick and efficient effect, allows reactions in a short period of time, which can result in ensuring competitive advantage for all those who want to survive in global market game. When thinking about formal ways of education it is important to emphasize that competitiveness improvement has to be followed by appropriate economic politics. Nowadays, in the Republic of Croatia there has not been a significant change in the workforce structure. It is essential to improve the educational process for efficient knowledge creation and application. Formal educational institutions have to maximize their efforts in order to have a bigger autonomy, and capability to manage and lead them. Allocating more resources for education, research and science should be an imperative. Mentioned above should be realized through permanent rationalisation and better resource usage. Improving both formal and non – formal education lifelong learning is intensified which leads to human capital improvement that is ready to answer to the modern market.

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## **THE SIGNIFICANCE OF EDUCATION AND SOCIAL EXPENDITURES FOR SOCIETY DEVELOPMENT**

### **ZNAČAJ OBRAZOVANJA I SOCIJALNIH DAVANJA NA RAZVOJ DRUŠTVA**

#### **ABSTRACT**

*Study has shown that variables Human Development Index, average time of education and social expenditures have mutually positive impact and also positive impact on dependent variable Gross Domestic Product per capita. It can be seen that a very significant impact on dependent variable has variable Human Development Index, while significant impact on dependent variable has an average time of education. It should be emphasized that very significant impact on Human Development Index has variable average time of education.*

*Study has also found that in interaction of observed variables, variable Human Development Index has a positive and significant effect on dependent variable Gross Domestic Product per capita, while variables average time of education and social expenditures have negative impact on dependent variable. Variable average time of education has significant effect on dependent variable, in contrast to effect of social expenditures, that is not significant. The aim of the research show that social benefits may negatively affect the development of society and the standard of living of the population.*

**Key words:** education, social welfare, Human Development Index, Gross Domestic Product per capita, dependency culture

#### **SAŽETAK**

*Istraživanje je pokazalo da varijable Human Development Index, prosječno vrijeme školovanja i socijalna davanja imaju međusobno pozitivan utjecaj kao i pozitivan utjecaj na zavisnu varijablu bruto domaćeg proizvoda per capita, pri čemu se pokazalo da vrlo značajan utjecaj na zavisnu varijablu ima varijabla Human Development Index, dok značajan utjecaj na zavisnu varijablu ima*

prosječno vrijeme školovanja. Također treba izdvojiti vrlo značajan utjecaj varijable prosječno vrijeme školovanja na Human Development Index.

Istraživanje je također pokazalo da, u interakciji promatranih varijabli, varijabla Human Development Index ima pozitivan i značajan utjecaj na zavisnu varijablu, bruto domaći proizvod per capita, dok varijable prosječno vrijeme školovanja i socijalna davanja imaju negativan utjecaj na zavisnu varijablu, pri čemu varijabla prosječno vrijeme školovanja ima značajan utjecaj na zavisnu varijablu, za razliku od utjecaja varijable socijalna davanja koji nije značajan. Cilj je istraživanja pokazati da socijalna davanja mogu negativno utjecati na razvoj društva i životnog standarda stanovništva.

**Ključne riječi:** obrazovanje, socijalna davanja, Indeks ljudskog razvoja, bruto domaći proizvod po stanovniku, kultura ovisnosti

## 1. Introduction

This paper presents analysis of Human Development Index (HDI, 0-1), average time of education (number of years, primary and secondary school), social expenditures (as a percentage of GDP) and Gross Domestic Product per capita (GDP p.c., purchasing power parity [PPP], in US dollars [USD]) in year 2013., for observed 39 countries (39 countries listed in Table 1.).

HDI measures poverty, literacy, education, life expectancy and other factors for all countries in the world. With measuring HDI, countries can be classed in developed countries (first world countries), developing countries (second world countries) and underdeveloped countries (third world countries). HDI measures average achievements countries in three fundamental factors of human development: long and healthy life, measured by life cycle from birth to death, then knowledge, measured by literacy (takes into account primary and secondary education and enrollment ratio) and decent standard of living, measured by the GDP p.c.

Social expenditure is the provision by public (and private) institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an individual contract or transfer. Such benefits can be cash transfers, or can be the direct (“in-kind”) provision of goods and services.<sup>1</sup>

Average time of education presents average duration of education in a country. It is calculated like a total education time of all residents divided by number of residents.

Positive or negative relationship between these variables will be considered. The first hypothesis is that countries which have shorter average time of education usually have higher GDP p.c. Another hypothesis is that countries which have less social expenditures on average have higher GDP p.c.

## 2. Analysis of economic indicators by country in the world

**Table 1** Economic indicators by selected countries in the world in 2013

Country	HDI	Average time of education (year)	Social expenditures (% of GDP)	GDP p.c. (PPP, USD)
Argentina	0,808	9,8	21,0	18.600,00
Australia	0,933	12,8	19,0	43.544,00
Austria	0,881	10,8	28,3	45.493,00
Belarus	0,786	11,5	20,1	17.620,00

<sup>1</sup> <http://stats.oecd.org/glossary/detail.asp?ID=2485>, (accessed 26.02.2015.)

Country	HDI	Average time of education (year)	Social expenditures (% of GDP)	GDP p.c. (PPP, USD)
Belgium	0,881	10,9	27,2	41.663,00
Brazil	0,744	7,2	16,0	15.037,00
Bulgaria	0,777	10,6	14,3	15.732,00
Canada	0,902	12,3	17,2	43.247,00
Croatia	0,812	11,0	19,2	21.366,00
Czech Republic	0,861	12,3	20,5	28.770,00
Denmark	0,900	12,1	30,2	43.445,00
Finland	0,879	10,3	30,6	39.812,00
France	0,884	11,1	32,0	37.872,00
Germany	0,911	12,9	25,6	44.469,00
Greece	0,853	10,2	24,3	25.705,00
Hungary	0,818	11,3	21,8	23.482,00
Iceland	0,895	10,4	17,1	41.939,00
Ireland	0,899	11,6	21,9	46.140,00
Italy	0,872	10,1	28,7	35.957,00
Japan	0,890	11,5	22,3	36.449,00
Latvia	0,810	11,5	24,4	22.560,00
Luxembourg	0,881	11,3	23,4	90.410,00
Mexico	0,756	8,5	7,4	16.463,00
Montenegro	0,789	10,5	12,1	14.132,00
Netherlands	0,915	11,9	24,3	46.298,00
New Zealand	0,910	12,5	20,8	34.826,00
Norway	0,944	12,6	22,0	65.461,00
Poland	0,834	11,8	20,7	23.649,00
Portugal	0,822	8,2	25,8	26.759,00
Romania	0,785	10,7	17,6	18.991,00
Russia	0,778	11,7	25,5	24.144,00
Serbia	0,745	9,5	13,5	13.020,00
Slovenia	0,874	11,9	23,8	28.996,00
Spain	0,869	9,6	27,3	32.925,00
Sweden	0,898	11,7	28,2	45.148,00
Switzerland	0,917	12,2	19,9	56.656,00
Turkey	0,759	7,6	12,5	19.020,00
UK	0,892	12,3	22,5	38.452,00
USA	0,914	12,9	18,6	53.042,00

Sources: <http://data.worldbank.org/>, <http://stats.oecd.org/>, <http://hdr.undp.org/>

According to Table 1, 19 countries can be taken as countries with high level of GDP p.c. (more than \$35,000.00), 6 as countries with a medium level of GDP p.c. (\$25.000,00-\$35.000,00), and 14 as countries with low level of GDP p.c. (less than \$ 25,000.00). Data shows that countries with high level of GDP p.c., on average, have shorter average time of education than countries with medium and low levels of GDP p.c. Assumption is that these countries require intensive and specialized education which enables early opting for a certain activity (or for specific area in case of continuing education to graduate studies, postgraduate specialist studies or doctoral studies). That allows earlier school start and training for a certain profession (vocational schools), thereby people finish school earlier, although vocational schools in countries with longer total education last same as in mentioned countries. It is obvious that in countries with high level of GDP p.c. vocational schools start earlier and therefore they finish earlier, which shortens total time of training (e.g. USA, Switzerland, Norway, Austria, Canada, etc.).

In countries with high level of GDP p.c. HDI is also higher. Average HDI for 19 countries with the highest level of GDP p.c. is 0.855 and is the highest in Luxembourg (.933), and the lowest in Netherlands (0.744). In group of countries with medium level of GDP p.c., average HDI is 0.871 and it is higher than average HDI in group of countries with high levels of GDP p.c. because most of the countries in group of countries with the average level of GDP p.c. are Mediterranean

countries with pleasant (warm) climate which affects longer life expectancy of population, and it automatically affects that HDI is higher (Spain, Portugal, Greece, New Zealand).

In a group of countries with high level of GDP p.c. percentage of GDP on social expenditure is on average 17.64%, where we assume that they are trying to avoid dependency culture which is about how high social expenditures negatively affect people's motivation to work. For example, if country provides high unemployment compensations, which at first glance looks like a good and positive measure in terms of care for unemployed persons, they operate in way that unemployed persons will not want to work for just a bit higher income and they will stay economically dependent on social compensations. This will have negative impact on country's economy and employment rate in country. Exceptions to this phenomenon are Scandinavian countries, which also have high percentages of GDP for social expenditures, but they have good system of social compensations. Their system is based on the fact that people immediately after losing their job receive social compensations slightly lower than salary they have had, but then they gradually reduce this compensations to a very low levels which. This forces unemployed persons to find job in short period of time and it doesn't have negative but positive influence on country's economy and unemployment rate. Also, group of countries with low GDP p.c. has low average percentage of GDP for social expenditures (17.56%) because these countries lack of financial resources for social compensations due to the bad economic situation in country, which also contributes to reduction of HDI in this group of countries.

Group of countries with low GDP p.c. has average time of education 10.91 years and it is a bit shorter than average time of education in group of countries with high level of GDP p.c. That is not because of pupils who early specialize or have quality school, but because of bad economic situation in which parents are not able to afford education for their children, so many of them start to work and leave school. For example, in Montenegro average time of training is 7.6 years, 8.2 years in Hungary, then in Belarus 9.8 years, 9.6 years in Mexico and in Argentina is 9.8 years. It can be noticed that in above-listed countries GDP p.c. is almost at the lowest level in observed sample.

Group of countries with medium level of GDP p.c. has average time of education 11.35 years which is higher than average time of education in group of countries with high and low levels of GDP p.c. Assumption is that in these developing countries economic situation is not yet stable and that they encourage further specialization after graduation and that education system is still in process of transformation.

### 3. Impact analysis of observed variables on living standard.

In analysis of linear correlation matrix mutual influences of variables: HDI, average time of education and social expenditures on GDP p.c. were observed.

**Table 2** *Linear correlation matrix*

Variables:	HDI	Average time of education (year)	social expenditures (% of GDP)	GDP p.c. (PPP, USD)
<b>HDI</b>	1,00	0,7	0,52	0,8
<b>Average time of education (year)</b>	0,7	1,00	0,3	0,5
<b>social expenditures (% of GDP)</b>	0,52	0,3	1,00	0,41
<b>GDP p.c. (PPP, USD)</b>	0,8	0,5	0,41	1,00

Source: made by authors



As can be seen in Table 2, all variables have mutually positive impact and positive impact on variable GDP p.c. Very significant impact on variable GDP p.c. has variable HDI, while significant impact on GDP p.c. has average time of education. It should also be emphasized very significant impact of variable average time of education on HDI.

In analysis of multiple linear correlation matrix influences of variables: HDI, average time of education and social expenditures on dependent variable GDP p.c. were observed.

**Table 3** Multiple linear correlation matrix

constant:	- 160,5
squared coefficient:	0,74
standard error of regression:	9,1
number of observations:	39
degrees of freedom:	35
<b>dependent variable:</b>	<b>GDP p.c. (PPP, USD)</b>
<b>variables:</b>	<b>coefficient:</b>
<b>HDI</b>	<b>2,45</b>
<b>average time of education (years)</b>	<b>- 1,1</b>
<b>social expenditures (% of GDP)</b>	<b>- 0,08</b>

Source: made by authors

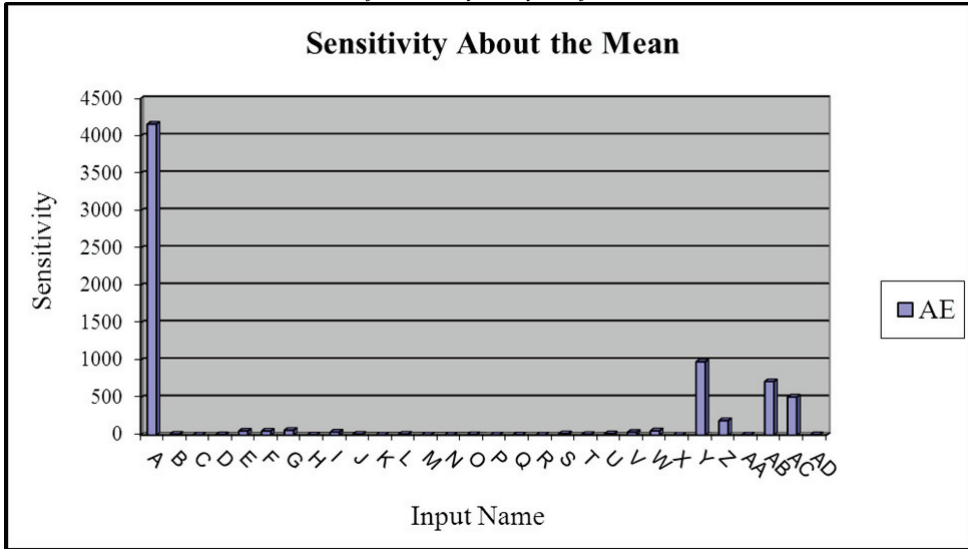
As can be seen in Table 2, in interaction of observed variables, variable HDI has positive and significant impact on dependent variable GDP per capita, while variables average time of education and social expenditures have negative impact on dependent variable GDP per capita. Variable average time of education has significant impact on dependent variable, in contrast to the effect of social expenditures which is not significant.

With presented results of research we can conclude that the first hypothesis that countries which have shorter average time of education usually have higher GDP per capita, is accepted, while the second hypothesis that countries which have lower social expenditures, on average, have higher GDP p.c., is rejected.

### 3.1. Analysis of sensitivity of living standards to observed variables

Problem of dependence analysis of dependent variable (GDP p.c.) and its alterations induced by changes of independent variables was observed and analyzed with help of program NeuroSolutions and construction of neural networks. With sensitivity analysis it is possible to see what is sensitivity of outputs to inputs in the model, and what is significance of each input variables for the model. Graphical analysis shows level of sensitivity of output variable to each of input variables. Values on graph's y-axis show how big is change of output variable if single input variable changes by one unit. Through input variables, with research we attempted to determine their impact on single output variable, mentioned GDP p.c., i.e. sensitivity of change of dependent variables to change of independent variables.

*Chart 1 Results of sensitivity analysis of observed variables*



Sensitivity	AE
A	4.157,94
B	13,15
P	1,57

A	–	HDI (corrected for value of GDP, which it contains, by partial correlation)
B	–	average time of education
P	–	social expenditures

*Source: made by authors*

We can see that, with correlation coefficient of 0.98 and standard error of 0.328, from all the variables, the highest sensitivity has variable HDI and it is several times higher than most of other variables, while high level of sensitivity also has variable average time of education. Remaining variable, social expenditures, has low coefficient and here has not been proven significant level of sensitivity to dependent variable.

#### 4. Synthesis of research results

In conclusion, study has shown that at macroeconomic level, if impact of each of observed variables on development level of country or standard of living of its people seen through the GDP per capita is known, systematically planning and programing investments in certain sectors can be done, which can cause significant impact on higher and faster rates of economic and social development of country. Research has also shown which variables have positive or negative impact, significance of their impact on development level and economic growth and, consequently, priorities of government (macroeconomic) investments can be determined.

Also, research has shown constant and very significant positive impact of variable investment in education and reducing average time of education, whereby influence of human factor in society is

getting stronger. It implies that a priority in running of national economic policy should be investing in people and their education. However, the research also shows that investment in education is not in itself sufficient to ensure high rates of economic growth. It is necessary to invest in other segments of society development related to education of the population. Also, costs of education system should not be observed as costs but as an investment, since it leads to positive economic and social trends.

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## **SPORT AS A SOCIAL PHENOMENON**

## **SPORT KAO DRUŠTVENI FENOMEN**

### **ABSTRACT**

*Sport has become a global social phenomenon. Sport can be used as a platform for achieving many social goals and solving a number of social issues. If adjusted to meet the needs and idiosyncrasies of an individual, sport can, due to a wide variety of its means and forms, be taken up by people of all age groups – from the youngest age (almost from the birth) until old age. Sport is a powerful driving force behind individual actions and transformation and various social events and trends. Sport activities are very often a significant factor in one's personal growth and development and in finding one's place in the immediate environment, as well as in the pace and the direction in which a community or society is developing. By definition and level, sport can be classified as top or selective and mass or non-selective. From the economic standpoint, every type of sport stimulates the general level of consumption, as well as the production, while top sporting events directly boost all areas of economy, from the construction of sport facilities and the production of sport equipment, food and medications, to tourist and promotional activities. The impact of sport is reflected in cultural and political aspects of almost any society.*

**Key words:** sport, society, top-level sport, social significance

### **SAŽETAK**

*Sport je u današnjem društvu postao globalni društveni fenomen. Kao takvoga koristi ga se za postizanje različitih društvenih ciljeva i rješavanje brojnih društvenih pitanja. Ukoliko se prilagodi potrebama i karakteristikama pojedinca sport može biti na korist ljudima svih dobnih skupina – od najmlađe dobi (gotovo od rođenja) do starosti. Sport je snažno sredstvo koje stoji iza individualnog djelovanja kao i različitih društvenih događaja i promjena. Sportske aktivnosti su vrlo često značajan čimbenik u osobnom razvoju pojedinca, u smislu pronalaženja vlastitog mjesta u društvu. Također sport je značajan i u smislu smjera i ritma razvoja samoga društva odnosno određene društvene zajednice. Sport se može klasificirati u*

*dvije osnovne skupine, vrhunski ili selektivni sport te masovni odnosno neselektivni. S ekonomskogstajališta, svaka od navedenih skupina potiče određenu razinu potrošnje, ali i proizvodnje, dok vrhunski sportski događaji potiču brojna područja gospodarstva, od izgradnje sportskih objekata i proizvodnje sportske opreme, prehrane i lijekova do turističkih i promotivnih aktivnosti u društvu. Također, utjecaj sporta se očituje i u kulturnim i političkim aspektima gotovo svakog društva.*

**Ključne riječi:** sport, društvo, vrhunski sport, društveni značaj

## **1. Definition and characteristics of contemporary sport**

### **1.1. Introduction**

In the contemporary world, a number of new areas of life are being developed as a result of a reduced number of working hours, increased standard of living and the general democratisation trend. Sport has in the given circumstances become a global social phenomenon. As such, sport has been a subject of research of a number of scientific areas, as well as a target of ideological and practical misuse and business investments.

Sport can be used as a platform for achieving many social goals and solving a number of social issues.

A well-structured sport system encompassing all types and levels of sport activity can, on the national level, positively affect the ability to adjust to extreme demands posed by special situations (war, urgent and unpredicted situations) and increase general work ability.

If adjusted to meet the needs and idiosyncrasies of an individual, sport can, due to a wide variety of its means and forms, be taken up by people of all age groups – from the youngest age (almost from the birth) until old age. The system of school and club sport, engagement of children in sport clubs as well as top athletes serving as role models for the young can in many ways affect the adoption of a system of value in children and youth, especially with respect to the acquisition of some biological and social motivations applicable throughout one's life.

Top sport and top athletic achievements are in a way a reflection of human values of permanent significance. Each top athletic result is a product of three factors: the totality of exceptional qualities of the athlete, the most advanced findings of different scientific fields, and an exceptional expert guidance. These factors are also crucial for top performance and the achievement of notable results in any other area of human activity (Pyke,1992).

Top sport therefore brings sport, in terms of its social role, on the same level with other socially important areas of activity.

From the economic standpoint, every type of sport stimulates the general level of consumption, as well as the production, while top sporting events directly boost all areas of economy, from the construction of sport facilities and the production of sport equipment, food and medications, to tourist and promotional activities. The impact of sport is reflected in cultural and political aspects of almost any society (Rushall,1989).

The role of sport science and sport experts is to identify specific goals and methods for the achievement of sport results so as to ensure the best possible expression of all positive potentials of sport.

According to Heinemann (1995), from the sociological perspective, it would be especially valuable to gain a deeper insight into:

- the consequences and effects of sport on individuals, specific groups and social structures, particularly athletes, spectators, specialised institutions and society as a whole;

- personal and institutional value criteria concerning different types and models of sport activities, historical shifts, specificities of a country etc.

Insufficient research into the effects of sport activity and sport results on different groups of value criteria makes any attempt to address this topic vulnerable to the threats of ideologies and manipulation.

Contemporary sport is unquestionably one of the most interesting and most wide-spread human activities. People engage in it at all ages, in numerous ways and for different reasons.

Sport is a powerful driving force behind individual actions and transformation and various social events and trends. Sport activities are very often a significant factor in one's personal growth and development and finding one's place in the immediate environment, as well as in the pace and the direction in which a community or society is developing.

According to Milanović (2013) the main characteristics of the sport activity which set it apart from other human activities include:

- the predominantly motor aspect of its performance
- intrinsic personal motivation for the engagement in the activity and the achievement of results, focused on psychological gain, and, in case of professional athletes, secondary, material gain
- voluntary choice of particular sport activity, as well as the level and intensity of engagement in the activity
- differentiation with respect to a wide spectrum of possible motor activities and the tendency towards a narrow specialisation within a sport branch or field
- focus on the achievement of a result that is measurable either in terms of its quantity or quality
- pronounced directedness towards winning, regardless of the age or preparedness level
- a permanent drive to achieve ever better results, which makes every sport activity competitive, whether it refers to a competition with one self or with others.

It is the very competitive quality that makes sport a potential means of affirmation and as such interesting to almost any individual, group, culture and social structure. The interaction between the sport activity and the person engaging in it facilitates a number of changes conducive to growth and development of the person and society, as well as sport, both as a specific human activity and as a social phenomenon. Sport activities and their results are in a sense both a reflection of the quality of the participants as well as their social and material environments.

Contemporary sport was not organised with these ideas in mind. According to Breivik (1999), almost any nation and a major sport organisation were focused on developing sport as an independent and self-sufficient activity able to produce valuable moral and pedagogical effects. In this context, it was believed that there are a number of values common to all sports regardless of the respective social and cultural environment. These ideas opened the discussion on whether intrinsic values of sport (independent on the environment in which a sport activity takes place) exist or whether the values of sport are external after all (historically, socially and culturally conditioned). The reflection theory denies the existence of any intrinsic sport values and proposes the thesis that sport is only a reflection of a given society and its values. On the other hand, a platonic, idealistic idea is proposed, suggesting that the system of values in sport is unchangeable and inextricable from the key characteristics of sport.

Sport, as defined today (Sports Act, 2006), refers to different competitive motor activities of variable and dynamic quality which provide children, youth and adults with a possibility to meet the need for movement and play, develop sport abilities, characteristics and skills, to express themselves and their creativity in the context of sport, to maintain and promote their health, and achieve sport results on all competition levels.

## **1.2. Dichotomy in the approach to sport**

A study of the history of sport and physical exercise and various approaches to sport and identification of its numerous characteristics reveals two contrasting systems of values, which can be found under different names and criteria.

In his dichotomy model, Guttman (1987) compares two contrasting systems of values attributed to exercise and sport by comparing sport in ancient Sparta and Athens. While the education system in Sparta involved regular military training, the education in Athens was intellectual and physical. The Sparta-Athens duality has been preserved over time and passed on from generation to generation. The opposition was still around at the time of the conception of the Olympic movement. Although Pierre de Coubertin advocated the idealisation of amateur sport (Athens), the idea of professional sport (Sparta) has not been abandoned. To the contrary, this idea has not only persisted, it has also grown stronger, despite being rejected on the level of the world's largest sports event.

Sport is one of widely inclusive social phenomena, in which there is room for everyone and everyone's interests, opinions and attitudes. Herein also lies its weakness: the potential for trivialisation of sport activity and for reducing it to the level of personal, random and unregulated. In order to avoid such a simplification of sport, leading to inadequate utilisation of its potential (in terms of benefits for the participants) and erosion of its fundamental characteristics, it is necessary to emphasise the importance of an expert approach to, and an expert management of, sport activity as well as the need for a scientific and evidence-based approach to sport.

The other extreme in the approach to sport activity is a result of the very need to treat sport in a highly scientific and professional way, which in extreme cases leads to a kind of mystification in the treatment of sport and elitism in the engagement in sport. In order to avoid this extreme, sport education and appreciation of sport should be nurtured from the youngest age, the human and material resources should be ensured for that purpose, and a system of organisations and institutions should be put into place to provide individuals with a possibility to engage in an adequate sport activity.

Sport education includes a certain level of the acquisition of motor skills and motor information, adoption of attitudes to sport and athletes, attitude to competition, the opponent and oneself – one's body, abilities and personality.

The required human resources involve a sufficient number of experts and support staff of various levels and types of qualifications, whose knowledge and personalities ensure a professional and effective treatment of those partaking in a sport activity. The educational content is dictated by the type of sport activity as well as by the characteristics and needs of the individuals participating in the sport activity.

In addition to the funding system, the required material resources involve sport facilities where the sport activity takes place and the equipment (training accessories and machines) necessary for acquiring skills and performing and practicing a sport activity.

The organisation refers to the structure of the system and the methods of teaching, education, various types of sport engagement, sport practice, competition and evaluation.

## **1.3. Primary characteristics of sport in different systems**

According to the definition and the level, sport can be broadly classified into top or selective sport and mass or non-selective sport. Top sport employs special rules and training technology, which cannot be applied to the area of non-selective sport (sport for all). The reverse also applies: sport for all, regardless of the scope of its outreach, cannot guarantee top sport results.

Several systems exist in the area of sport (Milanović, 2004).

**Professional sport** refers to sport as a profession, the main occupation of the athlete. Depending on the performance level, athletes can make a significant financial profit. This type of sport serves an entertainment function as well, posing a challenge to the large number of spectators who visit sport competitions or games.

**Amateur sport** is separate from professional sport. It is, generally speaking, sport of a lower qualitative level, serving primarily as a means for meeting fundamental human needs and preserving or promoting one's physical and mental health. Many countries do not draw a strict line between amateur and professional sport, thus hindering both types of sport activity in reaching their full potential.

**School and university sport** hold a very important place in some countries, from the viewpoint of both financial investment and professional staff education. This type of sport activity involves sport activities with an elaborated selection system, systematic training of young age groups and a competition system providing each talented young athlete with a possibility to fully develop his or her talent within school or university sport.

**Recreational sport (sport for all)** is the field of sport involving adequate facilities available to any potential recreational athlete and staff that has adequate education to be able to choose and implement a high-quality programme. By engaging in this type of activity and exercising regularly, people maintain their level of abilities and health.

**Sport for people with disabilities** is intended for people with some physical, mental or health disabilities that pose a challenge in taking up regular sport activities. Many sport facilities are inaccessible to those individuals, many types of sport inadequate, and many exercise programmes harmful or intimidating. However, sport activity can, due to its characteristics, be very stimulating and beneficial for people with disabilities. Programmes which have been developed and managed by experts and which take into account the abilities and limitations of an individual can have a significant compensation and rehabilitation effect. These programmes, especially for children and youth, can be integrated in their overall rehabilitation and education programme or implemented separately, through a special system of exercise and competition. A large number of countries have very successful systems of preparation of athletes with disabilities for various competitions, which significantly improves their inclusion in their living and working environment.

The issue of humaneness of top sport, i.e. violence in top sport, is frequently discussed. These questions are made redundant and unfounded if athletes are selected in an objective way, if the training programmes are implemented by educated staff, if the training code of conduct is observed, and if the legislation addressing the relationship between the athlete and the sport club takes into account and promotes the fundamental human rights accepted in a lawful democratic country.

A sport activity, regardless of its potential benefits, does not always necessarily lead to positive effects. Its benefits can be fully expressed if it is conducted under expert supervision with fulfilment of material and organisational requirements, taking into account individual abilities and needs of the persons engaging in it. Furthermore, positive effects of a sport activity are not automatically transferred into all other areas of human activity. In everyday life, this activity is only one of significant factors of one's development. One's personal characteristics, background, school, social environment will, together with the engagement in a sport activity, play a role in determining the quality of one's life, as well as the quality of one's sport achievements.



## 2. Personal and social significance of sport

Regardless of the variety of sport activities and the different levels and methods of their implementation, it can be stated that, provided that it is professionally managed, embarking on any type of sport activity has a significant general and specific impact on the quality of one's life and on society as a whole. The reputation of a nation and a country is, among other criteria, measured and confirmed by sport achievements of its athletes.

A forward-looking society is aware of the values of sport. A sport system of a society creates possibilities for sport engagement for all of its citizens to the extent in which they are interested in, motivated and talented for a specific sport activity.

A regular sport activity shaped and conducted to meet the abilities and needs of an individual of any age group significantly affects their biological, psychological and social status.

**In terms of the biological status,** engagement in a sport activity stimulates, develops and strengthens the entire motor apparatus and positively affects the cardiovascular and respiratory functions, as well as other bodily functions. In early childhood and youth, such an activity stimulates the growth and development of bone structures and connective tissues, and, at an adult age, it is positively reflected in terms of increasing, maintaining and extending the work ability and preventing illnesses and injuries.

On the basis of several epistemological studies, scientists have agreed that moderate and regular physical activity has a very powerful protective effect, leading to a reduced risk of developing an illness at a young age and of premature death (Saltin, 1996). These findings primarily concern cardiovascular illnesses, but other conditions as well, such as diabetes. The effects of physical activity on the maintenance of functional abilities at an old age are unquestionable.

**In terms of the psychological and social status,** engagement in a sport activity allows every person the possibility to fulfil some of the basic human needs: the need for movement, play, security, order and hierarchy, belonging, self-respect and respect of others, and self-realisation.

Engagement in a sport activity involves a number of sensory and motor triggers activating different areas of the central and peripheral nervous system. The person engaging in a sport activity expresses itself in the motor sense, but also in a cognitive, emotional and social sense. There is a large body of data available on the ways in which specific structural personality components, such as the temper, character, conative regulatory mechanisms, cognitive abilities, motivation, emotion and the level of activation, affect athletic performance. However, less information is available on the ways in which specific personality components change as a result of long-term sport engagement. This shows that the motivation of sport scientists, as well as sport professionals – coaches and athletes – is to a large extent focused on collecting data which are useful in sport performance prognosis and the formation and management of the training process, rather than on the benefits of sport activity engagement for one's general development and growth. The statement pertaining to positive effects of sport engagement on one's psychological state and social status can thus be primarily corroborated by theoretical considerations, rather than scientific facts.

Any engagement in a sport activity involves the adoption and adherence to a certain number of rules that apply to one's behaviour in the process of learning and performing a motor activity (Milanović, D and Milanović, M.1992). Rules, depending on the level of sport activity, very often regulate other aspects of an athlete's life as well (especially in professional and top sport), which can be reflected as discipline in a positive sense. It seems that the dislike of youth for the rules, regulations, the type of management and the dress code, as well as the domination of adults has prevailed against their interest in sport. The opposition between the system of values of adults built into the system of sport and the needs of young athletes seem

to reveal contrasting motives, effects and consequences of the engagement in amateur sport (sport for all) and professional (top sport). In that respect, psychological values of sport also depend on the needs and objectives of those engaging in it as well as the organisation and the values of the system within which a sport activity is performed.

However, every sport activity abounds in emotional triggers and sport, despite its demand for a certain level of physical and mental discipline, is a human activity that in specific stages stimulates and tolerates authenticity and spontaneity.

**Sport facilitates interaction and communication among people** of different educational levels, age groups, sex and status. In that sense, sport greatly enriches social interactions and experience of an individual, indirectly affecting social events and shaping social awareness. The members of the team and the coach can provide great support to a young athlete (Čustonja et al, 2003). Besides his family, peers and school, the young athlete has another safety net, protecting him from negative influences and supporting him at times of personal crises associated with growing up. In that respect, engagement in a sport activity and the sense of belonging to a group of athletes can be an important factor in the prevention of all types of addictions and socially unacceptable behaviour.

Although sport can be considered a potential stressor, due to its competitive character and occasional need to push one's abilities and endurance to its limits, sport also builds one's capacity for coping with unpleasant and threatening events. Engaging in sport can recuperate a traumatised person and provide them with an opportunity to deal with uncomfortable or traumatic experiences. To those who have not been exposed to stress or trauma, sport activities can promote the development of self-awareness and mental health, so that the person is more likely to see any stressful situations in the future as challenges rather than threats.

### **3. Prospects for development of sport**

#### **3.1. Potential for development and interactivity – fundamental dynamic components of contemporary sport**

In order for a system to function autonomously it must have its own specific subject of interest and content, but it also must have the ability to develop in accordance with the existing potential, rather than only maintaining the existing state.

The potential for development of professional sport refers to timeliness, optimality and coherence of functioning of all of its components.

Timeliness of functioning is primarily related to the procedures of selection, inclusion in sport training, implementation of changes related to the type and level of training load and rest, the achievement of a timely peak sport performance, as well as the exposure of athletes to the competition environment. This is especially important in the procedure of selection of young athletes since a premature or a delayed introduction into the system of sport preparation can be an irreparable mistake and a permanent hindrance in the future development of an athlete.

Optimality of all the conditions in training implementation, adequate rest methods, and competition demands which correspond to the athlete's physical and technical-tactical potential are also important progress factors. Neglecting this demand can expose the athlete to a higher risk of injury, potentially stressful situations and failure. Inappropriate procedures in each segment of sport preparation can significantly demotivate the athlete and compromise the continuity in the achievement of desired goals.

Coherence of approaches in professional sport is a demand related to education of sport experts, research activity, planning of sport training, attitude towards professional athletes, and control of the conditions and the results of sport preparation. Incoherent approach to the

subject (related to scientific and professional field) and incoherent treatment of all abilities, characteristics and skills relevant to sport achievement and personal health lead to a failure with respect to the achievement of progressive transformation which results in continuous improvement of sport results.

Interactivity, as an important component of functioning, enables all relatively autonomous systems to communicate, at all levels, with similar and congenial systems and to contribute to other systems, as well as to be used, corrected and developed through other systems.

Taking into account the aforementioned, a strategy for the development of professional sport needs to be designed in such a way as to facilitate communication with the legal and normative aspect of the profession, providing its participants with an opportunity to be granted certain rights within the profession and in relation to other social subjects. The strategy should also support and facilitate the fulfilment of legally or contractually prescribed obligation undertaken by all of the stakeholders in the system. Also, it is important to ensure that social institutions fulfil their duties, which will result in obtaining certain rights for sport and a better position of sport in a wider social context.

A strategy is a goal-oriented, dynamically organised set of activities, interventions and actions with corresponding obligations, time frames and modes of implementation.

Development is a series of progressive changes that lead to the improvement of the current state, the level of achievement, the quality of the process and the efficiency of procedures.

A strategy for the development of sport is a dynamically organised set of activities, interventions and actions for which, if implemented in defined conditions, we can claim with a high level of certainty that it will produce positive sequence of changes.

#### **4. Conclusion**

If adjusted to meet the needs and idiosyncrasies of an individual, sport can, due to a wide variety of its means and forms, be taken up by people of all age groups – from the youngest age (almost from the birth) until old age. Sport is a powerful driving force behind individual actions and transformation and various social events and trends. Sport activities are very often a significant factor in one's personal growth and development and in finding one's place in the immediate environment, as well as in the pace and the direction in which a community or society is developing. By definition and level, sport can be classified as top or selective and mass or non-selective. Top sport employs special rules and training technology, which cannot be applied to the area of non-selective sport (sport for all). The reverse also applies: sport for all, regardless of the scope of its outreach, cannot guarantee top sport results.

Coherence of the approaches to professional sport is a demand related to the education of sport experts, research activity, planning of sport training, attitudes towards top athletes, and the management of the conditions and results of sport preparation.

Sport science is, on the one hand, a human science focused on the athlete, his or her potential for preparedness and the principles that govern the development of these potentials. On the other hand, sport science is an applied science with the task to study the interactions of the athletes and the coach during the training as well as the optimisation of these interactions in all stages of long-term sport selection and specialisation in accordance with the potentials of each athlete and the conditions for the implementation of sport preparation processes.

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**THEORETICAL AND METHODOLOGICAL ASPECTS OF SPORT  
PREPARATION OF SELECTED CHILDREN AND YOUNG ATHLETES**

**METODIČKI I METODOLOŠKI ASPEKTI SPORTSKE PRIPREME  
SELEKCIONIRANE DJECE I MLADIH SPORTAŠA**

**ABSTRACT**

*Sport is an integral part of the educational process implemented on the level of pre-primary education (ISCED 0) and integrated basic education (ISCED 1 and 2). The children in primary schools (ISCED 1: grades 1-4, ISCED 2: grades 5-8) have the opportunity to partake in high-quality extracurricular sport activities organised in school sports clubs. Sport activities implemented in the course of basic education are instrumental in the development of physical abilities and acquisition of motor skills that are important for systematic sports training, as well as recreational, leisure time activities later in life. School sports clubs are organised forms of activity targeting a wide base of children, among which, only a few meet the criteria for becoming top athletes. Sport has a significant impact on the psychosomatic development of children and youth, i.e. the development of the abilities, characteristics and motor skills applicable throughout one's life. Aside from improving the child's motor and functional abilities and facilitating the acquisition of important motor skills, sport also holds valuable developmental, educational, preventive, socially-protective and rehabilitative potential. The development of habits related to regular physical activity in the childhood within the educational system constitutes a major impetus for the development of a healthy and active lifestyle in the future.*

**Key words:** *primary school, exercise, training*

## SAŽETAK

*Sport je integralni dio odgojno-obrazovnog procesa u predškolskom i osnovno školskom sustavu. Tijekom osnovne škole od 1-4 i 5-8 razreda djeci se pruža mogućnost sudjelovanja u kvalitetnim izvannastavnim sportskim programima u okviru školskih sportskih klubova. Vježbanjem u sustavu školstva djeca podižu razinu kondicijskih sposobnosti i stječu potrebna znanja i motoričke vještine za kasnije sustavno bavljenje sportom ali i za sportske i rekreativne aktivnosti sa vršnjacima u slobodno vrijeme. Školski sportski klubovi su organizirani oblik rada s ciljem okupljanja što većeg broja djece od kojih samo jedan dio zadovoljava kriterije za vrhunski sport. Sport značajno utječu na psihosomatski razvoj djece i mladeži, odnosno razvoj sposobnosti, osobina i motoričkih znanja korisnih za cijeli život. Osim što u cijelosti unaprjeđuju djetetove motoričke i funkcionalne sposobnosti i omogućavaju mu stjecanje važnih motoričkih znanja i vještina, sport je potencijalno vrijedan sadržaj u funkciji razvojnih, odgojnih, preventivnih, socijalno zaštitnih i rehabilitacijskih učinaka. Stvaranje navika tjelesnog vježbanja u djetinjstvu kroz ugrađivanje redovitog vježbanja u sustav školstva predstavlja značajan poticaj stvaranju temelja za zdrav i aktivan život djeteta u budućnosti.*

**Ključne riječi:** osnovna škola, vježbanje, trening

### 1. Introduction

Sport is an integral part of the educational process implemented on the level of pre-primary education (ISCED 0) and integrated basic education (ISCED 1 and 2). The term "sport" encompassed extracurricular school sports club activities (for the chosen sport) and special sport programmes for the selected athletes (the experimental school sport programme). Sport has a significant impact on the psychosomatic development of children and youth, i.e. the development of the abilities, characteristics and motor skills applicable throughout one's life. Aside from fostering the child's motor and functional abilities and facilitating the acquisition of important motor skills, sport also holds valuable developmental, educational, preventive, socially-protective and rehabilitative potential.

In an adequate environment and when performed in an optimum way, sport activities allow the child to meet the basic and specific human needs: the need for physical activity and play, the need for security, belonging, order and organisation, respect and self-realisation. Sport activities also encourage communication and interaction across gender, age and status groups; build capacities for coping with stress and trauma, and, as a result of their preventive and protective effect, they have an important role in the prevention of addiction and different forms of socially unacceptable behaviour. In a nutshell, sport significantly improves the quality of life and has a positive effect on an integrated biological, psychological and social status of the children involved in sport programmes.

Under the multi-annual sport development programme, the first global goal is a multilateral (integrated) psychosomatic development, specifically focusing on the development of all coordination abilities, motor development through play and elementary forms of movement, and the accumulation of motor experience in multiple sport activities. In the middle stage of basic education, the second global goal of sport preparation is introduced. This goal involves targeted sport and motor development and sport specialisation with multiple objectives: acquiring the basic technique and tactics of the sport (multilateral TE-TA training), detailed motor learning in the chosen discipline, development of functional and motor abilities, mastering specific exercises and development of dynamic basis of the technique and tactics, as well as the early phase of setting and meeting competition standards in regular sport competitions (Milanović, 2013).

## **2. The selection of children for specific sports (steering and specialisation)**

Mass inclusion of children and youth in sports involves the process of selection for the achievement of significant, even top sport results. Through the selection process the children with great potential for top sport performance are identified. The process takes into account the chronological and biological age of the child so as to avoid negative selection of children who lag behind in their biological development. The process of selection of potential top athletes involves the processes of steering and specialisation. The steering system is a process of the selection of children with identified talent for sports, whereas the goal of the specialisation process is to select talented individuals for a specific sport. Between these two processes, an inter-stage in the selection process is often employed: streaming towards a specific sport field (combat sports, team sports, etc.).

The success of the steering and specialisation processes depends on a number of factors: the relevance of the characteristics used in steering and specialisation; accuracy of measurements of all factors affecting performance; objectivity of performance evaluation; and representativeness of the sample of subjects used in the determination of the specification equation for the kinesiological activity. The role of experts in the selection process is very important since they must be able to adequately manage the training load and identify the child's aptitudes and inclinations from the earliest phases of their motor and sport development.

## **3. Methodology of training for primary school children**

In planning the training process for children and youth, the biological development factors and the principles of an integrated effect of the training process should be taken into account. The training structure, modalities and loads should foster a dynamic development of basic and specific anthropological functions and results at competitions in accordance with clearly defined prospective, functional and result-oriented objectives.

Specific phases of conditioning should utilise the training means and modalities which are the most conducive to achieving the set goals. The same applies to load management, which should consider developmental characteristics of individuals and the demands of the specific stage of a long-term sport preparation.

Between 6 and 10 years of age, children should be involved in low-intensity training targeting a wide spectrum of abilities. In this age group, the cardiovascular and respiratory systems are sufficiently developed for an individual to engage in most activities, whereas the anaerobic capacities are limited due to low tolerance to heightened levels of lactic acid. In working with this age group the focus should be on a multilateral development of motor and functional abilities by employing a wide array of exercises, including running, jumping, catching, climbing, rolling, balancing etc. Between the ages of 10 and 14, a gradual increase in the intensity of training is introduced (building of an athlete). Strength and conditioning training for athletes of this age group should predominantly involve all-round and basic sport preparation, with gradual introduction of specific conditioning goals. As of the age of 15, athletes can cope with higher-intensity trainings as a result of more favourable hormonal conditions for the development of strength and power and a higher tolerance to lactic acid, i.e. anaerobic training.

### **3.1. Development of physical abilities**

There has been a long-standing debate among sport experts and scientist concerning the determination of real effects of organised physical activity on the development of specific physical abilities. It is very often difficult to identify whether the improvements of specific abilities in a child and youth athlete are a result of the training process or normal developmental processes. An overview of the body of relevant scientific and expert work reveals that most information and

scientific contributions refer to different types and modalities of resistance training for children and youth. Therefore, the effects of such training are most often brought into correlation with various dimensions of strength. There are much fewer resources that address the training modalities for the development of endurance, coordination, flexibility, speed and agility. The most discussed and the most controversial physical ability in children athletes is strength. A lack of consensus on the purposefulness of the employment of strength training with pre-adolescent children opens the door to numerous questions. The results of two meta-analyses on the strength training effects on children shed some light on the issue (Falk and Tenenbaum, 1996; Payne et al., 1997). The studies showed that training programmes implemented over 8-12 week periods led to an increase in children's strength of 30-40 %. Several studies pointed to the possibility of achieving positive effects with resistance training, plyometrics and sprint training (5-20 week training programmes) on vertical and horizontal jumping ability, running speed and agility (Faigenbaum et al., 1996; Diallo et al, 2001; Matavulj et al., 2001; Kotzamanidis, 2006). Several studies showed that anaerobic abilities in children can be improved by means of anaerobic training (Rowland et al., 2006). However, the improvements measured in all of the mentioned studies were relatively small. Several paediatric studies into aerobic effects of aerobic training on children suggested that there is a relatively small possibility for improvement (Rowland et al., 2006), with the increase in the maximum oxygen intake ranging between 10 and 14 %. In a meta-analysis encompassing 23 studies, Payne and Morrow concluded that the average increase in the VO<sub>2</sub>max value in children is 5 %.

### **3.2. Aquisition and development of motor skills**

For the optimum effect of training processes and long-term sport preparation it is necessary to utilise the process of acquiring and mastering technical and tactical skills from an early phase of the child's sensory and motor development. In early phases of sport preparation, technical and tactical skills are not acquired in their final form, but rather in a form that matches the developmental characteristics of the given age group and does not hinder the acquisition of basic movement structure. The process of technical and tactical skill acquisition, i.e. the structure of movement and the structure of situations, is implemented in four independent stages in the school context: 1) Early acquisition of elementary skills required for the structuring of motor programmes; 2) Advanced acquisition of solid skills for the performance of a motor task, finalisation of motor programme acquisition, and fine-tuning of motor task performance to the point where it is relatively independent of interfering effects of the environment, the opposing team or an individual athlete; 3) situational learning leading to stable movement patterns; 4) competition experience creating opportunities for quick reception and processing of motor impulses and fast and efficient performance of technical and tactical tasks on a reflexive level. These stages of motor learning are also implemented with selected athletes in sport clubs, but with a much higher number of practices and higher training and competition load. An expert approach to technique and tactic learning ensures a gradual development of athlete's skills, leading to a high-quality development of other abilities, integrated preparedness as well as peak sport results that will depend on the talent of an individual and the conditions for sport preparation implementation in sport clubs.

The learning process is assessed on the basis of the effects of learning, i.e. the performance level measured in the process of acquiring a motor skill. The common model for expressing the motor learning effects is the motor learning curve, reflecting the correlation between the performance measure and the learning period or the number of attempts. The motor learning curve usually displays a negative acceleration property. The typical application of the curve refers to the assessment of average performance in each learning stage. This facilitates the learning process assessment and provides more valuable information on the learner (the pace of learning, the effectiveness of skill acquisition in individual phases, fatigue onset, the final level of skill mastery etc.) than the effectiveness of learning expressed by the assessment of the final skill mastery or the average effectiveness of all the attempts. The dependant variable, the effectiveness of learning can



be assessed in several ways. One of the most common assessment methods is expert evaluation (Barić, 2006; Magill and Schoefendler-Zhodi, 1992; Ram and McCullagh, 2003; Zetou, Tzetzis and Kioumourtzoglou, 2001). In laboratory conditions, the effectiveness is measured on the basis of the deviation of kinematic parameters from the professional model performance by geometric entropy or as an inverted measure of failed attempts (Al-Abod, Davids and Bennet, 2001; Boschker and Bakker, 2001; Anderson, Magill, Sekiya and Ryan, 2005; Shea and Wulf, 2005). A frequently used approach to measuring motor learning effectiveness is the assessment of motor learning using the retention test (Magill, 2007). This approach involves measuring the level of retention of a previously acquired motor skill after a period of time, i.e. forgetting of a motor performance.

#### 4. Planning and programming of training for selected young athletes of the primary school age

Children with superior motor abilities, who were positively assessed in the steering process, are introduced to the universal youth sports school, which in most cases includes children between the age of 6 or 7 and 10. Children in the first two grades of primary school can be steered towards a group of sport disciplines (team sports, sprint disciplines, combat sports, cyclic endurance sports, aesthetic sports disciplines, etc.) through elementary sports programmes implemented in an adequate number of training hours and using adequate loads.

In the majority of sport disciplines, children in the fifth grade of primary school, i.e. children between the age of 10 or 11 and 14, who have met the selection criteria for inclusion in the systematic training process, attend the programmes of elementary sports specialisation. The objective of elementary sports specialisation is targeted sport and motor development and sports specialisation, or multilateral technical-tactical training, further detailed motor learning, all-round training, further development of functional and motor abilities, mastering of specific training drills and the early phase of setting the competition result standards.

The training plan and programme for children between the age of 10 and 14 should be focused on sport-specific training and should contain cumulative training parameters. This implies a precise definition of the number of training days and rest days, the number of training sessions and training hours, as well as the proportion of each sport preparation programme in the total training programme. Regular testing during the annual cycle should not be neglected. According to Sozanski (Milanović, 2013) (Table 1), the recommended number of training sessions for the age group 10-12 is 150-200 in the total duration of 300-400 training hours and 30 hours of competitions. These parameters are significantly higher in the training process of the athletes in the age group 12-14. Thus, 250 training days can contain 250-300 training sessions in the total duration of 500-600 training hours and participation in 40 competitions.

*Table 1 Cumulative load parameters in the process of sports preparation by age groups*

Types and parameters of training		Age group	
		A	B
		10-12	12-14
1.	Training days	150-200	250
2.	Rest days	165	115
3.	Training sessions	150-200	250-300
4.	Training hours	300-400	500-600
5.	Competitions	30	40
6.	Multilateral and basic preparation (hours)	150 (100+50)	200 (100+100)

Types and parameters of training		Age group	
		A	B
		10-12	12-14
7.	Specific and situational preparation (hours)	50 (50+0)	100 (75+25)
8.	Technical and tactical preparation (hours)	200 (150+50)	300 (150+150)
9.	Theoretical preparation (additional hours)	10	20
10.	Diagnostics (testing)	2×	4×

*Source: Sozanski, according to Milanović, 2013*

Several studies (Malina, 2010) showed that the development of the level of preparedness in children aged 6-11 should be primarily achieved by means of multilateral and basic sports preparation (90-65% basic preparation, 10-35% specific preparation), which should result in increased primary motor and functional potential of future top athletes. Unfortunately, this is not always the case in practice since coaches are sometimes more focused on immediate results and they conduct more specific than basic training, causing early specialisation. It has been shown that the early specialisation does not produce desired results. Only a small number of children who have undergone early specialisation were able to achieve top results at the adult age. Out of 35,000 children in Russian sports schools, only 0.14 % have successfully reached the top athletic performance level. A study examining German athletes in seven Olympic sports showed that only 0.3 % of selected potential top athletes have reached that level. On the other hand, research has confirmed that multilateral training and involvement in a large number of sports in childhood contributes to the achievement of excellent athletic results at the adult age. A study examining 1,558 athletes in Germany showed that the most successful athletes engaged in more sports ( $2.4 \pm 1.6$  sports) before they chose the sport in which they won medals at top competitions (Malina, 2010).

In the latter stages of sport training (age group 12-16), specific training means are utilised in further improvement of the level of preparedness, since they effectively transform those specific motor and functional abilities which are essential in the achievement of results in the given sports branch (65-30 % basic preparation, 35-70 % specific preparation). It is therefore clear that, in a youth athlete training system, it is vital to precisely define the order in which certain sport preparation means will be utilised. In the early stages of sport training, the focus is on multilateral and basic sport preparation, while the specific and situational sports preparation means need to be emphasised in the latter stages.

## 5. Conclusion

In grades 1-4 and 5-8 of primary school, children have the possibility to participate in high-quality extracurricular sport programmes within school sports clubs. Physical activities implemented within the system of education improve the level of children's physical ability and facilitate the acquisition of motor skills required for a systematic sports training or participation in sports or recreational activities with their peers in their free time later in life. School sports clubs are organisations whose purpose is to attract a large number of children, only a small number of which meet the criteria for top sport. On the other hand, some children will continue to participate in sport and recreational activities in their free time. Developing habits of physical exercise in childhood through the implementation of regular exercise within the system of education constitutes an important incentive towards building the foundations for a healthy and active lifestyle in future life.

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**CULTURE OF EDUCATION FOR ENTREPRENEURIAL COMPETENCES  
– THE DRIVING FORCE OF ECONOMIC DEVELOPMENT IN EASTERN  
CROATIA**

**KULTURA OBRAZOVANJA ZA PODUZETNIČKE KOMPETENCIJE –  
POKRETAČ EKONOMSKOG RAZVOJA ISTOČNE HRVATSKE**

**ABSTRACT**

*Development of modern society based on knowledge in the globalization process creates new needs in the fields of culture, science, technology, economy, social cohesion, the position and role of an individual and his/her individual development. In this context, education and science are gaining bigger importance and are basic driving forces of a society. Entrepreneurship is one of key competences one should gain by education, ensuring for himself/herself the basis for life and work. It is also one of the key competences of European competence framework of lifelong learning and the benchmark for competitiveness of a national economy and the development, too. By the new approach to higher education based on learning outcomes, there are being highlighted the competences a student will gain after finishing his/her studies. Today, entrepreneurial competences are required in every profession. In this paper there were analysed study programmes of six faculties of University of Osijek in relation to learning outcomes, knowledges, skills and course goals aimed at gaining of entrepreneurial competences. The results of the research show that most of the Faculties too little/slightly encourage or don't encourage gaining of entrepreneurial competences by their study programmes. Out of six analysed study programmes in total, only two of them show visible outcomes which encourage entrepreneurial competences. The results of study programmes analysis point at the necessity of introduction of courses by which there will be gained entrepreneurial competences during the course of higher education, and for the purpose of general social and economic growth.*

**Key words:** *entrepreneurial competence, culture of education, higher education, study programmes, learning outcomes.*

## SAŽETAK

*Razvoj suvremenog društva temeljenog na znanju u procesu globalizacije stvara nove potrebe u područjima kulture, znanosti, tehnologije, gospodarstva, društvene kohezije, položaja i uloge pojedinca i njegova osobnog razvoja. U tom kontekstu, obrazovanje i znanost dobivaju veće značenje i temeljni su pokretači društva. Poduzetništvo je jedna od ključnih kompetencija koje bi pojedinac trebao steći obrazovanjem i osigurati si temelj za život i rad. Također je i jedna od ključnih kompetencija europskog kompetencijskog okvira cjeloživotnog obrazovanja i mjerilo konkurentnosti nacionalne ekonomije, a time i razvoja. Novim pristupom visokoškolskom obrazovanju temeljenom na ishodima učenja, u prvi plan postavljaju se kompetencije koje će student steći završetkom studija. U svakom se zanimanju danas zahtijevaju poduzetničke kompetencije. U radu su analizirani studijski programi šest fakulteta Sveučilišta u Osijeku s obzirom na ishode učenja, znanja, vještine i ciljeve kolegija usmjerenih na stjecanje poduzetničkih kompetencija. Rezultati istraživanja pokazuju kako većina Fakulteta kroz svoje studijske programe premalo/neznatno potiče ili ne potiče stjecanje poduzetničkih kompetencija. Od ukupno šest analiziranih studijskih programa samo su u dva jasno vidljivi ishodi koji podupiru poduzetničke kompetencije. Rezultati analize studijskih programa ukazuju na nužnost uvođenja kolegija kroz koje će se tijekom visokoškolskog obrazovanja stjecati poduzetničke kompetencije, a u svrhu osobnog te općeg društvenog i gospodarskog napretka.*

**Ključne riječi:** *poduzetnička kompetencija, kultura obrazovanja, visoko obrazovanje, studijski programi, ishodi učenja.*

### 1. Introduction

The improvement of educational system of the Republic of Croatia in accordance with the requirements of the European Union ( curriculum, teacher training, competences of pupils and students, management of educational institutions and universities etc. ) requires coordination and structured dialogue between all relevant participants of the Economy of Croatia and educational system aimed at raising entrepreneurial spirit and strengthening of competitiveness (Tafra, 2011). It is being emphasized the need of education for gaining entrepreneurial competence<sup>1</sup> which requires knowledge as the basic hypothesis of action and creation as well as development of adequate skills and opinionss emphasized in the EU documents, especially in the European Charter for Small Enterprises (2000) and Lisbon Strategy (2000). The Economy of Croatia and learning for entrepreneurial competences as a part of initial and lifelong education over the past twenty years is seen in the context of three aspects: 1) over the past twenty years The Economy of Croatia experienced serious structural changes, 2) The Economy of Croatia is being confronted with global economic crisis, 3) The Economy of Croatia should get prepared for challenges of conducting business in the European common market (Kraljić, 2012). The traditional educational system is no longer appropriate for the need of entrepreneurial competences. The Bologna Process by its orientation towards a student demands changes in learning and teacher training, whereas curricula are orientated towards learning outcomes and competences. Mitra and Manimala (2008, according to Gibb 1993) emphasize the changes between the programme that most of universities offer and the real needs of learning for gaining of entrepreneurial and other competences. The results of the research show that the Universities have so far asked students to make their own judgements, to understand and check information, to understand the basic principles of the society, to look for right answers, to learn in the classroom, to ask for information from experts and authorities, to get their knowledge assessed by written exams and to achieve success by passing the exam based upon knowledge. By contrast, the real needs of learning for gaining of entrepreneurial competences rely upon intuitive decision making based on limited amount of information, understanding of values by

<sup>1</sup> Entrepreneurial competences include knowledges, skills and opinions, therefore hereinafter entrepreneurial competences include the above mentioned elements of competence.

people who pass the information, making decisions based on competences, making decisions under time stress, active learning by doing, searching for information from anyone and anywhere and their practical application, achieving success in learning based on solving problems, learning from one's own mistakes and offering products and services of learning at the market. The changes at the Universities are not due to the needs of the very university, but by demands of the market. The main factor starting reforms in Europe today is the desire for more progressive economy and greater competitiveness in relation to world economic powers. Carvalho (2013) thinks that the changing role of a teacher, from a lecturer to a moderator, is of utmost importance, and emphasizes the importance of using interactive methods of learning in order to develop entrepreneurial competences by pupils and students. The European Commission (2008), conducted a research where teachers were asked to indicate teaching methods which are adequate for gaining of entrepreneurial competences through study programmes and courses. The results of the research point at using teaching methods based on team work when creating new business ideas as well as the method of case study. The methods like business plans, inviting visiting lecturers from the world of entrepreneurship, simulation of business situations, practical entrepreneurial skill and brainstorming were mainly not used. Mitra (2008) indicates several methods (*hands-on* methods, creative techniques, case studies, communication training, role playing, business plan writing, development of interpersonal skills, team work, inviting entrepreneurs as well as various practical teaching methods) whereas Wilson (2008) indicates experiential learning, cases from the real world entrepreneurship, project work and writing of internal job competitions.

## **2. Learning for gaining entrepreneurial competence in Eastern Croatia**

The basis of solving the problem of slow economic development in Eastern Croatia is competitiveness. The premise is creating terms for development of entrepreneurial spirit of every individual by means of initial and lifelong learning starting at an early age (Tafra, 2011). The Faculty of Economics in Osijek recognized this need by introducing master's degree programme in entrepreneurship in 2000 and it ensured entrepreneurship researchers, as well as a teacher, who are today teaching entrepreneurial competences (Singer, Delić, 2011). The above mentioned proves the need of early gaining of entrepreneurial competence at preschool, primary and secondary school level of education, which has been implemented at all levels of education by projects in recent years, connected with institutions of higher learning and economy. The fact how important is education for gaining of entrepreneurial competence can also be seen in the strategies, programmes and legal acts of The Ministry of Entrepreneurship and Crafts as a wider concept which assumes creating of possibilities for development of entrepreneurial competences starting at the lowest educational level through formal and informal education and learning. The need for lifelong education and training for entrepreneurial competences are mentioned in the following documents: Poduzetnički impuls [The Entrepreneurship Impulse] 2015, Program poticanja poduzetništva i obrta [The Programme of Entrepreneurship and Crafts Stimulation], Strateški plan Ministarstva poduzetništva i obrta [The Strategic Plan of The Ministry of Entrepreneurship and Crafts] 2015 – 2017, Strategija razvoja poduzetništva u Republici Hrvatskoj [The Strategy of Entrepreneurship Development in the Republic of Croatia] 2013 – 2020 and Strategija učenja za poduzetništvo [The Strategy of Learning for Entrepreneurship] 2010 – 2014 (The Government of the Republic of Croatia, 2010). The core document of the educational system in the Republic of Croatia, adapted to European standards and educational paradigms, is *Nacionalni okvirni kurikulum za predškolski odgoj i obrazovanje te opće obvezno i srednjoškolsko obrazovanje 2011*. [The National Framework Curriculum for Preschool Education and General Compulsory and Secondary School Education 2011], with the emphasis on competence system and students' achievements as learning outcomes at the end of every cycle of education. As core learning outcomes The Document mentions eight competences, among which initiative and enterprising spirit competence is being emphasized, and it is being defined as the capability of an individual to turn ideas into action and it is the basis for gaining of specific knowledges, skills, abilities and opinions needed for starting social and market

actions. In *Strategija obrazovanja, znanosti i tehnologije* (2014) [The Strategy of Education, Science and Technology], The Republic of Croatia recognizes education and science as its developmental priorities, the only ones being able to bring about longterm social stability, economic development and cultural identity, and foremost in the creation of an innovative society and the economy adaptable to future challenges.

### **3. Entrepreneurial competence and learning outcomes**

The starting point in curriculum planning based on learning outcomes is competence determining of graduates (Lončar-Vicković, Dolaček-Alduk, 2010). The term competences implies knowledges, skills and opinions which enable an individual to do some work. Competences represent a combination of knowledge and its application ( skill ), opinions and responsibilities which are being described by learning outcomes of educational programme. Key competences one should acquire through education are the ones which give an individual basis for life and work. They imply professional and technical competences, social and individual skills, which enable people to work in a group, as well as success and happiness in life. The countries of The European Union recognize key competences from the following fields as their common goals of compulsory education system and professional training in the field of economics based on knowledge: functional literacy in mother tongue and foreign language, numerical literacy, information and communication technology competences, entrepreneurship, mathematics and natural sciences, interpersonal and social competences, learning for learning and general knowledge (2003). The learning outcome Lončar-Vicković and Dolaček-Alduk (2010) define as group of abilities describing what a student will know, understand or be able doing after finishing educational process. New approaches to educational process highlight the competences a student will have after completing a study programme. By acquiring of defined learning outcomes through process of studying, a student develops and acquires competences needed for employment. Students develop competences during learning process. Learning outcomes represent one of the bases for transparent higher education and higher education qualifications. They are applied at three levels: (1) local level at some institutes of higher learning; (2) national level through qualification framework and quality maintenance systems; (3) international level for wide programme recognition and their transparency. Learning outcomes are important for providing information to potential students and employers as well on knowledge and understanding level a graduate will have after graduation. The aim of this work is the analysis of study programmes of six faculties, parts of J.J. Strossmayer University of Osijek as well as to determine learning outcomes, knowledges, skills and course goals oriented towards gaining of entrepreneurial competences.

### **4. The method**

The method of data collection concerning existence of entrepreneurial competences in the existing executive study programmes at the chosen Faculties (6), parts of J.J. Strossmayer University of Osijek for academic year 2014/15 was content analysis of certain courses within the existing executive study programmes. Through web pages of the chosen Faculties there were gathered publicly accessible data on learning outcomes and goals of certain courses at the Faculties. On basis of gathered information it was created a database containing the following information: name of the faculty, name of the study programme, total number of courses, courses by goals and learning outcomes oriented towards gaining of entrepreneurial competences. Subsequently there were analyzed learning outcomes, goals, knowledges and learning skills of each course, thereby establishing which courses are oriented towards gaining entrepreneurial competences. Applying the method of descriptive statistics, subsequently it was made a comparative analysis.



## 5. The results of the research

Representation of entrepreneurial competence in learning outcomes, knowledge and course goals at graduate and undergraduate study programmes of the chosen faculties of J.J. Strossmayer University of Osijek are shown in tables (1-6) and qualitatively interpreted, and finally, the results are compared.

**Table 1** The Faculty of Electrical Engineering in Osijek - courses oriented towards gaining of entrepreneurial competences in executive study programmes

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
UNDERGRADUATE STUDY PROGRAMMES	Electrical Engineering	30	5
	Computer Science		
GRADUATE STUDY PROGRAMMES	Communications and Informatics	41	5
	Electrical Energy Studies	41	8
	Data Processing Computer Science	19	2

Source: <http://www.efos.unios.hr/studiji/sveucilisni-preddiplomski-studij/>, retrieved on 11.2.2015. and <http://www.efos.unios.hr/studiji/sveucilisni-diplomski-studij/>, retrieved on 7.2.2015.

By analysis of goals and learning outcomes in the courses of study programmes at The Faculty of Electrical Engineering it was determined which courses were oriented towards gaining entrepreneurial competences according to their goals and outcomes. At undergraduate study programmes of Electrical Engineering and Computer Science, in five (5) out of 30 analysed courses there were identified by analysis knowledges and skills concerning training for concrete problem solving, successful application in engineering practice and concrete application.

At graduate study programmes of Electrical Engineering and Computer Science ( graduate programmes Communications and Informatics, Electrical Energy Studies and Data Processing Computer Science ) there were analysed in total 101 courses, goals and learning outcomes oriented towards gaining entrepreneurial competences being: stimulation of entrepreneurship, gaining of project leading skills, preparation for lifelong learning and use of the learned as a tool in application, practical skills, application of technology in the field of entrepreneurship, gaining abilities for independent work as well as team work. Management, a compulsory course for all students of graduate study programmes, enables students to get to know all elements of company management, application of technical knowledge as well as ability for independent entrepreneurship and running a company or single organization units.

**Table 2** The Faculty of Economics in Osijek - courses oriented towards gaining of entrepreneurial competences in implementation study programmes

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
UNDERGRADUATE STUDY PROGRAMMES	Financial Management	37	17
	Marketing	38	19
	Management	39	18
	Entrepreneurship	38	24
	Business Informatics	39	20
GRADUATE STUDY PROGRAMMES	Financial Management	22	6
	Marketing	21	10
	Management	26	12
	Entrepreneurship	39	39
	Business Informatics	-	-

Source: <http://www.efos.unios.hr/#>, retrieved on 7. 2. 2015.

At The Faculty of Economics there were analysed goals and learning outcomes of the courses accessible at web sites and brochures containing the information about undergraduate and graduate study programmes. Study programmes of The Faculty of Economics offer 147 courses oriented towards gaining of entrepreneurial competences. The analysis doesn't include facultative courses of study programmes, because there are no information in the above mentioned brochures about the goals of these courses, nor does it include courses of graduate study programme Business Informatics, for which there are no information in the accessible used brochures. At undergraduate study programme there are 27 compulsory courses, 12 of which are by their goals and learning outcomes oriented towards gaining of entrepreneurial competences as follows: abilities of doing research in the field, developing and application of knowledge which will be used in practice, learning of economic and critical way of thinking, creating professional thinking, getting to know problems concerning development of entrepreneurial capacity, showing practical examples in the form of seminar papers. At the undergraduate study programme Financial Management, in the compulsory and facultative courses occur goals and learning outcomes oriented towards gaining of entrepreneurial competences: training for understanding of financial statements from the position of management, learning the importance of decision making in a company, creating professional thinking when analysing financial reports of entrepreneurs and independent organization and application of information technologies in practice. At the undergraduate study programme Marketing in the compulsory and facultative courses as goals and learning outcomes by which are gained entrepreneurial competences it is being mentioned acquisition of knowledges which will be applied in practice connected with various fields of marketing. At the undergraduate study programme Management in the compulsory and facultative courses of the graduate programme, entrepreneurial competence is being oriented by means of inviting famous economists as visiting lecturers, discussion about business processes, sensibilization of students to necessary factors which are to be paid attention to in the business environment, understanding of different methods when solving complex business problems and increase of individual productivity. At the undergraduate study programme Entrepreneurship all the compulsory and facultative courses of the graduate programme have these goal and learning outcomes: understanding of entrepreneurial organization culture through cases of good and bad examples of business systems, gaining of decision making skills, rationalization of decisions, problem solving, stimulation to search for individual sales style, understanding of importance of entrepreneurial strategy choice with the aim of achieving various goals. At the undergraduate study programme Business informatics the goals and outcomes stimulating entrepreneurial competence are as follows: to enable connecting of economic knowledges with skills for new conditions of economy and society management, to learn how to increase the quality of managerial decisions, to develop specific knowledges concerning systematic analysis of business structure.

At the graduate study programme Financial Management, in six (6) courses are mentioned goals stimulating entrepreneurial competences: to teach students economic feasibility of investment, acquisition of professional skills and knowledges concerning the complexity of tax system, the knowledge which can be used when making good business loan decisions, creating professional opinion about balance sheet, understanding different methods when solving complex financial problems. At the graduate study programme Marketing ten (10) courses are oriented towards gaining of entrepreneurial competence by their goals and outcomes: acquisition of knowledge about possibilities of business cooperation between economic subjects, development of knowledge about the factors which determine competitiveness of a company, mastering the knowledge how to manage a company by means of quality management, acquisition of specialist knowledges about ways of implementation of marketing strategies in economic subjects. At the graduate study programme Management there are twelve (12) courses having goals and learning outcomes oriented towards gaining of entrepreneurial competence: knowledge and skills enrichment about management and entrepreneurship, which knowledges and skills could be made use of as independent carriers of entrepreneurial activity or as parts of some organization, examples of functioning of different development stage companies, knowledges about risk protection in order to

avoid ruin of a company, developing of students' entrepreneurship sensibility. At the graduate study programme Entrepreneurship all the courses are oriented towards gaining of entrepreneurial competence by their goals and learning outcomes, with emphasis on knowledge acquisition which will enable a student to be an entrepreneur and understand the growth process of a business venture based on knowledge and innovations i.e. to be trained to run business systems with growth potential.

**Table 3** The Faculty of Education - courses oriented towards gaining of entrepreneurial competences in implementation study programmes

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
INTEGRATED UNDERGRADUATE AND GRADUATE UNIVERSITY STUDY PROGRAMME	Teacher Education	123	8
UNDERGRADUATE STUDY PROGRAMME	Early Childhood and Preschool Education	58	0
GRADUATE STUDY PROGRAMMES	Early Childhood and Preschool Education	22	1

Source: [http://web.foozoh.hr/index.php?option=com\\_content&view=article&id=62&Itemid=255&lang=hr](http://web.foozoh.hr/index.php?option=com_content&view=article&id=62&Itemid=255&lang=hr), retrieved on 3.2. 2015

By learning outcomes analysis in the courses (123) of implementation study programme Integrated undergraduate and graduate university study programme of Teacher Education for academic year 2014/15 of The Faculty of Education, eight (8) courses have goals and learning outcomes oriented towards gaining of entrepreneurial competence: acquisition of theoretical/methodological framework for validation of different pedagogies, concepts or projects concerning developmental needs of an individual, the demands of society and labour market, knowing specific nature of team work, capability of decision making and ability of deciding, capability of adjusting to new and unexpected situations, to plan and understand the importance of research work based on partner relationship, independent writing of an application- business letter, abilities of interpersonal communication in private and business communication, self-regulated learning for the needs of lifelong development, willingness to pass thoughtful and founded decisions.

Learning outcomes analysis in the courses (58) of the undergraduate study programme Early Childhood and Preschool Education showed no visible goals and learning outcomes connected with gaining of entrepreneurial competences. When analysing the courses (22) of the graduate study programme Early Childhood and Preschool Education, one course (1) shows visible goals and learning outcomes connected with gaining of entrepreneurial competences: strategic planning, operative planning, network planning and decision making.

**Table 4** The Faculty of Civil Engineering Osijek - courses oriented towards gaining of entrepreneurial competences

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
UNDERGRADUATE STUDY PROGRAMME	Civil Engineering	52	0
GRADUATE STUDY PROGRAMMES	Hydrotechnics	42	2
	Bearing Structures	42	2
	Organization, Technology and Management of Construction	42	5
	Transportation Facilities	42	2

Source: <http://www.gfos.unios.hr/portal/index.php/nastava/studiji.html>, retrieved on 13.3. 2015.

By analysis of the courses (52) at the undergraduate study programme Civil Engineering there are no courses which would be oriented towards gaining of entrepreneurial competences by their goals and learning outcomes. By analysis of the courses at graduate study programmes Hydrotechnics, Bearing Structures and Transportation Facilities there were found two courses (2) oriented towards gaining of entrepreneurial competences by their goals and learning outcomes: mastering all marketing activities in order to, having technical skills and competences, be able to deal also with commercial domain in their professional career successfully, marketing mix, distinguishing between operation expenditures and end expenditures market, research and positioning at the market, implementation of marketing strategy, understanding the importance of all aspects of capital, capital inflow and capital outflow and time money value, making investment, financing and stock decisions, analysis of basic financial reports, feasibility evaluation of investments, analysis of basic investment principles. The graduate programme Organization, Technology and Management of Construction (42) by its very name points to orientation towards gaining of entrepreneurial competences with five (5) courses in total with corresponding goals and outcomes: construction projects organization and management, investment projects management, preparation of tender documents, learning the factors for calculation of unit price, calculation of offer prices for construction works, company management.

**Table 5** *The Faculty of Agriculture in Osijek - courses oriented towards gaining of entrepreneurial competences in implementation study programmes*

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
UNDERGRADUATE STUDY PROGRAMME OF AGRICULTURE	Agricultural Economics	32	7
	Plant Production	33	1
	Horticulture	32	1
	Mechanization	31	0
	Zootechnics	32	0
GRADUATE STUDY PROGRAMMES	Agricultural Economics	10	1
	Plant Production	40	0
	Organic Agriculture	10	0
	Mechanization	10	0
	Zootechnics	30	0
	Vegetable Growing and Floriculture	10	0
	Fruit Growing, Viticulture and Enology	10	0

Source: <http://www.pfos.unios.hr/index.php/studiji>, retrieved on 5.3. 2015.

At the undergraduate study programme of agriculture graduate programme Agricultural Economics, seven (7) courses out of economics subject group have goals and learning outcomes oriented towards gaining of entrepreneurial competences: acquisition of managerial knowledges and skills aimed at successful organization of plant and animal production, preparation of a financial plan, analysis of company business or production, independent entrepreneurial behaviour, planning and entrepreneurial farm management. At the undergraduate study programme of agriculture graduate programme Plant Production, one course (1) shows goals and outcomes for gaining of entrepreneurial competences: practical examples for solving of plant production problems. At the undergraduate study programme of agriculture graduate programme Horticulture one course (1) stimulates entrepreneurial competences by its goals and learning outcomes: marketing process management in horticulture. The undergraduate study programme of agriculture graduate programmes Mechanization and Zootechnics don't have goals and learning outcomes connected with entrepreneurial competences.

At the graduate study programmes no facultative moduls were analysed. At the graduate study programme Agricultural Economics one course (1) has goal and learning outcomes for stimulation of entrepreneurial competences.

The graduate study programme of agriculture graduate programme Plant Production has four (4) specializations ( Plant Production, Plant Nutrition and Soil Science, Plant Breeding and Seed Science and Plant Protection ) with 40 courses in total where no goals and learning outcomes connected with entrepreneurial competences are visible. The situation is the same at other graduate study programmes: Zootechnics ( specializations: Nutrition of Domestic Animals, Hunting and Apiculture and Special Zootechnics ), Vegetable Growing and Floriculture and Fruit Growing, Viticulture and Enology.

**Table 6** *The Faculty of Food Technology Osijek - courses oriented towards gaining of entrepreneurial competences in implementation study programmes*

THE NAME OF STUDY PROGRAMME		TOTAL NUMBER OF COURSES	COURSES-ENTREPRENEURIAL COMPETENCES
UNDERGRADUATE STUDY PROGRAMMES	Food Technology	40	1
GRADUATE STUDY PROGRAMMES	Food Engineering	38	2
	Process Engineering	24	2
	Food Science and Nutrition	34	1

Source: <http://www.pfos.unios.hr/index.php/preddiplomski>, retrieved on 27. 2. 2015. and <http://www.pfos.unios.hr/index.php/diplomski>, retrieved on 28. 3. 2015.

At the undergraduate study programme of Food Technology out of 40 analysed courses in total, only one course (1) stimulates gaining of entrepreneurial competences by its goals and learning outcomes: to define management, to describe main managerial functions as well as code of ethics in company management, to define and describe management in the field of food industry, to define the term brand as well as to mention the steps in its making, to define administrative marketing as well as to define and to adopt the methodology of S.W.O.T. analysis.

At the graduate study programme Food Engineering out of 38 analysed courses two courses (2) are connected with gaining of entrepreneurial competences by their goals and learning outcomes: to define basic skills, role and function of a company's management and to analyse business performance of a company, to interpret properly and to distinguish between legal regulations concerning technological design and food engineering. At the graduate study programme Process Engineering two courses (2) contain goals and learning outcomes stimulating entrepreneurial competence: to analyse possible project solutions connected with process ecological engineering as well as to define project task. At the graduate study programme Food Science and Nutrition out of 34 analysed courses, one course (1) has goals and learning outcomes connected with entrepreneurial competence.

## 6. Discussion

The aim of this work was to determine learning outcomes, knowledges, skills and course goals oriented towards gaining of entrepreneurial competences by analysis of study programmes of six faculties, parts of J.J. Strossmayer University of Osijek. The analysis results show that in the analysed study programmes of six faculties, parts of J.J. Strossmayer University of Osijek, it is being very little stimulated gaining of entrepreneurial competence by their goals and learning outcomes, except at the Faculty of Economics, and to much lesser extent at the Faculty of Electrical Engineering. At other four faculties in their study programmes a very little number of courses is oriented towards gaining of entrepreneurial competence by their goals and learning outcomes. As one of eight key competences of the Council of Europe, entrepreneurial competence hasn't fully been worked out and implemented into study programmes. As could be expected, the exception is the Faculty of Economics in Osijek having 98 courses at five undergraduate study programmes and

49 courses at five graduate study programmes which are oriented towards gaining of entrepreneurial competence by their goals and learning outcomes. Considering the fact that by starting the doctoral study programme Innovation and Entrepreneurship in 2010, the Faculty of Economics at J.J. Strossmayer University of Osijek has become the only institution of higher learning in Croatia having the whole vertical of higher education for entrepreneurship ( from undergraduate, graduate, specialist to doctoral level ). Furthermore, the Faculty of Economics offers 165 courses in total being connected with entrepreneurial competences. The share of courses containing goals and learning outcomes oriented towards gaining of entrepreneurial competence in the total number of courses by individual graduate programme of study programmes at the Faculty of Economics is ranging from 27,27% to 100%, and the average share taking into consideration all graduate programmes of study programmes equals 53,60%. At the Faculty of Electrical Engineering the share of courses containing goals and learning outcomes oriented towards gaining of entrepreneurial competence in the total number of courses by individual graduate programme /study programme is ranging from 10,53% to 19,51%, and the average share taking into consideration all graduate programmes of study programmes equals 15,12%. The Faculty of Electrical Engineering in Osijek offers 20 such courses, which points to the fact that they are aware of the need for entrepreneurial contents. The Faculty of Civil Engineering in Osijek offers 11 such courses in total. The share of courses containing goals and learning outcomes oriented towards gaining of entrepreneurial competence in the total number of courses by individual graduate programme of study programmes at the Faculty of Civil Engineering is ranging from 0 to 11,6%, and the average share taking into consideration all graduate programmes of study programmes equals 5,4%. The graduate programme Organization, Technology and Management of Construction stands out with the share of 11,90%, which prepares students for construction projects organization and management, investment projects management, preparation of tender documents, learning the factors for calculation of unit price, calculation of offer prices for construction works, company management. The Faculty of Education offers nine courses in total by which are gained entrepreneurial competences with the average share of courses by individual study programme in the amount of 3,68%. It is certainly recommendable to introduce more of such courses, considering the fact that The National Framework Curriculum gave a formal framework to educational institutions ( kindergartens, primary and secondary schools ) to include entrepreneurship learning as an inter-subject topic into existing curricula. Entrepreneurial competence is referring to students' development as enterprising, creative and independent individuals willing to take changes and assumption of risk, i.e. as individuals with developed social and communicative skills and basic knowledges in the field of economy and trades as well as running business ( NOK, 2010). The Faculty of Agriculture in Osijek offers ten courses with the average share of courses by individual study programme in the amount of 3,17%. The exception is undergraduate study programme of agriculture, the graduate programme Agronomics with the share of courses in the amount of 21,88%. A part of the courses from economic group have as their goal creating of entrepreneurial competences relating to gaining of managerial knowledges and skills aimed at successful plant and animal production organization. Also, having taken the courses, students are able to prepare a financial plan, to analyse business of certain company or product production, but most importantly, they will be trained for independent entrepreneurial behaviour, planning and entrepreneurial farm management. The Faculty of Food Technology offers six such courses, mostly oriented towards business management. The average share of courses by individual study programme equals 4,76%.

## **7. Conclusion**

By implementation of entrepreneurial education as well as training into higher education curricula, students will be enabled to find first job faster by interaction with the society, based on gained knowledges, skills and opinions through their education, and the time of their working environment introduction and adjustment will be much shorter. The experiences of highly developed economies of the European Union and the USA stimulate such attitudes. Certain higher schools and faculties,

being aware of the need for entrepreneurial contents, are introducing more facultative subjects and modules having economic and entrepreneurial contents. The aim of this work was to initiate further entrepreneurial education and training researches in order to get continuous insight into knowledges, skills and opinions of higher education population which represents future enterprising work force and future entrepreneurs of the Republic of Croatia. Also, it is necessary to stimulate all relevant institutions/factors participating in creation of educational policy, in order to pay adequate attention to learning and training for entrepreneurial competence for the purpose of successful development of economy and the whole society.

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## **DEVELOPMENT OF HUMAN RESOURCES THROUGH MANAGING TEAMS AND DECISION GROUPS**

### **RAZVIJANJE LJUDSKIH POTENCIJALA KROZ RUKOVOĐENJE TIMOVIMA I GRUPAMA ZA ODLUČIVANJE**

#### **ABSTRACT**

*Team work dates back to ancient times and even nature itself has organized the life on Earth in a way that quality life requires team work. Throughout the years team work has evolved as well as the meaning of an individual in an enterprise. In the early 80s a new method was developed for considering the role of human potential in everyday's work. People became the basic capital of an enterprise and not just a mean for performing certain productive process. People also became an investment which needs to be developed and invested in for the purposes of achieving better results and making the investment more profitable. Teams are mostly formed for developing and creating something new and better. Furthermore, there is always a possibility of negative connotation, i.e. rivalry and different ambitions, which may lead to complete collapse in work, so that is why teams should be carefully built and not just arbitrarily assembled. The aim of this paper is to show the importance of teams in modern bustling life, the influence of team work on an individual, advantages and disadvantages of team work and how to make teams more successful. In addition, this paper will point out some techniques for quality management of teams and decision groups.*

**Key words:** Human resources, Team, Groups, Management, Team success

#### **SAŽETAK**

*Timski rad potječe još izdavnina, a sama priroda postavila je stvari tako da je za kvalitetan suživot na Zemlji potreban zajednički rad. Tokom godina timski rad je evaluirao isto kao i samo značenje čovjeka u poduzeću. Ranih 1980-ih razvila se nova metoda sagledavanja na ulogu ljudskih potencijala u svakodnevnom radu. Ljudi su postali temeljni kapital poduzeća, a ne više samo sredstvo obavljanja određenih poslova. Postali su investicija koju valja razvijati te u koju je*

*potrebno ulagati da bi dala što bolje rezultate i postala rentabilna. Timovi se prvenstveno formiraju radi stvaranja i razvoja nečega novog te nečega boljeg. Isto tako uvijek postoji mogućnost negativnih konotacija, odnosno suparništvo i različite ambicije koje mogu dovesti do potpunog kolapsa u radu, stoga je tim potrebno pažljivo, a ne proizvoljno graditi. Cilj ovog rada je ukazati na važnost timskog rada u današnjoj užurbanoj svakodnevici, njegov utjecaj na pojedinca, njegove prednosti i nedostatke te kako ga učiniti što uspješnijim. Također, ukazati će se na kvalitetne načine rukovođenja timovima i grupama za odlučivanje.*

**Ključne riječi:** *Ljudski potencijali, Tim, Grupe, Menadžment, Timska uspješnost*

## **1. Introductory considerations**

Recently, in modern organizations we observe an increase in the introduction of teamwork with an aim of increasing the efficiency of the entire organization (Kuničić-Posinković, 2003). Teamwork is the most widespread form of performing complex professional tasks whose achievement requires either knowledge from different professional areas, or specialized knowledge in the same or similar professional areas (Kobolt, Žižak, 2006). Successful or super-summative teams are teams that have clear general and specific goals, open communication, and strive towards constructive problem solving (Miljković and Rijavec, 2007). Their results in combination with their creativity surpass the mean expectations and thus create a contribution to the organization. Such teams are profitable and generate benefits for the company.

Objectives of the company must be clear and understandable, and the emphasis should be on "what needs to be achieved", not "what should be done". It is also important that the goals are measurable and that they are not too demanding or too easy in order to create a motivation to achieve them. In a good team there is no place for disregarding opinions and exchange of information and open communication are implied. Differences in opinions and viewpoints are welcomed. The team leader is expected to provide *feedback* in order for teams to know where they stand, in which stage are they and what the next move towards goal achievement is. Successful teams are made of competent people with the necessary professional and interpersonal skills (Bahtijarević-Šiber, Sikavica and Pološki Vokić, 2009). Without the necessary knowledge it is not possible to reach concrete and required answers. Emotional intelligence is lately increasingly mentioned as an important factor affecting the performance of the team as well as for the realization of the interconnectedness and trust among team members.

### **1.1. Team success factors**

Nowadays, organizations are constantly looking for successful ways of conducting business operations in order to cope with competition and complexity of new ways of working and new technologies. Economic and sociological developments have influenced the development of new strategies to improve the quality of work. Never before in the history of the working process model was teamwork so important for the functioning of successful organizations as today. The research results show that the introduction of teams in organizational structure leads to increased efficiency and quality of work (West, 2005). Hence the great interest to determine the factors that affect the efficiency of team work (Kuničić-Posinković, 2003)

The first item that is needed for a team to be successful is **team cohesion**. Cohesion indicates the degree of commitment of members of the team and demonstrates the strength of relationships among team members. Cohesion is easier to achieve in small teams because of better and easier interaction. Highly cohesive groups have a high degree of togetherness and unity. The result of team cohesion can be seen through team morale and team effectiveness. Morale is certainly higher in cohesive teams because of friendly climate, team member loyalty, and increased interaction (Kuničić-Posinković, 2003). The degree of efficiency depends on several factors. Older studies

suggest that the efficacy of some cohesive teams was considerably lower than the efficiency of non-cohesive ones. The reason stems from the fact that efficiency in cohesive teams depends on the norms that team members have mutually adopted. Team members can adopt high or low norms of efficiency and that influences the level of efficiency (Kuničić-Posinković, 2003). Recent results indicate a significant association between team efficiency and cohesion, and that the direction of influence is stronger when the results demonstrate the cohesiveness, rather than when the degree of cohesion provides us with conclusions regarding the efficiency (Kuničić-Posinković, 2003). The final conclusion is that cohesion does not necessarily lead to greater efficiency of the team. It is known that small teams are more cohesive than large teams because of the greater degree of interaction, close contact and easier communication. Furthermore, homogeneity of members is very important for achieving cohesion, because members who share the same hobbies, interests and values can achieve common results more easily. Team diversity promotes better ideas and different analysis of the problem. Achieving balance in diversity management favors the development of cohesion within the team.

The next item that is essential in building a successful team is **team size** itself. Ideal team size is considered to be between three and six members, to a maximum of seven (Tudor and Srića, 1996). The more people are involved in teamwork, the greater are the differences, there are communication problems, it is harder to reach a consensus, which results in a lack of ideal solutions. Also, a sense of belonging to the group decreases with an increase in the number of members. People are more satisfied in small groups, so a team of five people can achieve a much higher rate of agreement than a team that has twenty members. In larger groups members who are quiet and shy do not have a chance to prove themselves, and do not present their ideas sufficiently. Small teams are much more coherent, much more precise in expressing; they generate better ideas and ask more questions. Smaller teams strive more towards creating an intimate and informal relationships. In small teams there is no room for misunderstanding. Small teams usually have between two and four members, while a large team consists of more than twelve members. It is not possible to specifically identify which team size is more suitable. It all depends on the type of problem that is being solved. If we want to design a new promotional campaign for a particular product then larger team would be a better solution (over 10 members) to generate a large number of ideas. For performing specific business tasks, more convenient solution is a small group, because of easier communication. Therefore it is possible to conclude that large groups are used for research and creative tasks, while smaller groups are used for implementing tasks (Tudor and Srića, 1996).

**Team norms** must exist and team members need to respect them in order for a team to be harmonious. Team norms are rules of conduct adopted by all members of the team and they must be respected. The team manager is obligated to monitor compliance with the rules and put pressure on each of the members if they are not respecting the set norms. Team manager usually sets the norms in accordance with his / her personal attitudes and values. Failure to comply with the norms by the team members can lead to punishment and often can cause expulsion from the team in the case of major disagreements. It is possible that some team members refuse to comply with set rules because of their personal attitudes and opinions regarding a certain problem. The consequences for violating the rules and norms must be clearly defined and have to be strictly implemented without exception, thus providing an example to all team members.

Norms have a functional nature and are much related to the functioning of the team itself and the realization of the goals that are set before the team, but they even more dictate the relationships within the team, and even the power structures (Ekonomista, 2012). The norms regulate the internal life of the team and prescribe the most important issues for the proper functioning of the team. Adoption of the norms by team members is diverse, some of them follow and accept them fully, while others resist and try to work around them. Thanks to the norms the behavior of team members can sometimes be predictable, making it easy to work in a team and leaves no room for

misunderstandings and misperceptions. The primary task of norms is to prevent potential conflicts using a set of default rules. Norms are usually developed over a long period of time, and after they are defined and accepted by all team members the team can begin to perform tasks and seek to achieve the very goals for which the team has been created. Norms apply only to the behavior of team members, not their opinions and feelings (Bahtijarević-Šiber, Sikavica and Pološki Vokić, 2009). The most important are working norms and interpersonal behavior norms (Sikavica, Bahtijarević-Šiber and Pološki Vokić, 2008).

Today **emotional intelligence** is becoming a very important factor of success. Although emotional intelligence is considered to be an individual intelligence, recently group emotional intelligence is mentioned more and more and it is essential for team success. Positive emotional relationships contribute to better cohesion and team collaboration, while negative relationships lead to social distance and contribute to the development of antagonisms. A positive emotional climate is an indicator of a good team and a favorable condition for the improvement of team work. The level of expressing emotions depends on team size and type.

The last important factor in building a successful team is **overcoming conflicts** within the team. The conflict within the team does not have to be something bad in itself. If a conflict is held under control it can actually produce beneficial results. According to the definition, a conflict is a form of confrontation between two or more parties due to disagreements regarding the objectives, desires, interests, feelings, or practical actions (Tudor and Srića, 1996). Conflicts are fully natural and can promote creativity and innovation in specific tasks if they are kept under control and if they are not allowed to escalate into physical confrontations. If there is a fierce verbal, perhaps even physical attack, the effectiveness of the team is certainly reduced and very important good communication is violated. Conflicts can be allowed up to a certain limit. If you let the relationships within the team to "boil" (West, 2005), negative connotations will arise and "kill" team's harmony and chemistry. Negative impacts of conflict are clearly obvious.

The existence of discontent, apathy and tension prevents the successful team's performance and hampers or even regresses the achievement of goals. Team leaders are responsible for combating the impact of conflicts on team work. Positive effects of the conflict on the team can be of great benefit. They can lead to a detailed analysis of each problem and to articulating all existing versions of solutions to problems. Once the conflict is resolved, the team can develop even a stronger cohesion and mutual understanding and relationships within a team can even improve.

#### 1.1.2. Motivation in the team

Motivation plays a crucial role in the use and development of human resources towards their guidance on achieving team goals and the goals of the organization itself, retaining quality people, increasing satisfaction and quality of working life and the elimination of all forms of counterproductive behavior which reduces team performance. Motivation encourages team members to do their job the best way possible, therefore it is necessary to properly build a motivational system in a team which will benefit the team members and the employer. Characteristics of unmotivated team member employees are: lower productivity and job performance, lack of interest in quality of products and services, lack of sense of belonging to the team and to the organization, lack of interest for the problems of the team and the organization and lack of interest for the development and success. Basic requirements for the motivation of the team are: good working conditions, clearly explained mission of the organization, giving goals to the team, knowing each team member by name, promoting the identity of the team, sharing success, ensuring positive thinking within the team, assigning motivational leaders and praising the effects, rather than performers (Jurina, 2009).

Motivating using criticism or competition without de-motivation is possible within a team by: firstly you determine the correct time to motivate, then discuss the subject in private, letting the person / team know that he / she is valued, looking the person / team members in the eyes, only saying the truth, criticizing the behavior of the person and not the person itself / team, good confirming good qualities of the person / team and setting the date of follow-up interview (Jurina, 2008). Team leaders and the top of the organization must be up to date with modern methods of motivating and apply them regularly on their employees, thus creating a challenge and encouraging greater involvement in performing certain tasks. Not every motivational factor is appropriate for each employee.

People differ in their characteristics so it is necessary to recognize which are the needs and desires of the individual team members. Psychologist Abraham H. Maslow described five groups of needs that characterize human behavior. Physiological or existential needs are basic needs for satisfying the biological urges. Creating a pleasant working atmosphere, exercising half-hour lunch break and short coffee break during the day for each employee means a lot in gathering energy to overcome daily tasks. The need for protection and security are the needs of every man, every organization, institution, including the state (Nierenberg and Ross, 2005). We all like to feel secure in what we have, for some that is their job, for some are their assets, and to some that are their friends, in any case, that is something you do not want to lose. The need for love and belonging is very important in the business world, not just the private one. The greater the sense of belonging to a particular company is, the greater is the desire of employees to stay there and to contribute with their work. Such employee is much more motivated and more productive than he / she would be if he / she felt alienated and rejected by its peers. The need for respect and status is largely associated with the need for love and belonging. The need for respect applies to what we think of ourselves and our experience of what others think of us (Nierenberg and Ross, 2005). This includes the need for recognition of competence to perform certain tasks and skills for the same, including the respect of others i.e. peers and also responsibilities and achievements. When there is no respect and in the case of disrespecting someone's dignity, team's atmosphere can be significantly damaged. The need for self-realization or self-actualization refers to realization of our ambitions and fulfillment of all our potentials. If the team achieves worse results than expected, the cause can be unattractive goals and erroneously assigned roles to individual team members who are not motivated enough because of highly monotonous and boring tasks.

## **2. Research**

For the purposes of this study questionnaire titled "Team effectiveness – development of an audit questionnaire" drafted by Bateman, Wilson and Bingham was used for the analysis of team effectiveness. The questionnaire consists of 44 questions and is divided into six different topics:

- Synergy in a team (the sense of belonging shared by team members)
- Common goal (the existence of clearly defined goals and targets set for teams and whose execution is constantly monitors)
- Skills (expertise of the team members, competence in performing the work, and flexibility)
- Work material utilization (all working materials, including buildings and equipment are used to increase the maximum effect)
- Innovation (search for ways to improve productivity and operating modes)
- Quality (degree of familiarity with the clients' needs and with standards for monitoring their satisfaction)

The study was conducted between the employees of one enterprise in Croatia. The questionnaire involved 32 respondents who work exclusively in the team. Since the study was carried out in only one company there was no interference of different environment, and only one organizational culture is included. The purpose of the research was to investigate the perception of the success of

the team by employees of different characteristics. Results were obtained using SPSS statistical software for data processing.

**Table 1** Sample description

CATEGORY		N	%
<b>Gender</b>	male	15	46,9
	female	17	53,1
<b>Age</b>	>25 years	3	9,4
	25-30 years	8	25,0
	31-40 years	8	25,0
	41-50 years	7	21,9
	<50 years	6	18,8
<b>Educational level</b>	basic qualification	0	0,0
	secondary	12	37,5
	bachelor	8	25,0
	graduate	12	37,5
	postgraduate	0	0,0
<b>Field of work</b>	transportation	6	18,8
	sales	9	28,1
	marketing	6	18,8
	quality control	8	25,0
	management	3	9,4
<b>Type of employment contract</b>	fixed-term	4	12,5
	indefinitely	28	87,5
<b>Working experience at current organization</b>	1-6 years	12	37,5
	7-13 years	7	21,9
	14-19 years	5	15,6
	>19	8	25,0
<b>Satisfaction with salary</b>	unsatisfied	5	25,0
	neither satisfied nor dissatisfied	18	56,3
	dissatisfied		
	very satisfied	6	18,7

Source: Authors work

Table 1 shows the profile of respondents in a selected company. According to gender women dominate, but very slightly. According to age they are most between 25-40 years. According to education, most of them are with secondary and graduate education. Most of the respondents work in sales and have indefinite contract. There is a domination of people who are not long employed in a selected company and have only 1-6 years working experience. As for the salary satisfaction most of them are neither satisfied nor dissatisfied.

## 2.1. Analysis of the case study

Case study presents the connection and significance between "fields of work" and variables that are relevant for assessment teamwork. The study aims to measure how much the success of teams depends on the nature of the work, and how much successful are teams in different areas of work.

**Table 2** Statistically significant differences between category "team synergy" and "field of work"

Team synergy	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	4,16	0,665	1,931	0,134
Marketing	3,45	0,418		
Sales	3,50	0,618		
Quality control	3,35	0,450		
Transportation	3,18	0,444		

Source: Authors work

Table 2 shows that team synergy in the team is best graded by employees who make management teams (AM = 4.16) and they have highest standard deviation. Employees in transport team (AM = 3.18) evaluate synergy in their team with lowest grades. The minimum standard deviation is among respondents from marketing team. There are no statistically significant differences in terms of team synergy by employees from different fields of work.

**Table 3** Statistically significant differences between category “common goal” and “field of work”

Common goal	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	4,22	0,535	3,851	0,013
Marketing	3,08	0,621		
Sales	3,79	0,397		
Quality control	3,50	0,295		
Transportation	3,27	0,638		

Source: Authors work

Table 3 shows that common goal in the team are best graded by employees who make management teams (AM = 4.22). Employees in marketing team (AM = 3.08) evaluate common goal of their team with lowest grades. The minimum standard deviation is among respondents from quality control team and highest deviation is among transportation teams. There are statistically significant differences between management teams and marketing teams in terms of common goal of the team.

**Table 4** Statistically significant differences between category “skills” and “field of work”

Skills	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	4,08	0,732	3,287	0,026
Marketing	3,35	0,470		
Sales	3,57	0,504		
Quality control	3,15	0,382		
Transportation	2,91	0,615		

Source: Authors work

Table 4 shows that skills in the team are best graded by employees who make management teams (AM = 4.08) and they have highest standard deviation. Employees in transport team (AM = 2.91) evaluate skills of their team with lowest grades. The minimum standard deviation is among respondents from quality control team. There are statistically significant differences between management teams and transportation teams in terms of skills of the team.

**Table 5** Statistically significant differences between category “work material utilization” and “field of work”

Work material utilization	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	3,72	0,254	0,490	0,743
Marketing	3,50	0,447		
Sales	3,31	0,994		
Quality control	3,52	0,449		
Transportation	3,17	0,646		

Source: Authors work

Table 5 shows that work material utilization in the team are best graded by employees who make management teams (AM = 3.72) and they have lowest standard deviation. Employees in transport team (AM = 3.17) evaluate work material utilization in their team with lowest grades. The

maximum standard deviation is among respondents from sales team. There are no statistically significant differences in terms of work material utilization of the team by employees from different fields of work.

**Table 6** Statistically significant differences between category “innovations” and “field of work”

Innovations	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	3,88	0,751	1,092	0,381
Marketing	3,44	0,564		
Sales	3,31	0,933		
Quality control	3,39	0,616		
Transportation	2,88	0,523		

Source: Authors work

Table 6 shows that innovations in the team are best graded by employees who make management teams (AM = 3.88). Employees in transport team (AM = 2.88) evaluate innovations in their team with lowest grades, and they have a maximum deviation from the average. The minimum standard deviation is among respondents from marketing team and the highest deviation is among respondents from sales team. There are no statistically significant differences in terms of innovations of the team by employees from different fields of work.

**Table 7** Statistically significant differences between category “quality” and “field of work”

Quality	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	4,16	0,732	1,336	0,282
Marketing	3,41	0,444		
Sales	3,84	0,746		
Quality control	3,56	0,377		
Transportation	3,35	0,755		

Source: Authors work

Table 7 shows that quality of the team is best graded by employees who make management teams (AM = 4.16). Employees in transport team (AM = 3.35) evaluate the quality of their team with lowest grades, and they have a maximum deviation from the average. The minimum standard deviation is among respondents from quality control team. There are no statistically significant differences in terms of quality of the team by employees from different fields of work.

**Table 8** Statistically significant differences between overall team effectiveness and category “field of work”

Overall team performance	Arithmetic mean	Standard deviation	F-ratio	Significance
Management	4,06	0,581	2,128	0,105
Marketing	3,38	0,382		
Sales	3,56	0,601		
Quality control	3,40	0,304		
Transportation	3,13	0,444		

Source: Authors work

Table 8 shows that the overall performance of the team is best graded by employees who make management teams (AM = 4.06). Employees in the transport team (AM = 3.13) evaluate the success of your team with lowest grades. The minimum standard deviation is among the respondents from the team quality control, and the largest is in sales team. There are no statistically significant



differences in terms of the overall performance of the team by employees from different fields of work.

### 3. Conclusion

Team work has emerged in the distant past when our ancestors established together the foundations of life on Earth. Each of us is in some way involved in team work, and for some it is a part of everyday life because there work is to be constantly committed to team work. In order to achieve harmony and effectiveness of teamwork it is necessary to follow certain guidelines. Unfortunately, there are no specific rules how to make team efficiently and effectively, but there are guidelines that can contribute to that.

The most important factors of team success are: cohesion, team size, norms, emotional intelligence and overcoming conflict. Special category that certainly contributes to success is motivation. Motivation is the foundation of any successful business, task or challenge. Without motivation none of team would survive because it is what pushes each team member to go further. Looking at the feature "field of work" it comes to the conclusion that members of the management team perceived their team as the most successful by all categories of the questionnaire. There are statistically significant differences in the category "common goal". In this category, marketing team and management team have statistically significant differences in their opinions. In the category "skills" management team and transport team have statistically significant differences in responses.

By this we can conclude that teams working at the highest hierarchical positions are considered to be the most successful, while teams at the lowest hierarchical positions are perceived as the least successful. The reason for that may be the motivation. Top management is best stimulated for their work, and the fact that they are on the top of the pyramid subconsciously influence on them, leaving the impression that they are very important and that their work is very important also. In contrast to all this are the teams at the lowest hierarchical levels.

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**SEISMIC VULNERABILITY OF KINDERGARTEN BUILDINGS IN  
THE CITY OF OSIJEK**

**POTRESNA OŠTETLJIVOST OSJEČKIH DJEČJIH VRTIĆA**

**ABSTRACT**

*The territory of Croatia is located in a highly prone earthquake area with the threat from earthquakes producing ground accelerations ranging from 0.10g to 0.38g. More than half of the Croatian territory (56.22%) with more than one third (1,633,529) of the total Croatian population is characterized as a zone with a high risk of occurrence of earthquakes. In order to reduce primary catastrophic consequences of earthquakes, certain preparedness and emergency procedures have to be organized in the event of and prior to an earthquake. Earthquake risk refers to the expected losses to a given element at risk, over a specified future time period. Risk may be measured in terms of expected economic loss, or in terms of number of lives lost or the extent of physical damage to property.*

*Kindergartens in Osijek have an important role in the educational process. For each of the 21 kindergarten buildings, the properties related to the year of construction, height, type of structure, total area, etc., are given. Since they mostly have only a base floor and are built as reinforced concrete buildings, they may serve as emergency shelters after earthquake events. Therefore, a complete strategy for evaluating their capability to face probable earthquakes has to be provided. The aim of the article is to determine seismic vulnerability of kindergarten buildings - the degree of loss to a given element at risk resulting from a given level of hazard, defined as a ratio of the expected loss to the maximum possible loss on a scale from 0 to 1, where 0 means without damage and 1 means collapse of building.*

**Key words:** Seismic risk, seismic vulnerability, kindergarten buildings

## SAŽETAK

*Područje Republike Hrvatske odlikuje se izraženom potresnom aktivnošću kojima prijete potresi s vršnim ubrznjima tla u granicama od 0.1g do 0.38g. Više od polovice teritorija Republike Hrvatske (56.22 %) s više od trećine ukupnog broja stanovnika (1,633,529) koji živi u Republici Hrvatskoj označene su kao zone s vrlo visokim rizikom pojavljivanja potresa. Kako bi se smanjile primarne katastrofalne posljedice potresa, određene pripravnosti i hitni postupci moraju biti definirani u trenutku i poslije potresa.*

*Potresni rizik se odnosi na očekivane gubitke za dani element izloženosti riziku, tijekom određenog budućeg razdoblja. Rizik se može mjeriti očekivanim gospodarskim gubitkom ili brojem izgubljenih života ili veličinom fizičke štete na imovini.*

*Dječji vrtići u Osijeku predstavljaju bitnu ulogu u obrazovnom procesu. Za svaki od 24 zgrade dječjih vrtića, prikazane su značajke vezane uz godinu izgradnje, visinu, vrstu konstrukcije (konstrukcijskog sustava), ukupnu površinu itd. Budući da se uglavnom radi o zgradama samo s prizemljem, a koje su većinom izgrađene od armiranog betona, smatra se da bi mogle poslužiti kao prihvatilišta za unesrećene nakon dogođenog potresa. Zbog toga, mora se provesti potpuna strategija s ciljem evaluacije njihove sposobnosti da bez oštećenja pretrpe mogući potres. To će se učiniti određivanjem njihove oštećljivosti, što je i cilj ovoga rada - stupnja gubitka danoga elementa rizika koji je posljedica dane razine opasnosti - definirana kao omjer očekivanoga gubitka i najvećega mogućeg gubitka na ljestvici od 0 do 1, znači bez oštećenja, a 1 što znači slom konstrukcije.*

**Key words:** *Potresni rizik, potresna oštećljivost, zgrade dječjih vrtića*

### 1. Introduction

Amongst the strongest and most destructive forces in nature are earthquakes. The seismic phenomenon has existed since time immemorial but only in the last century have earthquakes been researched leading to knowledge of what earthquakes are and what causes them. There is no possibility to predict where and when the next destructive earthquake will happen, but awareness that the continuous growth of the population is related to a continuous growth of the size and number towns and cities in seismic areas can lead to a reduction of potential catastrophic consequences. For this reason, the effort in reducing losses due to possible earthquakes is one of the key points in terms of risk evaluation.

Seismic risk, determined by the combination of hazard, vulnerability and exposure, is the measurement of the damage expected in a given interval of time, based on the type of seismicity, the resistance of buildings and anthropization (nature, quality and quantity of assets exposed). Seismicity indicates the frequency and force of earthquakes and represents a physical characteristic of an area. If the frequency and the energy of the earthquakes that characterise a certain area are known with a value to the probability of a seismic event of a given magnitude occurring in a certain interval of time, seismic hazard can be calculated. The greater the seismic hazard is, the greater the probability there is of an earthquake occurring of great magnitude in the same interval of time (Protezione Civile Presidenza del Consiglio dei Ministri Dipartimento della Protezione Civile).

The consequences of an earthquake also depend on the resistance of buildings to the effects of a seismic tremor. A building's potential for damage is called vulnerability. The more vulnerable a building is (due to its type, inadequate design, poor quality materials and construction methods, lack of maintenance), the greater the consequences will be.

Seismic risk is the probability that humans will incur loss or damage to their built environment if they are exposed to a seismic hazard. In other words, seismic risk is an

interaction between seismic hazard and vulnerability (humans or their built environment). In general, seismic risk can be expressed qualitatively as:

$$R = H \cdot V \quad (1)$$

As shown in Equation 1, a high seismic hazard ( $H$ ) does not necessarily mean high seismic risk ( $R$ ) and vice versa. There is no risk if there is no vulnerability ( $V$ ), even though there is a high seismic hazard. Equation (1) also shows that engineering design or a policy for seismic hazard mitigation may differ from design and policy decisions related to seismic risk reduction.

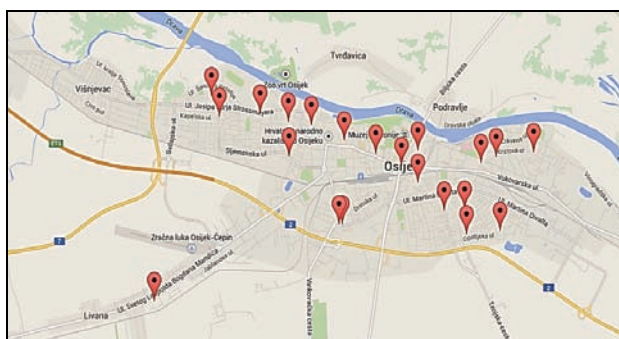
A fourth parameter may then be added through which the seismic risk can be related to a social or economic loss – for example, the damage of buildings may be related to the direct economic loss for their repair or replacement, or the collapse of the buildings may be related to the number of injured or dead.

In this paper, the assessment of seismic vulnerability of kindergarten buildings is presented. The paper is organized as follows: in Chapter 2, the study area with the arrangement of located kindergartens is presented; in Chapter 3 the main characteristics of the kindergarten buildings important for the seismic vulnerability estimation, such as construction type and materials, the number of storeys, the year of construction etc is presented. Then a concept for seismic vulnerability based on a calculation of Damage Ratio is presented in Chapter 4, while results of the seismic vulnerability are given in the Chapter 5.

## 2. Study area

Osijek is the fourth largest city in Croatia with a population of 107 784 in 2011. It is the largest city and the economic, cultural, governmental and industrial centre of the eastern Croatian region of Slavonia, as well as the administrative centre of Osijek-Baranja County. Osijek is located on the right bank of the river Drava, at an elevation of 94 metres comprising an area of 171 km<sup>2</sup> [1]. In the area of the city are located 24 kindergartens, of which 21 kindergartens are located in Osijek, one in Josipovac, one in Tenja and one kindergarten in the area of Čepin District (Figure 1).

**Figure 1** City map of Osijek with locations of kindergartens



Source: Google map edited by authors

## 3. Data collection on kindergartens

The kindergarten buildings in Osijek were built between 1900 and 1980 with most of them, about 71%, built in the 70-s of the last century (Table 1). Almost all kindergarten buildings suffered war damage, and apart from necessary repairs after the war there were no serious

construction interventions until 2005 when the reconstruction of most kindergartens began. Kindergarten buildings mostly have only a base floor appropriate to activities that are performed within them, only some of them have a second floor as well. Around 62% of the buildings have only a base floor, and the remaining 38% also have a second floor. The buildings are composed of living rooms for children, ancillary rooms (toilets, dressing rooms, storage, etc.), halls, hall for physical education and manifestations, dining room, kitchen and staff room.

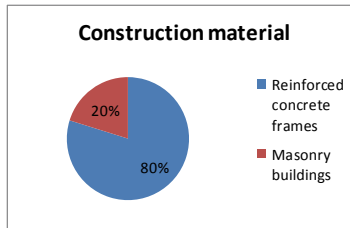
**Table 1** Distribution of construction year for the evaluated kindergarten buildings

Construction Year	Percentage of Buildings
before 1910.	9%
od 1910. – 1950.	5%
od 1950. – 1960.	5%
od 1960. – 1970.	5%
od 1970. – 1980.	71%
after 1980.	5%

Source: Authors' analysis

As shown in Figure 2, the majority of kindergarten buildings were built of reinforced concrete (RC) as an RC frame with unreinforced masonry infill walls, and a small number of them were built as an unreinforced masonry structure. The foundation is mainly done on the system of RC footings and foundation beams with reinforced concrete supporting slab, and the floor structures are performed as RC slabs or as clay blocks “FERT” system.

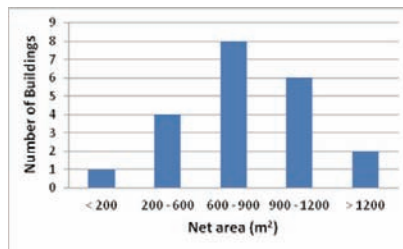
**Figure 2** Classification of kindergarten buildings according to type of construction



Source: Authors' analysis

Floor plans are generally regular, some are irregular, and the floor areas are between 200 m<sup>2</sup> and 1300 m<sup>2</sup>. Majority of these buildings have a net area of 600 m<sup>2</sup> - 1200 m<sup>2</sup>, as is shown in Figure 3. The heights of the buildings vary depending on the number of floors and ranges between 3 and 9 m.

**Figure 3** Distribution of net area for the evaluated kindergarten buildings



Source: Authors' analysis

#### 4. Seismic vulnerability of kindergarten buildings

Each vulnerability assessment method models the damage on a discrete damage scale; a frequently used example is the EMS98 scale (Grünthal, 1998). The damage scale is used in reconnaissance efforts to produce post-earthquake damage statistics (in empirical vulnerability procedure) or is related to limit-state mechanical properties of the buildings, for example interstorey drift capacity (in analytical procedures). Simplified methodologies for seismic vulnerability assessment of building stocks are of fundamental importance for the development of earthquake loss models. These models are needed to support the decision process in disaster prevention and emergency management, as far as seismic risk is concerned (Ricci, 2010).

A relatively simple and fast analysis of potential seismic vulnerability was proposed by Morić et al. (2002). The research starts with a detailed analysis of the concept on which seismic vulnerability analysis of structures is based, especially the notion of damage ratio (DR) coefficient as a numerical value indicating the level of structural damage. Morić et al. (2002) proposed that the seismic response analysis of regular structures is acceptable if it is done as a simplified non-linear dynamic analysis with the time history function of ground motion as input load, and an SDOF model with known weight, elastic stiffness, damping, elastic base shear capacity and post-elastic stiffness representing the structure. A new deterministic formula of the DR coefficient is presented, where the DR coefficient is defined as a linear combination of plastic deformations, stiffness degradation and energy dissipation of a structure during an earthquake.

##### 4.2 Damage Ratio (DR) Coefficient

Usually, in literature, the problem of structural damage is solved by calculating the DR coefficient. DR coefficients can generally be considered as either local (performed on the structural elements) or global coefficients (performed for the whole structure). Depending on their definition, they can be categorized as deterministic or probabilistic coefficients (Banon and Veneziano 1982, DiPasquale and Cakmak 1989), structural or economic coefficients (Gunturi and Shah 1992, Park and Ang 1985), structural or non-structural coefficients (e.g. Gunturi and Shah 1992). Other categorizations include coefficients based on deformation, stiffness, or energy, or even a combination of two or more of them, noncumulative (i.e. peak response values) or cumulative coefficients, low-cycle versus high-cycle fatigue coefficients, global coefficients as a weighted average of local indicators or modal coefficients, etc. (Comité Euro-International du Béton 1998).

In Morić et al. (2002), the seismic damage ratio model of regular structures is analysed and a valorised new original formula for DR is given. The seismic damage ratio model is based on following assumptions:

- Seismic response of regular structures (symmetric plans and constant vertical stiffness) can be interpreted by using an SDOF system as a mathematical model of the structures,
- The structure response parameters: ductility, stiffness change, energy balance and number of plastic excursions can describe the real level of structural damage.
- The level of structural damage (Damage Ratio (DR)) can be described as a function of the following calculated structure response parameters:
  - Displacement ductility (D) which defines the measure of post-elastic region in which a structure was during an earthquake;
  - Maximum base shear force,  $BS_{max}$ , and maximum top displacement ( $u_{max}$ ) which define the residual stiffness ( $K'$ ) of the structure at the end of the earthquake;
  - Number of yield excursions ( $N_Y$ ) and hysteresis energy ( $E_H$ ) which define the post-elastic cyclic nature of DR developing.

The first two parameters define damage mechanism under monotonic load while the third parameter takes into account the cyclic failure. The DR coefficient is defined as the linear combination of plastic deformations, stiffness degradation and energy dissipation of a structure during an earthquake:

$$DR = \frac{1}{30} \left[ D + \Delta K + \sqrt[3]{(N_y E_H / W)} \right] \quad (1)$$

where:

- $D = u_{max}/u_y$  - the displacement ductility demand;
- $\Delta K = Ke/K'$  - the relative degradation of stiffness at the end of the earthquake;
- $Ke = BS_y/u_y$  - the initial structure stiffness;
- $K' = BS_{max}/u_{max}$  - the residual secant stiffness of a structure after an earthquake;
- $N_y$  - the number of yield excursions reached during the earthquake;
- $E_H/W$  - the hysteresis energy per unit of structure mass, dissipated during an earthquake.

The simplest way of categorization of damage indices is to correlate them and observed damage. Park and Ang (1985) and Park et al. (1987) classified the structural damage as: None, Minor, Moderate, Severe and Collapse. Bracci et al. (1989) classified the structural damage as: Undamaged or minor damage, Repairable, Irreparable and Collapsed. Morić et al. (2003) implemented the DR values in pre and post-earthquake damage analysis by relating the DR values with the values of damage level identification (S), defined in the Croatian codes for post disasters damage assessment and with the values of damage level identification according to the European Macroseismic Scale (EMS 98) (Table 2).

**Table 2** Physical interpretation of damage ratio (DR)

Damage Ratio (DR)	Structural damage description	Possibilities of technical and economic repairation	Code damage level (S) (1 <sup>o</sup> to 6 <sup>o</sup> )	Code damage level (MSE 98) (1 <sup>o</sup> to 5 <sup>o</sup> )
$0 \leq DR \leq 0.3$	insignificant	repairable	1 <sup>o</sup> - 2 <sup>o</sup>	1 <sup>o</sup>
$0.3 < DR \leq 0.5$	moderate	repairable	3 <sup>o</sup>	2 <sup>o</sup>
$0.5 < DR \leq 0.8$	severe	repairable	4 <sup>o</sup>	3 <sup>o</sup>
$0.8 < DR \leq 1.0$	heavy	repairable	5 <sup>o</sup>	4
$1.0 < DR$	extremely high level or collapse	non-repairable	6 <sup>o</sup>	5 <sup>o</sup>

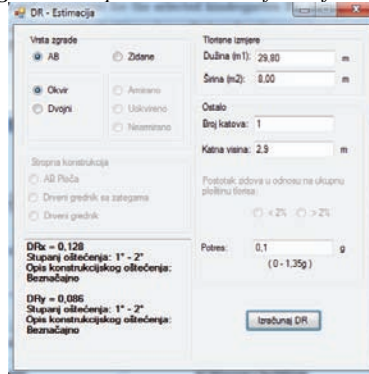
Source: Morić et al. (2003)

Based upon this, Hadzima-Nyarko (2011a) performed a detailed analysis of the dynamic properties of RC frame structures and RC structures with walls, as well as post elastic parameters of vertical and horizontal structural elements using a large number of available databases of experiments carried out, thus relating the parameters of real buildings, seismic loads defined by peak ground acceleration and DR coefficients of structures. By applying neural networks, the impact of certain structural response parameters on the degree of damage depending on seismic load was determined, thereby obtaining information about the importance of the individual parameters as well as their values (Hadzima-Nyarko et al., 2011b). With this knowledge, a more precise estimate of the damage level was obtained (Hadzima-Nyarko, 2011). Finally, using the results and database obtained during the research, a program that relates structural dimensions with the dynamic properties of structures and global damage ratio coefficient of different seismic areas was created for RC frame and wall structures (Hadzima-Nyarko et al., 2012).

A computer program or application specifically designed for fast Earthquake Damage Analysis of Building Structures (EDABS) was developed. This application determines the DR coefficient using only the structural dimensions of buildings, structure type and the peak earthquake ground acceleration as input. The software EDABS is expanded with the research of Morić (1998) considering seismic vulnerability of masonry buildings (Hadzima-Nyarko et al., 2015). A graphical user interface (GUI) for the application is shown in Figure 4.



**Figure 4** Graphical user interface of EDABS



Source: Hadzima-Nyarko et al. (2012)

## 5. Results

For Croatia, the hazard, presented with two maps, is expressed in terms of the peak horizontal ground acceleration during an earthquake, which is exceeded on average once in 95 or 475 years. The maps are accepted as a part of the National Annex to EN 1998-1 (Herak, 2012). On the map, which is used in the design of earthquake resistance of buildings, the reference peak ground acceleration (PGA) on type A for the return period of 475 years with a probability of exceedance of 10% in 50 years is shown. According to that seismic hazard map for Croatia0, the peak horizontal ground acceleration for the city of Osijek is 0.11g. We decided to describe hazard in terms of PGA from 0.1g to 0.3g. Thus, with regard to the selection of reference earthquakes, three deterministic events have been considered, having intensity  $I_{MSK}$  equal to VI, VII and VIII.

A relatively fast seismic analysis of all kindergarten buildings in Osijek was performed using the Software for Earthquake Damage Analysis of Building Structures (EDABS). The software performs analysis and provides estimated DR values in the x- and y- directions i.e., in the longitudinal (length) and transversal (width) directions of the building. The results of the analysis of one RC frame building built in 1976 are presented in Table 3. According to the obtained results, one can expect negligible to slight damage when the peak ground accelerations are 0.1g and 0.15 g. For the peak ground acceleration of 0.2g, which corresponds to VIII intensity, moderate structural damage could be expected, and for the PGA of 0.3g, heavy structural damage and very heavy non-structural damage of the considered building could be expected.

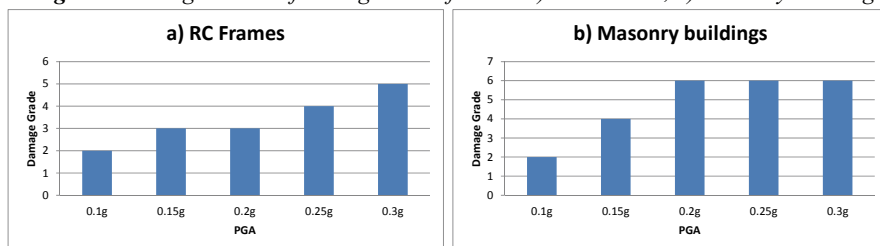
**Table 3** Damage analysis and assessment for the selected kindergarten RC frame building

RC frame built 1976.	Dimensions [m]	Storey height [m]	No. of storeys	Building vulnerability	Peak earthquake ground acceleration				
					0.1g	0.15g	0.2g	0.25g	0.3g
	29.80 x 8.00	2.90	1	$DR_y$	0.128	0.268	0.400	0.583	0.814
Damage Level Code				1° - 2°	1° - 2°	3°	4°	5°	
$DR_x$				0.086	0.286	0.351	0.594	0.830	
Damage Level Code				1° - 2°	1° - 2°	3°	4°	5°	

Source: Authors' results

The overall results of all 20 kindergarten buildings are presented in the form of the graph considering the structural system of the buildings, as it is shown in Figure 5.

**Figure 5** Average values of damage levels for the: a) RC Frames, b) Masonry buildings



Source: Authors' results

The RC frame buildings show lower average values of damage grades than masonry buildings, as it was expected. Thus, both structural types indicate that the level of structural damage for the earthquakes having PGA 0.1g is negligible to slight damage. This state of damage level implies fine cracks in plaster in walls at the base or fine cracks in partitions and infills. In the case of earthquakes having PGA 0.15g and 0.2g, substantial to heavy damage (moderate structural damage, heavy non-structural damage) for RC frames could be expected. For that damage state, cracks in columns and beams of frames and in structural walls could occur, cracks in partition and infill walls; fall of brittle cladding and plaster or falling mortar from the joints of wall panels. In the case of earthquakes having PGA 0.25g and 0.3g, RC frame structures will suffer heavy structural damage and very heavy structural damage. For these damage states, the following descriptions are given: cracks in columns and beam column joints of frames at the base and at joints of coupled walls; spalling of concrete cover, buckling of reinforced rods. Large cracks in partition and infill walls, failure of individual infill panels.

Masonry buildings show much worse seismic performance, which can be seen from Figure 5. In the case of earthquakes having PGA 0.15g, very heavy damage (heavy structural damage, very heavy non-structural damage) could be expected. It means that large cracks in structural elements could appear with compression failure of concrete. In the case of earthquakes having PGA 0.25g or higher, destruction (very heavy structural damage) or collapse of ground floor or parts (e.g. wings) of buildings can be expected.

## 6. Conclusion

Seismic risk analyses of large urban regions should be fast and simple in order to gain insight into the level of physical deterioration (degradation) of structure and perform analyses of the damage level before and after an earthquake. Damage coefficient is usually normalized such that a value of 0 indicates an undamaged state while a value of 1 indicates complete failure. It interprets the level of structure damage by relating its values to the values of damage level identification, defined in the codes for post disasters damage assessment. Using kindergarten buildings as examples, the level of structural damage using DR coefficient for various earthquakes with different peak ground accelerations defined with time histories are predicted and DR values are related with the values of damage level identification.

According to the results of the analysis provided using the software EDABS, the buildings will suffer insignificant damage only in the case of the earthquake with a PGA of 0.1g for both RC frames and masonry buildings. RC frames show lower values of damage grades, indicating much better seismic performance. In the cases of earthquake having PGA 0.2g or higher, it is likely that the masonry buildings will collapse. The reason of such insufficient seismic resistance is due to year of construction, material properties and the absence of the rigid floors.

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**SEISMIC VULNERABILITY OF PRIMARY SCHOOLS IN THE CITY  
OSIJEK**

**POTRESNA OŠTETLJIVOST OSJEČKIH OSNOVNIH ŠKOLA**

**ABSTRACT**

*The Republic of Croatia is located in a highly earthquake prone zone; strong ground motion events occurs in Croatia every 20-30 years. Most of the buildings built in the last decade are in accordance with Eurocode 8 provisions for earthquake-resistant design but a great number of older low- and medium-rise buildings are built from stone and masonry units, not following any such provision. These buildings must be evaluated, their level of risk determined and unacceptable risks reduced or eliminated.*

*The city of Osijek with its suburbs has 114.616 inhabitants (2001 population census), 41.835 dwellings and households, around 7,000 buildings, public buildings – which include kindergartens (24), primary schools (20), high schools (19), colleges (11), libraries (19), theatres (3), movie theatres (2), hospitals and healthcare centres, homes for the elderly, police and fire brigade buildings, communication centres, etc.*

*Primary schools in Osijek have an important role in the educational process. For each of the 16 school buildings, the properties related to the year of construction, height, type of structure, total area, etc., are given. These factors are important for determining the seismic vulnerability of existing buildings. Seismic risk is the probability of loss at a given site and is obtained through the convolution of exposure, vulnerability and seismic hazard. Vulnerability is defined as the degree of loss to a given element at risk resulting from a given level of hazard. The vulnerability of an element is defined as a ratio of the expected loss to the maximum possible loss on a scale from 0 to 1. The aim of the paper is concerned with an important step of the required strategy: to evaluate the seismic vulnerability of existing school buildings.*

**Key words:** *Seismic risk, Seismic vulnerability, Primary schools buildings*

## SAŽETAK

Područje Republike Hrvatske odlikuje se izraženom potresnom aktivnošću; jaka podrhtavanja tla se u Hrvatskoj događaju svakih 20-30 godina. Mnoge zgrade izgrađene u prošlom desetljeću projektirane su u skladu sa zahtjevima norme Eurocode 8 za proračun potresno otpornih zgrada, ali veliki broj starijih niskih i srednje visokih zgrada je izgrađeno od opeke i kamena ne slijedeći nikakve norme. Takve se zgrade trebaju procijeniti, potrebno je odrediti njihovu razinu potresnog rizika, te dati prijedloge za smanjenje tog rizika.

Grad Osijek zajedno s prigradskim naseljima broji 114.616 stanovnika (popis stanovništva iz 2001), 41.835 kućanstava, oko 7000 zgrada i javnih zgrada – u koje se ubrajaju dječji vrtići (24), osnovne škole (20) srednje škole (19), fakulteti (11), knjižnice (19), kazališta (3), kina (2), bolnice i domovi zdravlja, starački domovi, zgrade policije i vatrogasnih postrojbi, komunikacijski centri itd.

Osnovne škole u Osijeku predstavljaju bitnu ulogu u obrazovnom procesu. Za svaku od 16 školskih zgrada, prikazane su značajke vezane uz godinu izgradnje, visinu, vrstu konstrukcije (konstrukcijskog sustava), ukupnu površinu itd. Ti su faktori bitni za određivanje potresne oštećljivosti postojećih promatranih zgrada. Potresni rizik se definira kao vjerojatnost gubitka na određenoj lokaciji i dobiva se povezivanjem izloženosti, oštećljivosti i potresne opasnosti. Potresna oštećljivost je definirana je kao stupanj gubitka danoga elementa rizika koji je posljedica dane razine opasnosti. Oštećljivost elementa definira se kao omjer očekivanoga gubitka i najvećega mogućeg gubitka na ljestvici od 0 do 1. Cilj rada vezan je uz bitni korak prijeko zahtijevane strategije određivanja potresnog rizika, a to je procjena potresne oštećljivosti postojećih školskih zgrada.

**Key words:** Potresni rizik, potresna oštećljivost, zgrade osnovnih škola

### 1. Introduction

Coburn et al (1994) define the term *risk* as the expected losses from a given hazard to a given *element at risk*, over a specified future time period. It can be measured in terms of expected economic loss, or in terms of numbers of lives lost or the extent of physical damage to property (according to the way in which the element at risk is defined).

The general equation for the calculation of risk is:

$$[R_{ij}] = [H_j] \times [V_{ij}] \quad (1)$$

where, for an Element at Risk (e.g. an individual building) *i*, in a given unit of time:

[*R<sub>ij</sub>*] is the specific Risk; the probable loss to element *i* due to a hazard of severity *j*.

[*H<sub>j</sub>*] is the Hazard; the probability of experiencing a hazardous event of severity *j*.

[*V<sub>ij</sub>*] is the Vulnerability; the level of loss that would be caused to element *i* as a result of experiencing a hazard of severity *j*.

The total specific risk to any individual element can be derived by summing the risk from all levels of hazard, ( $\min \leq j \leq \max$ ). The Risk is then the product of the Specific Risk and the value of the element at risk (Coburn et al, 1994).

Seismic risk analyses of large urban regions should be fast and simple in order to gain insight into the level of physical deterioration (degradation) of structure and perform analyses of the damage level before and after an earthquake (Hadzima, 2005). Such seismic risk analysis should provide a predictable response of the analyzed structure in order to ensure consistent seismic resistance/protection.

## 2. Primary schools in Osijek

The city of Osijek, the fourth largest city in Croatia and the largest city in Slavonia, located on the right coast of the Drava river, is an important political and cultural centre for the eastern part of Croatia. According to the last census in 2001, Osijek has 83 496 inhabitants. The city of Osijek, with a total area of 169.94 km<sup>2</sup>, is divided into seven zones. There are 16 primary schools in the city of Osijek which are studied in this article; though one of them is located in Višnjevac. Figure 1 shows the locations of all primary schools in the city of Osijek.

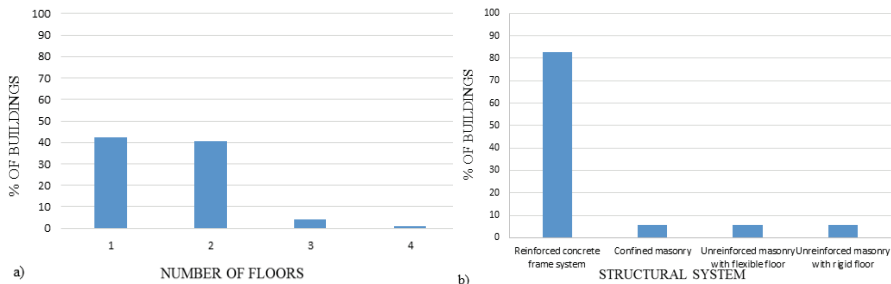
**Figure 1** Location of primary schools



Source: Edited by authors

Most of the primary schools in the city of Osijek were built in the 1970s. Throughout history, with an increase in the population of the city, there is a need to upgrade the school, in order to meet the necessary capacity. Teaching in schools is held in two shifts (morning and afternoon) or only in the morning. Most of the objects (buildings) consist of a ground floor, and one or more floors. Depending on the number of floors, building height is in the range of 6.50 m to 14 m, measured from the ground level. Figure 2.a) shows the proportion of schools according to the number of floors.

**Figure 2** Classification of schools according to the a) number of floors, b) structural system



Source: Authors' analysis

Due to irregularity of layouts because of the aforementioned need to upgrade the school, it was observed that most of the schools are divided into several separate structures dilated with seismic dilatation. For those schools, seismic vulnerability for all independent buildings is

assessed. The classification of structural system of all independent buildings can be divided into four categories: RC frames, unreinforced masonry with wooden floors (which represent flexible floors) or with RC or clay block floors (which represent rigid floors) and confined masonry (Figure 2b). Most of the buildings were built as reinforced concrete (RC) frames with masonry infill with thickness of about 25-38 cm, and their foundation of concrete elements that are connected with longitudinal and transverse RC strips. The floor construction is made as a RC slab or as clay blocks “MONTA” system. Those two types of floor construction can be considered as rigid floor structures.

### **3. Seismic vulnerability of primary schools**

Several methods for seismic vulnerability and risk assessment of existing buildings have been developed in recent years, considering different approaches for the input data and for the results (output) (Restrepo-Velez and Magenes, 2004). Vulnerability can simply be defined as the sensitivity of the exposure to seismic hazard(s). The vulnerability of an element is usually expressed as a percentage loss (or as a value between zero and one) for a given hazard severity level (Coburn et al., 1994). In a large number of elements, like building stocks, vulnerability may be defined in terms of the damage potential to a class of similar structures subjected to a given seismic hazard.

#### **3.1 Damage ratio (DR) coefficient**

Due to renewed importance of seismic vulnerability assessment of existing buildings in recent years, seismic design objectives have been extended by developing structural design criteria for new structures.

Among the different approaches used to characterize damage, damage indices or damage ratios are suitable tools for numerically quantifying the damage in structures sustained under earthquake loading or rank their vulnerability relative to each other.

Williams and Sexsmith (1995) summarized most of the known methods for calculating damage indices. They noted that indices may be calculated from the results of non-linear dynamic analysis, from measured response of a structure during an earthquake, or from a comparison of the physical properties of the structure before and after an earthquake.

The damage and collapse indices proposed in scientific literature are various, and can be defined for each structural element or sub-elements (local indices) or related to the entire global structure (global indices). In most cases, all these indices are dimensionless parameters ranging between 0 for an undamaged structure and 1 for a collapsed structure. The intermediate values between those two numbers tend to indicate the level of damage.

DR coefficients can also be categorized as deterministic or probabilistic coefficients (Banon and Veneziano 1982, Ciampoli et al. 1989, DiPasquale and Cakmak 1989), structural or economic coefficients (Dolce et al. 1994, Kappos 1996, Gunturi and Shah 1992, Park and Ang 1985), structural or non-structural coefficients (e.g. Gunturi and Shah 1992). Other categorizations include coefficients based on deformation, stiffness, or energy, or even a combination of two or more damage variables.

If a damage index involves a combination of more than one damage variable in its calculation, the damage variable parameters need to be normalized. This normalization can be based on the following approaches (Estekanchi i Arjomandi, 2007):

1. The demand versus capacity approach is based on the estimation of certain demand on a structure, sub-structure or member, and estimation of the corresponding capacity. This kind of normalization was quite popular in the recent past. Several well known indexes like Park and Ang (1985) use this kind of normalization.
2. The calculated degradation of a certain structural parameter, such as stiffness, energy dissipation or natural period of structure, is compared with a predetermined critical value, and

is usually expressed as a percentage of the initial value corresponding to the undamaged state or the last stage value as a damaged state.

Based on some known damage models, Morić et al. (2002) proposed that the seismic response analysis of regular structures is acceptable if it is done as a simplified non-linear dynamic analysis with the time history function of ground motion as input load, and an SDOF model with known weight, elastic stiffness, damping, elastic base shear capacity and post-elastic stiffness representing the structure. The damage ratio coefficient (DR) is defined as a linear combination of plastic deformations, stiffness degradation and energy dissipation of a structure during an earthquake:

$$DR = \frac{1}{30} \left[ D + \Delta K + \sqrt[3]{N_y E_H / W} \right], \quad (1)$$

where:

- $D = u_{max}/u_y$  - the displacement ductility demand;
- $\Delta K = K_e/K'$  - the relative degradation of stiffness at the end of the earthquake;
- $K_e = BS_y/u_y$  - the initial structure stiffness;
- $K' = BS_{max}/u_{max}$  - the residual secant stiffness of a structure after an earthquake;
- $N_y$  - the number of yield excursions reached during the earthquake;
- $E_H/W$  - the hysteresis energy per unit of structure mass, dissipated during an earthquake.

The evaluation and validation of these assumptions and proposed formula for DR was done by comparing the obtained results with those of the CAMUS3 experiment of an RC wall structure (Morić et al. 2003, CAMUS3, 1999).

Classification of damage quantity is a very difficult task and very few recommendations are currently available. Anagnostopoulus et al. (1989) suggested damage and usability classification based on three categories adequate for RC or masonry buildings: usable structures that are undamaged or slightly damaged structures; temporarily unusable, which are moderately to heavily damaged structures and incompetent which represents heavily damaged structures to partially or completely destroyed structures. These categories are defined and based on visual observation of cracks, with or without structural meaning, deterioration of concrete elements and masonry walls, spalling of concrete cover and buckling of reinforced rods, etc. While the damage is only quantitatively estimated, the state of damage and usability categories can be used for further classification.

Park et al. (1987) proposed the levels of damage: None, Minor, Moderate, Severe and Collapse, each of which is related to one DR value and can be used to define the limits of serviceability of the building by relating with the level of reparability (or irreparability), i.e. 0.4 on a scale of 1.0 where this upper value defines the complete failure. Based on a comparison of different damage states of concrete elements, their appearance and use, Bracci et al. (1989) created a scale relating the damage state of RC beams and columns, subjected to a dynamic load, to the appearance: Undamaged or minor damage, Repairable, irreparable and Collapsed. Their scale is also calibrated prior to 9 different concrete buildings that were moderately to heavily damaged during the earthquake in San Fernando 1971.

Morić et al. (2003) implemented the DR values in pre and post-earthquake damage analysis by relating the DR values with the values of damage level identification (S), defined in the Croatian codes for post disasters damage assessment and with the values of damage level identification according to the European Macroseismic Scale (EMS 98) (Table 1).



**Table 1** Physical interpretation of damage ratio (DR)

Damage ratio (DR)	Structural damage description	Possibilities of technical and economic reparation	Code damage level (S) (1 <sup>o</sup> to 6 <sup>o</sup> )	Code damage level (MSE 98) (1 <sup>o</sup> to 5 <sup>o</sup> )
$0 < DR \leq 0.3$	insignificant	repairable	1 <sup>o</sup> - 2 <sup>o</sup>	1 <sup>o</sup>
$0.3 < DR \leq 0.5$	moderate	repairable	3 <sup>o</sup>	2 <sup>o</sup>
$0.5 < DR \leq 0.8$	severe	repairable	4 <sup>o</sup>	3 <sup>o</sup>
$0.8 < DR \leq 1.0$	heavy	repairable	5 <sup>o</sup>	4
$1.0 < DR$	extremely high level or collapse	non-repairable	6 <sup>o</sup>	5 <sup>o</sup>

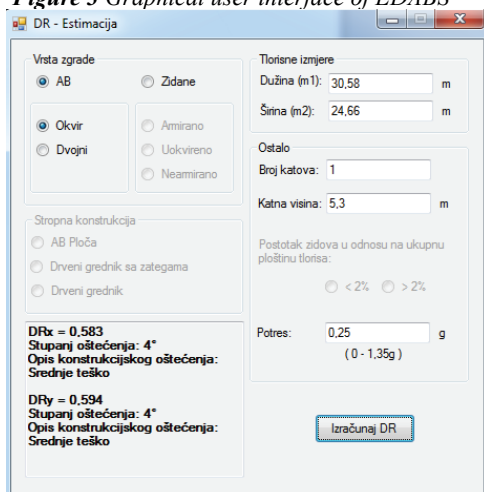
Source: *Morić et al. (2003)*

### 3.1.1 Software for Earthquake Damage Analysis of Building Structures (EBAS)

An extensive parametric study is further performed using different earthquakes and different structures, which are classified using natural period, elastic base shear capacity, post-elastic stiffness and damping. Each of these structures is subjected to nonlinear seismic time history analysis using different real earthquakes having peak accelerations ranging from 0.1g to 1.35g. DR values in relation to the period, base shear capacity, post-elastic stiffness and damping are then implemented in seismic damage spectrum functions. A plot of a number SDOF models (specified by damping, elastic base shear capacity and post-elastic stiffness) with different fundamental periods will create damage spectral functions. Thus, by knowing the parameters of an SDOF system (weight, post-elastic stiffness, damping and base shear), a response of an RC structure to a given earthquake can be determined just by looking at the graph.

Using a database of damage ratio spectral functions as well as the results and expressions obtained from experiments, a program that relates structural dimensions and seismic loads with the dynamic properties of structures and the DR coefficient is created and presented (Hadzima-Nyarko et al, 2012). The software, EDABS (Earthquake Damage Analysis of Building Structures), allows for the fast earthquake damage analysis of building structures by determining the DR coefficient using only the structural dimensions of buildings, structure type and the peak earthquake ground acceleration as input (Figure 3.). The software EDABS is expanded with the research of *Morić (1998)* considering seismic vulnerability of masonry buildings (Hadzima-Nyarko et al., 2015).

**Figure 3** Graphical user interface of EDABS



Source: *Hadzima-Nyarko et al. (2012)*

#### 4. Results

Seismic hazard is represented with two maps for Croatia (accepted as a part of the National Annex to EN 1998-1) and is expressed in terms of the peak horizontal ground acceleration during an earthquake, which is exceeded on average once in 95 or 475 years (Herak, 2012). The reference peak ground acceleration (PGA) on type A for the return period of 475 years with a probability of exceedance of 10% in 50 years is shown on the map. According to that seismic hazard map for Croatia **Error! Reference source not found.**, the peak horizontal ground acceleration for the city of Osijek is 0.11g. Thus, with regard to the selection of reference earthquakes, the deterministic events have been considered in terms of PGA from 0.1g to 0.3g.

Using the software EDABS, a relatively fast seismic analysis of all primary school buildings in Osijek was performed. The results of the analysis of one RC frame building built in 1969. are presented in the Table 2.

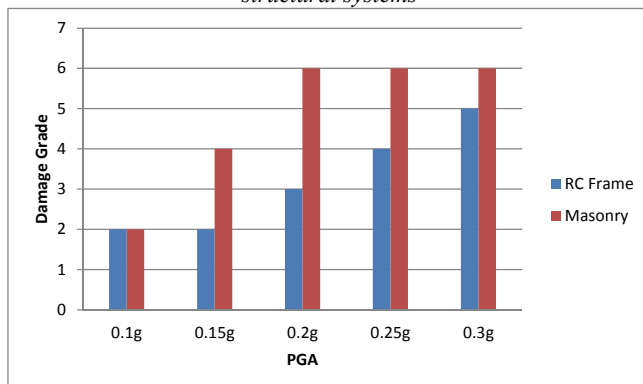
**Table 2** Damage analysis and assessment for the selected RC frame building

RC frame built 1969.	Dimensions	Storey height	No. of storeys	Building vulnerability	Peak earthquake ground acceleration				
					0.1g	0.15g	0.2g	0.25g	0.3g
	30.58 x 8.00	2.90	1	$DR_v$	0.128	0.268	0.400	0.583	0.814
Damage Level Code				1° - 2°	1° - 2°	3°	4°	5°	
$DR_v$				0.086	0.286	0.351	0.594	0.830	
Damage Level Code				1° - 2°	1° - 2°	3°	4°	5°	

Source: Authors' results

Since the results showed that unreinforced masonry with flexible or rigid floors and confined masonry had equal damage grade with respect to the intensity level, a summary graph could be provided separately for RC frames and masonry buildings (Figure 4a and 4b). The results are as follows: for the peak ground accelerations of 0.1g and 0.15g, negligible to slight damage could be expected. For the peak ground acceleration of 0.2g, which corresponds to VIII intensity, negligible to slight damage or moderate structural damage could be expected. Since moderate structural damage was estimated for about half of the RC frame buildings, for safety reasons, all such buildings are presented on the graph as moderate damage grade. For the PGA of 0.3g, heavy structural damage and very heavy non-structural damage of the considered building could be expected.

**Figure 4** Average values of damage levels for primary school buildings according to their structural systems



It can be concluded from the obtained results, that the type of construction plays a significant role in the quantification of the vulnerability. The most significant vulnerability is allotted to masonry buildings, which present a much degraded state and decreases for RC frame buildings.

## 5. Conclusion

In order to reduce expected damages when a severe earthquake takes place, it is important to evaluate seismic vulnerability of existing buildings.

Damage index or damage ratio interprets the level of structure damage by relating its values to the values of damage level identification, defined in the codes for post disasters damage assessment. This model takes into account certain critical parameters in relation to the structure, such as number of storeys, structural type, dimensions in plan. For each of the 16 primary school buildings in the city of Osijek, the seismic vulnerability was determined using the software for Earthquake Damage Analysis of Building Structures (EDABS) which is based on the calculation of DR coefficient and a database of damage ratio spectral functions.

According to the results of the analysis provided, the buildings will suffer insignificant damage only in the case of the earthquake with a PGA of 0.1g for both RC frames and masonry buildings. In the cases of earthquakes having PGA 0.2g or higher, it is likely that the masonry buildings will collapse. RC frames show lower values of damage grades, indicating much better seismic performance, as it was expected.

The approach presented in this paper can be considered a basic tool for quantitative evaluation providing indicative values. This, however, enables us to take the required preventive measures in areas with strong seismicity in order to reduce the possible consequences of a future earthquake.

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## **ENVIRONMENTAL ISSUES RELATED TO CONSTRUCTION OF MOTORWAYS IN POLAND AND IN CROATIA**

### **PROBLEMATIKA ZAŠTITE OKOLIŠA KOJA SE ODNOSI NA IZGRADNJU AUTOCESTA U POLJSKOJ I HRVATSKOJ**

#### **ABSTRACT**

*The motorway construction process in Europe is still in its implementation phase. The necessity of dynamic development of the national road infrastructure is also confirmed by the European statistical data, which presents the dynamics of the increasing role of the road transport in the passenger transport in relation to the European Union countries. The Polish road infrastructure still requires high financial inputs which could support and ensure appropriate standards of the existing networks, and also in order to meet the market demands, which result from the increased exchange of goods and the passenger transport. It is necessary to systematically improve the technical conditions of the Polish network of state roads, in order to eliminate its basic limitations, as well as to allow for its development. The motorway construction process in Poland has entered the successive stage. In spite of the large scale of commenced investments, the Polish network of state roads, including motorways and expressways is not internally coherent and insufficiently pervious. The continuation of investment activities on the main lines of the roads in Poland, is the challenge for the near future. In the states, which have been intensively modernised, such as Poland and Croatia, considerably acceleration of the development of such roads may be noticed. In Poland, the National Spatial Development Strategy 2030 was adopted by the Governmental Resolution dated December 13, 2011. It specified the necessity to "improve the territorial accessibility in different spatial scales, through the development of the transport infrastructure", implemented in the conditions of sustainable development. However, the line investments of this type have their impacts on modifications in the agricultural space and the natural environment. The paper will present different aspects of impacts of road investments on soils, water and the landscape, and on the land use ways. Documents required for the process of protection and the environmental protection methods, applied in the process of planning locations and implementation of motorways construction in Poland and in Croatia will be also discussed.*

**Keywords:** construction of motorways, environmental protection, environmental impact assessment

#### **SAŽETAK**

*Proces izgradnje autocesta u Europi je još uvijek u tijeku. Nužnost dinamičkog razvoja nacionalne cestovne infrastrukture potvrđena je također europskim statistikama, odražavajući rast udjela cestovnog prometa i prijevoza putnika i tereta na području EU. Poljska cestovna infrastruktura i dalje zahtijeva velike izdatke za razvoj, kako bi se osiguralo odgovarajuće standarde postojeće mreže kako bi mogli zadovoljiti potrebe tržišta, što je rezultiralo s povećanjem prometa robe i*

*stalnom porastu putničkog prometa. Potreba za sustavno poboljšanje tehničkog stanje poljske cestovne mreže kako bi se otklonila osnovna ograničenja i njeno širenje. Proces izgradnje autocesta u Poljskoj ulazi u sljedeću fazu. Unatoč velikim investicijama, poljska mreža državnih cesta, uključujući autoceste i brze ceste, i dalje nedosljedna i nedovoljno propusna. Nastavak investicijske aktivnosti na glavnim prometnicama u Poljskoj, je izazov u narednim godinama. U zemljama koje se intenzivno moderniziraju, uključujući Poljsku i Hrvatsku dolazi do značajnog ubrzanja razvoja ove vrste cesta. U Poljskoj je izrađena Nacionalni koncept prostornog razvoja zemlje i usvojen odlukom Vlade dana 13. prosinca 2011. godine gdje je ukazano na potrebu "poboljšanja teritorijalne dostupnosti zemlje u različitim prostornim skalama kroz razvoj transportne infrastrukture" i provodi se u uvjetima ravnomjernog razvoja. Međutim, takve linijske investicije u infrastrukturu nisu bez utjecaja na izmjenu prostorne organizacije poljoprivrednog prostora i prirodnog okruženja. U ovoj studiji će biti predstavljeni aspekti utjecaja cestovnih ulaganja, između ostalog, na tlo, vodu i krajolik i način korištenja zemljišta. Biti će obavljena rasprava o dokumentima potrebnim za proces zaštite i načina zaštite okoliša u procesu planiranja lokacija i izgradnje autocesta u Poljskoj i Hrvatskoj.*

**Ključne riječi:** *izgradnja autocesta, zaštita okoliša, procjena utjecaja zahvata na okoliš.*

## **1. Introduction**

The program of construction of the road infrastructure in Poland, mainly motorways and expressways, has been implemented in the frames of successive *Programmes*. At present, works concerning the implementation of the National Road Construction Programme for the years 2011-2015 are at the final stage. Similarly to the past programmes, this document also specifies objectives and priorities concerning new investments, as well as the maintenance of good technical conditions of the existing road network. It also specifies the level and sources of required financial inputs (to 2003), and determines the total amount of investment expenditures within the National Road Fund, at the level of approx. 92.8 billion zlotys, and, additional 50 million zlotys for the maintenance of the existing infrastructures.

Implementation and development of the Polish national roads should not be considered separately from other types of transport and international duties. The Trans-European Transport Network (TEN-T) is one of the basic components of the European Union transport policy, which assumes the integration of different types of means of transport. Within the TEN-T Network the Member States are obliged to construct the base TEN-T network to 2030 and the complex TEN-T Network to 2050. The complete implementation of the Programme is connected with the efficient planning of road connections, as the coherent components of the transport system of the Member States, which are to ensure the effective connections with inter-modal terminals of the TEN-T Network (Fig. 1).

The total length of the TEN-T Network TEN-T in Poland equals to approx. 7,400 km, including approx. 3,890 km of the base network. Two corridors of the base TEN-T network have been located in Poland, which include the most important transport routes, support long-distance services and aim at the improvement of trans-boundary connections in the European Union. The corridors of the base network cross at least two frontiers and, if possible, they support at least three types of transport. In the case of Poland these corridors are: the Baltic Sea - the Adriatic Sea and the North Sea - the Baltic Sea.

In the case of Croatia it is the Mediterranean Corridor, which connects the Iberia Peninsula with the Hungarian-Ukrainian frontier. It runs along the Mediterranean coast of Spain and France, crosses Alps in the eastern direction, through northern Italy and from the Adriatic coast of Slovenia and Croatia, it directs to Hungary.

One of the most important innovations of the new TEN-T guidelines is the introduction of nine implementation corridors for the base network. They are to support the development of its network. Each of the corridors must support three types of transport, three states and two trans-boundary sections.

Following the EU policy (The White Book on Transport to 2050) , the TEN-T Network is the basic tool of the transport policy, which support the implementation of the general objective, which is the reduction of emission by transport by 60% to 2050. All TEN-T projects must be assessed in terms of environmental impacts, before they are qualified to be finances by the EU funds. For this purpose they must meet all requirements in the field of planning and sustainable development, which are specified in the EU regulations (The Note of the European Commission) concerning environmental protection.

**Figure 1** TEN-T Network



*Source: Ministry of Infrastructure and Development*

Development of road transport is connected with the necessity to acquire large areas and it generates the relatively high external costs related to the environmental protection (load by noises and emission). Due to the required transport reliability, the development of national roads should be considered as complimentary for other branches of transport, in particular the railway transport.

According to the currently promoted idea of sustainable development, evaluation of implementation of road systems should be performed comprehensively. It is very difficult to design the optimum transport network system, in particular, the system of motorway, without negative environmental impacts. Contemporary transport systems occupy increasing areas, they influence the changes in utilisation of lands covered by roads, as well as surrounding areas, they destroy and pollute natural habitats and influence their fragmentation.

## **2. Implementation of the road infrastructure in Poland**

According to data of the Ministry of Infrastructure and Development of 2014, Poland is obliged to construct the base TEN-T Network to 203, and the complex network to 2050. Construction of the coherent network of motorways and express ways will allow to increase the interregional coherence and will contribute to the complete utilisation of the economic potential of the country. The dynamic increase of the road freight and passenger and the still insufficient road network in Poland, stimulate the necessity to finalise the National Road Construction Programme.

Following the Eurostat data of 2012, the automobile transport, which share in freight and passenger transport in Poland equals to 85% and 82%, respectively, is higher than the European mean and it continues to grow.

Although the length of motorways was increased from 535 km in 2004 to 1495 km in 2013, the extent of investments undertaken in Poland in the field of the development of the national road network, including motorways and expressways, is incoherent and characterised by the insufficient traffic capacity. Continuation of investment activity on the basic routes of the national roads, and in particular, assurance connections between large agglomerations, as well as contact points with other forms of transport, such as harbours, airports, inter-modal terminals, is the challenge for the coming years. According to data from the General Directorate for National Roads and Motorways (GDDKiA):

- 835.3 km of motorways,
- 955 km of expressways,
- 212.9 km bypass roads,
- 687.8 km important reconstructions and enhancements of the national roads were constructed by the end of 2013 (Fig.2).

**Figure 2** The network of motorways and expressways (constructed or under construction) as on December 31, 2014



The large part of the network of motorways, presented in Fig.1, has been constructed or is under construction. Construction of the complete network of motorways requires additional works. The situation concerning expressways is different; at present only two expressways create the important routes.



### 3. Implementation of the road infrastructure in Croatia

In Croatia, since 1997, i.e. since the period of the economic stabilisation, the highest priority has been assigned to the process of construction of motorways. Since 1999 the Strategy of Development of Road in the Republic of Croatia has been the first, long-term plan, which assumed the length of the motorway network equal to 1635 km (Fig. 3).

**Figure 3** The network of motorways in Croatia



Source [http://podroze.onet.pl/abc/chorwacja-oplaty-za-  
autostrady/1fvd1?utm\\_source=google&utm\\_medium=cpc&utm\\_campaign=allonet1\\_turystykasem\\_dsa](http://podroze.onet.pl/abc/chorwacja-oplaty-za-<br/>autostrady/1fvd1?utm_source=google&utm_medium=cpc&utm_campaign=allonet1_turystykasem_dsa)

The planned road network in Croatia is to connect the European, pan-European and national corridors. The completion of construction of the Zagreb - Split motorway (in 2005), considered as one of the most important investments in Croatia, was essential. Construction of the longest Croatian motorway was highly expensive and technically complex; this resulted from technical issues, mainly related to specific features of the terrain crossed by the motorway. Implementation of this investment, which is unique in Europe, required construction of 292 road structures, such as tunnels, bridges, viaducts, overhead and underground passages, footbridges and green bridges. Following the Croatian Motorways 2005 as much as 18.6% of this motorway consist of different road structures (Stojan & Ostojić, 2007).

### 4. Mechanisms of implementation of the environmental protection issues in construction of the transport infrastructure in Poland

According to the Environmental Protection Law of 2001 and the ordinance of the Council of Ministers of November 9, 2004 on determination of types of actions which may highly impact the environment and on detail conditions related to qualification of actions to prepare the environmental impact assessment report investments concerning construction of a motorway are classified into the, so-called, 1<sup>st</sup> group of investments, which may have high impacts on the environment; it is obligatory to make the environmental impact assessment report for such investments, in the field specified in Art.52 of the Environmental Protection Law.

Due to the necessity of making the environmental impact assessment (EIA) report for this type of investments, it is required to perform the complete environmental impact assessment procedure, which also includes actions involving the society, performed according to rules specified in the environmental protection law.

In the case of large and complex analysis, such as construction of a motorway, it is difficult to discuss the layout of the report, which would cover all issues. According to the Polish law, the environmental impact assessment report should include:

1. description of the planned investment, in particular:
  - characteristics of the entire investment,
  - conditions of use of the terrain at the stage of implementation and exploitation,
  - main characteristic features of production processes,
  - assumed levels of emission, resulting from operations of the planned investment,
2. description of the natural elements, covered by the extent of the assumed impacts of the planned investment:
  - description of existing (in neighbouring areas or directly adjoining the area of the planned investment) monuments, protected by legal regulations concerning the protection and the maintenance of monuments,
3. description of analysed variants, including the most environmentally advantageous variant, including the justification,
4. specification of the assumed environmental impacts of the analysed variants, including the case of serious industrial breakdowns, and the possible, trans-boundary environmental impacts,
5. analysis and assessment of possible threats and damages of monuments protected by legal regulations concerning the protection and the maintenance of monuments, in particular, archaeological monuments, located within the area of the planned investment,
6. justification of the variant, selected by the applicant, with the specification of its environmental impacts, in particular:
  - humans, animals, crops, water and the air,
  - the terrain surface, with consideration of mass movements, the climate and the landscape,
  - material goods,
  - monuments and the cultural landscape, covered by the existing documentation, in particular, by the register of monuments or inventory of monuments,
7. description of the assumed, important environmental impacts of the planned investment, including direct, indirect, secondary, cumulated, short-, medium- and long-term, permanent and temporary impacts on the environment,
8. description of actions aiming at prevention, limitation or natural compensation of negative impacts on the environment,
9. discussion, whether in the case of the planned investment it is necessary to establish an area of the limited use, in terms of the destination of lands, technical requirements concerning constructed structures and ways of utilisation of those structures,
10. determination of the assumed environmental impacts of the analysed variants, in the case of a serious industrial breakdown, as well as possible, trans-boundary environmental impacts,
11. maps for investments, which may have high impacts on the environment:
  - roads and railway lines - at the scale of 1:10,000 or larger – for investments located within areas protected by the Act of 2004 r. on the protection of the nature and within buffer zones of such areas - at the scale of 1:25,000 or larger – for investments located in other areas,
  - overhead power lines,
  - installations for transport of oil, petroleum products, chemicals or gases,
12. analysis of possible social conflicts,
13. presentation of proposals concerning the monitoring of environmental impacts of the planned investment, at the stage of its construction and exploitation,
14. abstract in a non-specialist language.

Motorways interfere the existing space; in Poland it is mostly the agricultural space (Fig. 4). This infrastructure creates problems in the field of land management, changes in the land use, it destroys

the environmental structure, including the landscape. Investigations concerning compensations of landscape losses are also performed in the frames of the EIA.

**Figure 4** Fragments of S8 and S5 expressways in Poland



Source <http://conadrogach.pl/zdjecia>

## **5. Mechanisms of implementation of the environmental protection issues in construction of the transport infrastructure in Croatia**

The act „Law on spatial planning and designing” has been existing in Croatia since 1980. Following the legislative provisions, the Environmental Impact Assessment (EIA) procedure should be performed prior to the issue of location and building permits. Details of this requirement are specified in "The rule of development of the Study of the Environmental Impact Assessment". Considering that the European Community in 1985 published the Directive with the guidelines concerning the implementation of the EIA in the Member States, Croatia was one of the first European countries, which introduced environmental impact assessment into their legislation. At the same time, when the binding regulations were issued, preparatory works for the construction of motorways were started. At the time of implementation of the EIA, new proposals and conclusions appeared, which were directed on the possibly best integration of roads and the natural environment. It was also stressed that technical conditions, which are considered during the EIA may be included into the design and documentation. This mainly concerned changes in road locations and their adaptation to particular features and values of given areas or to the existing facilities. The issue of the road location with respect to other spatial elements is being solved at the stage of making decisions concerning the road location, using the spatial management plan. However, the environmental impact assessment sometimes proposes better location solutions than those, which are included in the spatial plan. In such cases those plans are modified to the benefit of the EIA. When the road location is decided and presented in planning documents, the assessment of the road structures should be performed according to binding regulations (The national and regional spatial management plans, the General urban management plan).

The main task, for which the EIA was performed, was to find preventing solutions and methods of environmental protection preceding the construction of the road investment. However, in the case of the Croatian solutions, more advantageous locations of motorways were analysed, what proves that the EIA entered the spatial planning sphere.

Amendments of the spatial planning regulations, which were started at the time when designs of the motorway construction were also developed, resulted in consideration of the EIA as the planning tool. Since 2004 only environmental impacts, which are defined by the spatial planning, may be assessed (without consideration of alternative solutions).

At present, the EIA process does not influence the possible strategic decisions concerning the optimum route location. All above issues lead to the statement, that the EIA is included too late in the legal procedure of the spatial planning. In order to avoid negative effects, the EIA should take place before the final route location in the spatial plan. It may be performed at the same time or before the construction planning process, but it must become the part of the strategic assessment of the environmental impact.

The EIA procedure turned to be the effective tool of the preventive protection of the environment. The EIA development should be continued and it should point to new organisational forms, ways of co-operation, as well as implementation tools, in the frames of existing legal regulations, in particular with respect to the spatial planning. This will support more efficient environmental protection (Stojan & Ostojić, 2007).

An important component of the EIA procedures is the presentation of plans, which are compliant with the rules of the sustainable development, promoted by the EU in Council Directive 85/337/EEC. Positive international experiences prove that the EIA should be implemented at the earliest, preparatory stage, when the Strategy of the Spatial Planning and the Plan are being developed. At this phase it is possible to consider the complex economic, energy-related, infrastructural, spatial and other issues in the context of the environmental protection.

The environmental protection issues should be considered since the stage of preparation of the designing documentation, after defining the route location, as early as at the stage of the spatial planning. The EIA study is developed at the same time when the conceptual design is developed. The process of assessment is performed basing on conceptual solutions, which are usually presented at the scale of 1 :5,000. When the study is developed and the route location is approved, the following designs, related to the environmental protection, are attached to the conceptual, the basic and the constructions designs of the motorway construction: the landscape planning design, the noise protection design, the hydrotechnical design, the design of repairing culverts and dykes, the bio-technical design of repairing the slopes located by the motorway, the designing of construction of a green bridge (Stojan & Ostojić, 2007). The landscape planning designs for motorways are highly important (Sipes, 2001), even if the higher road landscape cannot be sufficiently protected due to the limited width of the purchased zone. Those designs include the following protection categories: green management of crowns of culverts and entrances to tunnels, protection of slopes against erosion, renovation of edges of forests, landscape planning of green bridges and passages for animals, visual adaptation of noise barriers, management of minerals, repairs of damaged maneuvering yards, and, in particular, service facilities (rest platforms), according to the natural and cultural landscape features (Stojan & Ostojić, 2007).

*Figure 5 The Croatian landscape and the motorway*



Source <http://www.kierunekchorwacja.pl/autostrady-w-chorwacji-mapa-sieci>

Results and concepts concerning the temporary monitoring of the terrain, waters, the air, flora and fauna should support the stage of planning, spatial-and-technical studies, the EIA assessment for new sections of a motorway and the determination of standards of the designing phase of planning. However, it should be stressed that investigations of some designed routes are still insufficient. This results, first of all, from the rapid intensity of construction and from the high importance of the motorway infrastructure.

In terms of ecology we cannot avoid consideration, in the design development phase, of protection and planning the landscape surrounding the motorway.

## 6. Final conclusions and remarks

The EU Member States, which develop the road transportation systems, must consider the environmental protection issues with high priorities. Experiences and the analysis of the Polish and Croatian solutions in this field prove, that implementation of large investments, such as construction of motorways, integrates the design preparation processes, construction of roads and the spatial planning system. The following issues should be addressed at particular stages of implementation of such investments in both countries:

1. in the field of spatial planning - the relatively slow process of creation of plans and low possibilities to modify them, the insufficient level of definition of sections, which require protection;
2. in the field of law - the high amount of regulations concerning implementation of investments, is particular, the construction of roads, the widely considered environmental protection and participation of the society;
3. in the field of the EIA - studies are being developed basing on given solutions, i.e. it is not possible to influence the existing solution (Croatia) and long procedures of modifications of the Polish solutions, often lack of adaptation of the designing scale to the environmental protection rules, insufficient investigations of areas, which are to be crossed by the planned investments (issues related to data, information and data availability);
4. in the field of the design implementation - unclear specification of the environmental protection means, different ways of implementation of protection - means of protection defined in the documentation impossible for the practical implementation (e.g. the issue of land acquisition from individuals for those purposes), complex social relations („a group property", „a group profit ") in the reality of the market economy.

Concluding, in the process of the motorway construction, well known and valuable natural sites should be considered, such as habitats, karst areas, water bodies and other area, which are to be the subject of an interdisciplinary assessment with the use of all available information. The issue of adequacy and sufficiency of protection actions in planning and construction of the road infrastructure and in the general planning, is an integral elements of the social development in terms of the sustainable development. The dynamic construction of roads in both countries is highly positive in terms of the economic and infrastructural development, however, it limits some research and implementation works performed with respect to the environmental protection. On the other hand it should be considered that some special categories exist, which are not sufficiently integrated with the plan and the design creation system, such as: the valuable landscape, habitats, specified species of fauna and flora. Although the assessment of the quality of landscape elements has been introduced to the practical creation of road transportation projects in the second half of the 20<sup>th</sup> century, at the stage of its preparation the importance of landscape elements is minimised.

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**FINANCING ENVIRONMENTAL ORGANIZATIONS IN REPUBLIC  
OF CROATIA**

**FINANCIRANJE EKOLOŠKIH UDRUGA U REPUBLICI HRVATSKOJ**

**ABSTRACT**

*Fundraising is a problem not only for profit but also for non-profit organizations. Low historical tradition of civil society in Croatia is the cause of the underdevelopment of civil society in relation to other European countries. The development of the non-profit sector and non-profit organizations is depending on state development, economy, social, legal and legislative system. In addition to external factors, internal factors of one non-profit organization influence its development and success. The aim of this paper is to look at the problem of financing environmental organizations from the internal aspect. Results arising from conducted survey in 2014 indicate a lack of transparency of ecological organizations, poor correlation of these organizations through social networks and organizations and poor response to public tenders. A major problem of environmental non-profit organizations in Croatia is poor diversification of revenue structures, by which organizations are at high risk of lacking funds.*

**Keywords:** *civil society, external and internal factors, the problem of financing, transparency, diversification of revenue structure*

**SAŽETAK**

*Prikupljanje financijskih sredstava je problem, ne samo u profitnim, već i u neprofitnim organizacijama. Slaba povijesna tradicija civilnog društva u Hrvatskoj uzrok je nedovoljne razvijenosti civilnog sektora u odnosu na druge europske zemlje. Razvijenost države te vanjski čimbenici poput ekonomskih, socijalnih, pravnih, zakonskih i drugih utječu na razvitak neprofitnog sektora i samih neprofitnih organizacija. Osim vanjskih čimbenika, i unutarnji čimbenici jedne neprofitne udruge utječu na njezin razvoj i uspješnost. Cilj istraživanja ovog rada je promotriti problem financiranja ekoloških udruga sa internog aspekta. Rezultati koji*

*su proizašli provedenom anketom upućuju na nedovoljnu transparentnost ekoloških udruga, slabu povezanost spomenutih udruga putem društvenih mreža te slab odaziv udruga na javne natječaje. Velik problem ekoloških udruga u Hrvatskoj je i slaba diverzifikacija strukture prihoda, čime su udruge izložene visokom riziku nedostajućih sredstava.*

**Ključne riječi:** *civilno društvo, vanjski i unutarnji čimbenici, problem financiranja, transparentnost, diverzifikacija strukture prihoda*

## **1. Introduction**

Non-profit sector and civil society organizations aim to meet the specific needs of the wider community. Globalization and the development of a democratic economic system are conditioning development of civil society in the world, while major changes to the civil society in Croatia appear only after independence in the 90s of the 20<sup>th</sup> century. Today the organizations are the largest type of non-profit sector organizations, and represent a form of free and voluntary organization of legal or natural persons for the protection of common interests or promotion of issues of social interest; so there are environmental, humanitarian, social, health, educational, cultural and other organizations. Since the environmental organizations are integral part of civil society in a particular country, the question is how the development of the civil society is influencing the development of environmental organizations, and vice versa, how the development of environmental organizations affects the development of civil society. Awareness on common objectives, the organization of members as well as quality management and governance affects the performance of the organizations activity. The greater the development of civil society, public and economic sector is more involved in supporting the non-profit organizations, and comparatively, better management of the organization, opportunities for fundraising for the same action are greater. The aim of this paper is to enter into the problem of funding of non-profit organizations, specifically environmental organizations. The purpose of research is to collect data on the problem of financing environmental organizations, ways of raising funds and share of individual models of financing in total financing of the organizations. Due to the growing internet and telecommunication development of the world and the increasing connectivity of citizens through various social networks, effect of environmental organizations and their development will be seen from the point of view of awareness of organization members for modern channels and ways to connect with stakeholders. The development of environmental organizations depends on the development of political, legal, economic and social system in Republic of Croatia.

## **2. Development and influence of environmental organizations on civil society in Republic of Croatia**

Civil society in 90s of the 20<sup>th</sup> century became one of the most popular areas of research in the social sciences. Various authors differently define the concept of civil society, although it is possible to notice the overlap of conceptual meanings of the same components. So one part of researchers, civil society seen as an abstract category attributing some macro-sociological characteristics, the second part represents the individualistic approach and emphasizes the concept of civil action and social capital, while the third part civil society seen as institutions and organizations located in the public sphere. The very concept of civil society as well as research related to civil society exceed the boundaries of individual disciplines such as sociology, economics, political science, law, and in the centre they put relationship between economy, state and society.



According to Jensen (2006), one of the central concept that characterizes modern civil society is based on the rights of citizens to freedom of organization, while Salamon and Anheier (1998) defines civil society as a particular area that is deeply rooted in the traditions and culture of individual societies. CIVICUS is a global alliance dedicated to strengthening citizen and civil society. According to that expert group civil society is a space between the family, the state and the market where people associate to advance common interests.

CIVICUS with the study from 2005 showed the strengths and weaknesses of civil society in Croatia (Bežovan, Zrinščak, 2006, 1). Active membership in civil society organizations is still a developmental problem, which is visible in insufficient civil engagement of citizens and considerably sparse actions in local communities. Insufficient cooperation among civil society organizations is a consequence of the low level of trust between them. The big problem is their poor networking at the international level. The development of civil society depends heavily on investment in human resources, and the main obstacle to its sustainable development remains the problem of financing. On the other hand, the tax framework for the development of civil society is quite encouraging, support of state to civil society at different levels are quite respectable, economic sector is increasingly showing interest in cooperation with civil society and this is especially felt among small and medium-sized enterprises.

Inter-sectoral collaboration, or cooperation among different sectors is becoming more and more increasing as solving tactics for deeper conflicts of interest in the role of public administration, the interests of the business sector and civil society organizations, which are taking up for generally accepted social values. Partnerships are somehow inevitable, because no one is good enough to succeed on they own but still leave room for making choice. Inter-sectoral collaboration is a trendy response to the challenges of globalization, so organizations and other non-profit organizations often engage in various forms of this kind of cooperation geared towards the development of civil society.

The European Commission in April 2004, has published its opinion on the Croatian application for membership in the European Union stating that Croatia will have to make considerable efforts in harmonizing its legislation in the environmental field with the *acquis communautaire*. In the field of environmental protection, unlike other areas such as the problems of poverty reduction, there is significant role of civil society organizations. One of the most famous examples of effective public action of civil society's engagement is environmental organizations Eko Kvarner, Green Action and others engaged in the the Družba Adria project. This shows that the public is very sensitive to actions and activities that may threaten or contaminate Croatian natural resources. The role of civil society in environmental protection is assessed as moderate or significant. Environmental non-profit organizations are increasingly attracting some influential citizens to the membership.

Environmental organizations represent powerful factor of political and social events. Those organizations, as well as other non-profit organizations are taking different actions in public, trying to promote their views and interests, stop or encourage decision-making of some institutions, therefore, represent a powerful corrective measure to official policy.

As people's awareness about sustainable development strengthens, there is a need for their organization and action through a variety of initiatives to preserve natural resources for future generations. The civil society of a country is consisted of various forms of active and free assembly and association of citizens in all spheres of social action but environmental organizations that form association of persons for the purpose of environmental beliefs and goals represent it's very important segment. As there is not a very long tradition of the environmental movement in Republic Croatia, greater impact of environmental organizations in the development of civil society is still expected.

## 2. Empirical research results

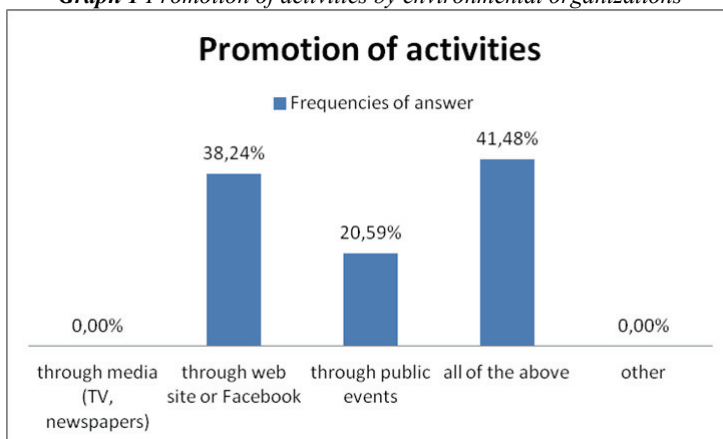
Conducted research about funding problems of environmental organizations has included all environmental organizations in Republic of Croatia (Pavić, 2014). At the time of commencement of the research, the number of environmental organizations in Croatia was 921, whereas only a month later the number of organizations reached 935. At the same time, the Register of non – profit organizations in the Republic of Croatia are not fully up to date, because it contains and those organizations that have been shut down or stopped with its action, and there was some changes with organization addresses. Despite the initial obstacles in finding contacts and the fact that only a small number of organizations have its own page, most of them were found. About for one third of the organizations, contact were not found because the organizations does not exist anymore, the organization does not have a website, even a Facebook page or the blog page, or contact is not made public.

City of Zagreb is the most concentrated county with environmental organizations in Croatia with a population of 162 organizations, while the next, Split-Dalmatia had 108 environmental organizations in 2014. For the purposes of research about the problem of financing environmental organizations a short questionnaire with ten questions was designed, sent via SurveyMonkey. Surveyed organizations comprise 223 registered environmental non-profit organizations for which the contacts were found. Most of the leading figures in the environmental organizations are persons who are volunteering and have a regular job. To organizations a questionnaire was sent, but not all them responded. The research results include an analysis of responses from 34 participants of environmental organizations. Data were collected in the period from 05 May 2014 to 17 June 2014.

There are several different factors that affect business performance of the organization, whether it's profitable or non profitable organization. External factors or influences can be political environment, economic factors, legal factors, socio-cultural factors, technological factors and others. With this conducted research, the problem of financing is seen from an internal point of view, or how the organization and its development impact on the ability to raise funds. The knowledge, enthusiasm and willingness of members and good coordination of activities of members affect the success of the organization.

Potential donors will not get by itself to some organization, if it does not use any form of promotion. A good performance management activity of the organization is the best promotion, because there is no better advertisement for the organization then well conducted program or activity. Every organization should be adjusted to new technological developments, and the potential scope of the organization depends on the application of social networks. Creating a website has to be paid, and the allocation of resources in the organization should be careful, but it is necessary that each organization should then have at least a blog page, Facebook or Twitter page (which are free, and easy to set up and maintain).

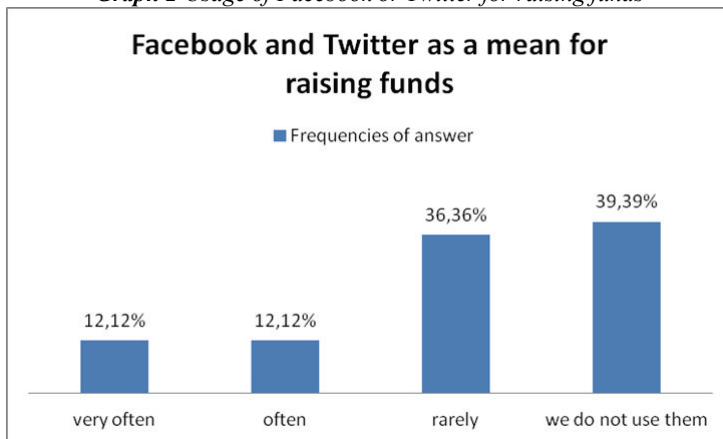
**Graph 1** Promotion of activities by environmental organizations



Source: authors

From Graph 1 it is visible that from 34 participants in the survey 41.18% of them used all of these ways to promote their activities. Own website or web page has 38.24% of them, while organizing various events as a means of promoting activities use 20.59% of them. From the answers it can be concluded that they are not using media because it is too expensive but the authors believe that they are not using Internet enough to promote their activities or to raise funds.

**Graph 2** Usage of Facebook or Twitter for raising funds



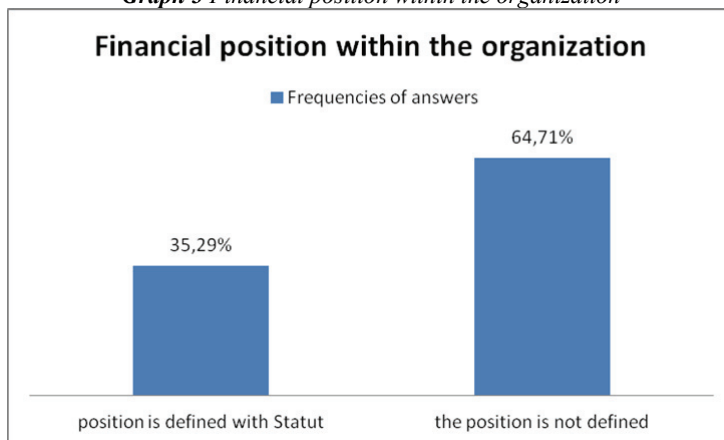
Source: authors

New social networks are adding ever greater connection between citizens. The environmental organizations and other non-profit organizations must recognize the growing importance of these networks. Whether it is on the promotion of its activities, inviting people to various organized events, or the promotion of its products and services, there is not a faster and cheaper way of penetration to the public awareness. From Graph 2 it is visible that 39.39% of respondents answered that they do not use those media, and 36.36% respondents answered

that they are rarely using those medias. Those percentages are not reassuring and it is not leading to better development of civil society in Croatia. Of the surveyed organizations, only 12.12% of them very often used social networks to promote their activities and fundraising. Many organizations do not have a website, and also do not use these social networks.

People, who are establishing an organization, established it mainly to achieve socially-beneficial objectives and with this research authors wanted to know to how many organizations it is important to have a person in charge for the financial part of the organization. So it's not enough to have a purpose, a plan, or set goals which should be achieved if the member of organization does not know how to make a good financial budget. Incomplete, inaccurate and unrealistic financial budget can only hinder the collection of funds. Each organization must adopt the Statute, which is the main act of a society or organization. In the example of the Statute states that the general assembly adopts the financial plan, while president of the organization manages the assets, material and financial operations of the organization, appoints commissions and similar bodies when necessary and assigns their tasks (Non-profit organization Law, 2001). Not every president of the organization has to know how to make a financial plan or budget, but there must be a person in the organization that knows how and that will be in charge of the financial activity.

*Graph 3 Financial position within the organization*

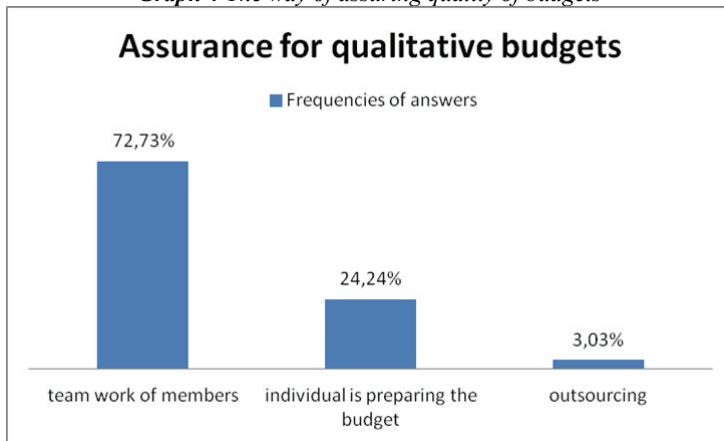


*Source: authors*

According to the Non-profit organization Law (2001) division of responsibilities does not have to be defined, it has been mentioned that the responsibility of managing financial resources and their allocation is up to the president of the organization. Up to the organization is how liability and responsibility will be distributed. President of the organization does not have to have knowledge in accounting, financial reporting or compiling the budget; he may employ a person who shall take charge of this segment. The problem is when the organization does not have a person in charge of finances, because taking care of the finances is too important to be left for outsourcing. From 34 questionnaire respondents, it is visible in graph 3, that 22 of them, or 64.71% answered that in their organization specific position is not strictly defined which is a very high number and shows that either they are outsourcing the position or all members are responsible for the financial part. If all members are responsible for financial part of the organization, it could lead to the confusion and to the lack of ability to recognize responsible person for financial plan or budget.

That budget for project proposals would be well made; there must be coordination of all members of the organization. Members of organizations who understand only finance, but not current and future activities of the organization, cannot make a quality and realistic budget. Also, outsourcing that kind of work is not a major drawback, but what does that mean for the organization itself? If any member does not know how to compile a financial plan or budget, it will not know nor to read it nor to apply it in order to achieve the objectives and purpose of the organization. Of course, small non-profit organizations usually do not have the finance department, but usually only one person who is responsible for managing the financial part of the business, but because of that there should be coherence and coordination among all members of the organization in order to improve business performance.

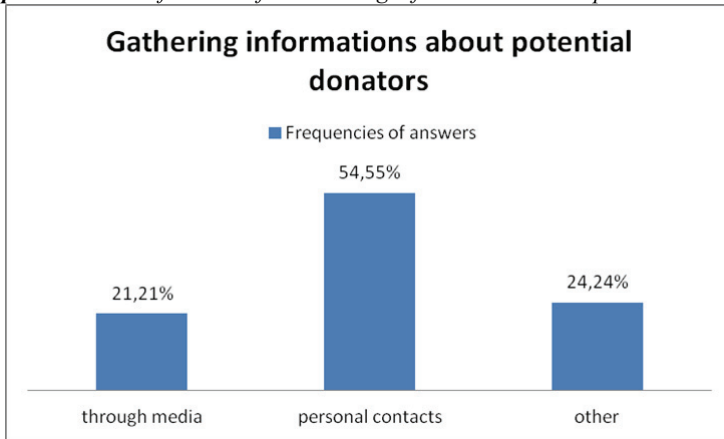
**Graph 4** *The way of assuring quality of budgets*



*Source: authors*

In the organization there must be a person who understands the financial part of the activities, but at the same time there must be coordination of the entire staff in preparing the budget. In Graph 4 it is visible that of the 34 responses collected, 24 of them (72.73%) said that in preparing the budget all members and staff are working together, while 24.24% of them stated that only one person is preparing the budget, or a qualified individual is preparing the budget. Only 3.03% of them are outsourcing the preparation of budget. From answers it can be concluded that members are involved in preparation of budget but we do not know how. If the individual is preparing the budget it is not visible whether he is doing that in collaboration with other members in order to grasp all current and future activities of the organization. The worst thing for organizations is that they are outsourcing financial activity because it could lead to the distorted financial plans, budgets and financial statements.

**Graph 5** Structure of answers for collecting information's about potential donators

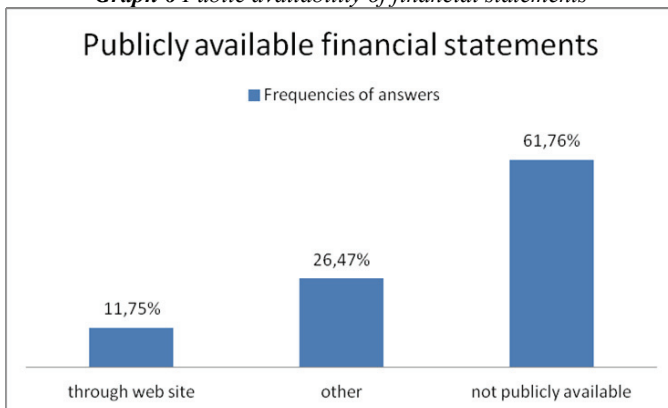


Source: authors

Gathering information about potential donators is important for the greater success of fundraising. How environmental organizations are collecting information's about potential donators can be seen in graph 5. Members of the organization should not be associated only with the top people in the public administration, but also with private and corporate entities. Even 54.55% answered that information on potential donators are collecting from personal contacts and from the media even 21.21% of them.

The success of achieving goals of the organization depends on the cooperation of the organization with key people in the local community, including the members of the organization who are older, commercially ambitious, experienced and who know a wider range of "real" people will help get the resources needed for normal operation of the organization. Some donators do not check the financial statements of the organization, but if it is a little bit higher amount, the financial statements must be made available to them. If the business of the organization is transparent, it is easier to raise funds.

**Graph 6** Public availability of financial statements

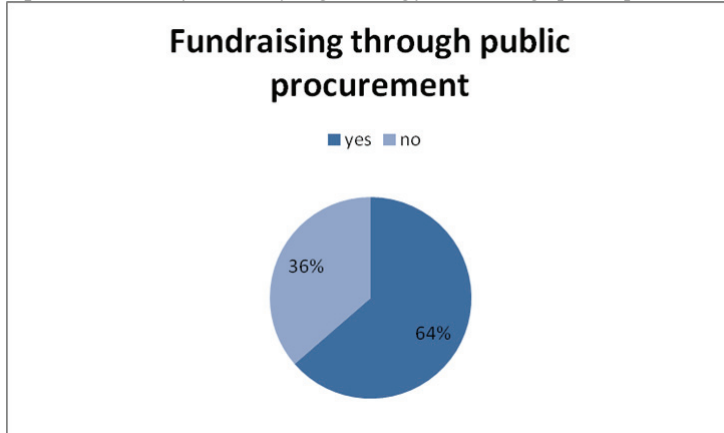


Source: authors

Transparency of organization activities affects the success of fundraising. Just as organizations are preparing budgets for projects to collect funds they also must publish annual financial statements, where is realization of goals visible, i.e. for what really the funds are spent. One cannot expect that the money will arrive without any consideration to donators, because most of the donators want to know where the funds are going and on what the money is spent. Graph 6 shows that from responded environmental organizations, 61.76% of them do not publish public financial statements, while only 11.76% of them publish, either on the website, Facebook page or blog site, their financial statements. From those answers it can be concluded that organizations probably do not understand that by publicly disclosing financial statements they are increasing transparency. In general, profit and non-profit organizations in Croatia do not have a culture in publicly disclosing information's about them. Those figures are worrying and organizations should be aware of benefits that public disclosure brings.

Participation in public (procurements) tenders for the purpose of raising funds is one of the possibilities for financing environmental organizations. No matter win or lose in the competition, organizations should work and provide quality programs and budgets to participate in tenders. Pursuit of economic activities as a form of self-financing becomes an increasingly important source of financing of the organization when they cannot obtain funds from other sources.

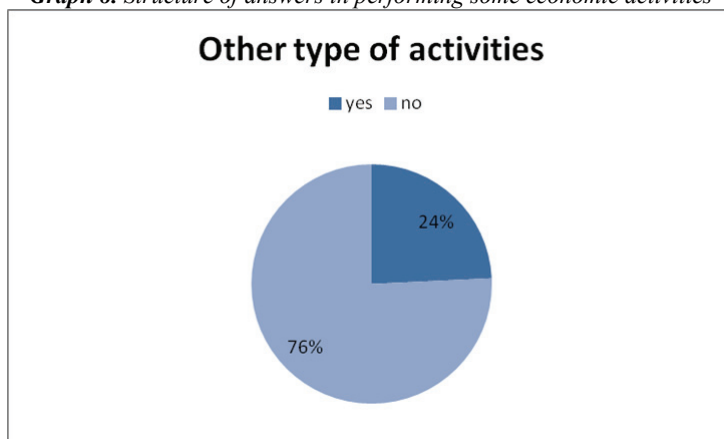
**Graph 7** Structure of answers for gathering funds through public procurement



Source: authors

Subventions and supports of local or regional governments also represent one of the ways to raise funds. Out of respondents, 21 of them (63.64%) are applying for public tenders, while 12 of them (36.36%) are not applying, answers given in graph 7. The reason for those answers may be either in lack of knowledge in the preparation of budgets and projects documentation, or either loss of faith in the state institutions and public administration. But the question that rises from those results is that if they do not apply for funds how they can finance their activities and perform set objectives.

**Graph 8.** *Structure of answers in performing some economic activities*



*Source: authors*

For the financing organization, it is important to have as many different sources of funding, not just one, that can backfire. So, if organization also carries out some economic activity it will reduce the risk in lack of funds in the organization. From surveyed organizations answers visible in graph 8, only 24.24% of them is involved in economic activity, while 75.76% of organizations is not carrying out any economic activity. The state has some funds destined with budget to fund organizations, but the organization is not allowed to rely on government assistance only, but they must work to achieve the objectives and purposes for which they were established.

**Table 1** *Source of financing in the environmental organizations*

<b>Source of financing</b>	<b>Frequencies of answers</b>
state budget	5,88%
local government budgets	8,82%
EU funds	8,82%
donations from companies	17,65%
donations from private persons and membership fees	41,18%
performing some economic activity	8,82%
other	8,82%

*Source: authors*

From Table 1 it can be seen that the most frequent source of financing environmental organizations are donations and membership fees (41.18%), while donations from companies are the largest source of financing for 17.65% of the surveyed organizations. Funding through the performance of certain economic activities is the largest source of financing for 8.82% of the surveyed organizations, as well as funding from the budgets of local and regional government and EU funds. So, it can be concluded that most of the organizations are relying on themselves and their members when it comes to raise funds.



**Table 2 Challenges in raising funds**

<b>What in your opinion is the biggest challenge to raise funds for the activities of the organization? (24 responses from 34 participants in the survey)</b>
1. Raising funds from banks, companies and state
2. The biggest problem is complexity of administration as soon as organization has some funds on the bank account. We estimated that it is easier not to apply for public tenders and to gather money among ourselves when we need it for some activities. It is exhaustive in time and money to invest in writing project proposals, accounting and financial reporting.
3. Corruption of umbrella organization and donators
4. Financial crisis
5. Too small public funds and non transparent public tenders
6. There is not enough tenders which match to the organization activities and bad economic situation in country
7. Ministries which are in charge for financing do not have enough financial resources for taking care of the environment (2 organizations)
8. Not enough donators
9. Lack of financial resources, ignorance, bureaucratically approach and underestimation of organizations by potential donators (2 organizations)
10. Mistrust because of the different manipulation within the organizations (2 organizations)
11. Donators through tenders are largely directing the activities of the organization and with that are violating the freedom of action and decision-making, even if reasonably expected and desired activities are matched, donations are generally insufficient and responsibility and obligations arising from the donations are not in accordance with the value of the donation and results of the project. On the other hand self-financing takes too much time and energy to carry out basic activities. The solution is the implementation of the projects with proportional participation of all stakeholders associated with project activities
12. Lack of human resources for applying on public tenders
13. Foreign donations are not exempt for VAT
14. Insufficient knowledge of legal financial operations - do not dare to enter in some higher economic activity. Smaller organizations often do not have sufficient income in order to have an accountant whom they could ask for advice. They often do not have the ability to pay external consultants / associates who could help with designing a quality budget. Courses to solve the first two problems usually are (too) expensive and are held during working hours (not necessarily members of organization are employed in the organization, members are engaged in their free time and cannot be absent from work to attend the courses ). Small organizations are not competitive in tenders of major donators or even local governments (where such advantage have projects already obtained the support at the national level or EU funds).
15. Organizations are on bad reputation. Perception of public is that they are only spending money without any use for community
16. People do not understand the problems that the organization deals with
17. Assuring co-financing
18. Lack of knowledge and time
19. Forms for projects are too complicated
20. There is no culture in supporting the local community and everything is left to individuals or organizations in their orientation. Insufficient is support by the city government that are often considered rivals rather than collaborators in public activities
21. Too few individuals and too much work in writing project proposals, not enough experience

Source: authors

From the answers shown in Table 2 it is visible that respondents are very sceptical either for community, either for politicians or for the organizations themselves. It is visible that they understand the problem with human resources regarding financial activities and their lack of resources when preparing project documentation and budgets for public procurement or tenders in raising funds. They are also blaming financial crisis for lower funds and lack of funds from Government and from responsible Ministries. So, it can be concluded that environmental organizations are facing many challenges in raising funds. But they should change their thinking and become more open to public and transparently publish their financial statements and activities. The authors believes that with higher transparency, environmental organizations could raise more funds from companies and private persons but also from state and local budgets.

### **3. Conclusion**

Civil society in Croatia is relatively young, and to the intensive growth we are witnessing since independence. How environmental organizations are part of civil society, it can be said that they are depending on the general situation and development of the civil sector. Funding of organizations is the problem of many non-profit organizations, including environmental organizations. Bringing together the right people, capable, with specific knowledge, is determinant of good governance with organization. The purpose and objective of the establishment is important, but people are the ones who lead and manage the organization and which lead to the realization of the purpose and objectives.

The main objective of the research was to assess the problem of financing environmental organizations, from within or from the internal aspect of organizations. With regard to the promotion of the organizations themselves, most of them replied that uses all available ways form promotion (41.18%), while 38.24% of them answered that in order to promote they use website or Facebook. According to the present 79.42% environmental organizations has a website or Facebook, which is not entirely true. Looking through every organization on the Internet, it is estimated that a website or Facebook has less than 50% of organizations, because most of the contacts that were collected were collected from the phone book. There is also a large percentage of those who do not use those media in order to raise funds, even 39.39% of them. The big problem in the environmental organizations is that the specific position of the person in charge for finances is not strictly defined (64.71%). It has already been mentioned the importance of teamwork in environmental organizations, but also in preparing the budget for project proposals. Even 72.73% of them use teamwork staff for preparation of budget.

Good connections with other organizations may only reduce the problem of raising funds. Even 61.76% of respondents answered they do not go public with their financial statements, and thus weak transparency is not reliable and not provides confidence to potential donators. Many organizations have the opinion that tenders of local and regional government are not transparent, but instead to be so focused on the source of funding, it would be better to develop their own transparency through public disclosure of financial statements. That can certainly increase the possibilities of financing from other sources such as donations from private business entities. Even 75.76% of the interviewed subjects are not carrying out any economic activity, because of the lack of ideas, knowledge, interest or time. For most organizations, the largest source of financing represent donations and membership fees (41.18%). Each organization, to reduce the risk of missing funds, should use multiple sources of financing.

The problem of financing environmental organizations can be linked with the development of the civil sector. Civil society, however, and environmental movement has little tradition in

Croatia. It does not have to be a big problem, because the future is uncertain and the future development of environmental organizations and development of civil society depends largely on themselves.

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**INFLUENCE OF QUALITY MANAGEMENT SYSTEM ON CUSTOMER SATISFACTION AND LOYALTY IN HIGHER EDUCATION****UTJECAJ SUSTAVA UPRAVLJANJA KVALITETOM NA ZADOVOLJSTVO I LOJALNOST KORISNIKA USLUGA U VISOKOM OBRAZOVANJU****ABSTRACT**

*Large and rapid changes on the global market are emphasizing the importance of quality management as a core component of competitiveness. Key to differentiation of service sector, including educational institutions, as opposed to other sectors lies in two basic characteristics of services such as intangibility and inseparability of production and consumption. It is these characteristics that emphasize the importance of service quality as a key competitive determinant. People, their knowledge, competencies, effective and well developed organization are becoming bearers of differentiation of businesses and a key component for earning profits in the current market environment. By development of effective QMS (QMS – Quality Management System) there was a need to merge more management systems in to one system – integrated management system. In the case of higher education, organizations need to implement the ESG guidelines. Also, most comon standard for improving the quality in organizations is well known ISO 9001 QMS. Also, every organization have their own specific characteristics and requirements and need to develop the self adjusted high effective QMS. Perceived quality of service in higher education has a positive impact on student progress and development. Thus the aim of paper is to show that relationship between students and faculty have a significant impact on dimensions of quality, which implies satisfaction of students, and thereby their loyalty. Special emphasis is placed on examination of relationship between perceived quality of service of higher education institutions and student results. Based on the data from the conducted research, policymakers in higher education can shape the strategy of higher education focused on the progress and development of students.*

**Keywords:** *competitiveness, career management, quality, ISO 9001, loyalty, customer satisfaction*

## SAŽETAK

*Velike i brze promjene na svjetskom tržištu naglašavaju važnost upravljanja kvalitete kao osnovnu komponentu konkurentnosti. Ključ diferencijacije uslužnog sektora, uključujući edukacijske institucije, kao suprotnost drugim sektorima nalazi se u dvije osnovne karakteristike usluga kao što su nedodirljivost i neodvojivost od proizvodnje i potrošnje. Ove karakteristike naglašavaju važnost kvalitete usluge kao ključne konkurentne odrednice. Ljudi, njihovo znanje, sposobnosti, učinkovitost i dobro razvijena organizacija postaju nositelji diferencijacije poslovanja i ključni komponenti za ostvarivanje profita na trenutnom tržišnom okruženju. Razvojem učinkovitog sustava upravljanja kvalitetom pojavila se potreba za spajanjem više sustava upravljanja u jedan sustav – integrirani sustav upravljanja. U slučaju višeg obrazovanja, organizacije moraju provoditi ESG smjernice. Također, najčešća norma za poboljšanje kvalitete u organizacijama je dobro poznati ISO 9001 sustav upravljanja kvalitetom. Također, svaka organizacija ima svoje specifične karakteristike i zahtjeve te mora razviti vrlo učinkovit samo podešavajući sustav upravljanja kvalitetom. Percipirana kvaliteta usluge u višoj edukaciji ima pozitivan utjecaj na napredak i razvoj studenta. Cilj rada je pokazati da veza između studenata i fakulteta ima značajan utjecaj na dimenzije kvalitete, što uključuje zadovoljstvo studenata, a time i njihovu lojalnost. Posebno je naglašeno ispitivanje veze između percipirane kvalitete usluge institucija višeg obrazovanja i rezultata studenata. Temeljno na podacima iz provedenog istraživanja, kreatori politika s visokim obrazovanjem mogu oblikovati strategije višeg obrazovanja usmjerenog na napredak i razvoj studenata.*

**Ključne riječi:** *konkurentnost, upravljanje karijerom, kvaliteta, ISO 9001, lojalnost, zadovoljstvo potrošača*

### 1. Introduction

Turbulent market environment intensifies the need for a more detailed behavior analysis of users, with the purpose on gaining his trust. User needs in current time are getting harder to satisfy with basic characteristics of products and services. So today market experts are getting more focused on the relationship between buyers and manufacturers that is service providers. From that relationship we can clearly discern the buyer preferences and to see the meaning of product and service quality on the buyers loyalty. The issue of this paper is focused on the influence of service quality on customer loyalty. In hypercompetitive market environment it is difficult to focus the customer attention on only one brand, therefore make him loyal. So the crucial role on the market is in the service quality which implies satisfaction, and thereby loyalty. People, their knowledge, abilities, skills and competence are the key components of every organization. Thereby people are becoming the holders of business differentiation. All assets except humans, is inert and requires human use in order to create additional value. Therefore the conclusion imposes, and from the previous we can see that the basic task of every modern organization is to attract and keep the top people and to work on a wide span of activities and assignments of human resources management. QMS focus the attention of organizations on human resources management, with the goal to increase efficiency and competitiveness of the organization on the global market, and to increase service quality in order to satisfy the customer. Basic market problem is how to keep current loyal customers, and how to attract new ones, knowing that satisfied customers eventually become loyal, which enables more secure selling results, as better business and sell planning, which contributes on making more quality permanent business results. In line with the stated issue the goal of this

paper is to explore the influence of career management teachers on quality of the class in perception of a customer, watched through their satisfaction and loyalty. Research for the needs of the paper was carried out on Virovitica college.

## 2. The importance of human capital development in relations to increased competitiveness

Management of human resources and career is one of the requirements and mandatory procedures which support the process of human potential management in the organization, and thereby one of the documents of QMS that can crucially influence on making human capital out of human potential. The fact is that career management can be definitely established and documented only in organizations that have implemented QMS in line with requirements of international ISO 9001 standard. Legislative regulation which regulates quality management on all levels in Croatian education is continuously improved and coordinated with European aquis. The question of quality management in the educational system is present for a long time. Even though on higher system levels (ministry, agencies, etc.) the system is already organized, very common problem is in application on school levels (from primary schools to universities). Measurements for improving quality are usually brought only on declarative level, without real application and understanding the purpose. One of the most common causes is in lack of education of those who should be involved in that system, and not understanding the basic settings of quality management. For the full application of the management system it is often necessary to change the way of thinking of everyone that influence on quality of provided service (from the principle/dean, through teachers/professor to technical staff).

### 2.1. Client satisfaction

In current time companies compete in providing products and services which customers seek, mostly they are small differences in design, color, taste or service they provide. “There is no doubt that service quality and satisfaction of users are closely related, interconnected greatness” (Došen, 2002:65). “Satisfaction implies clients positive feeling about used product or service, which gives him confirmation that he did a good transaction, that he made the right decision when choosing between different possibilities. Significance of satisfied and unsatisfied client is shown on picture (Table 1). And if the product surpasses the clients expectations then he is really satisfied.

*Table 1 Satisfied opposite to unsatisfied client*

Unsatisfied client	Satisfied client
Only 4% of unsatisfied clients complain directly to the firm	Keeping an existing client costs 4-5 times less than to win a new one
Over 90% of unsatisfied clients doesn't want to do business or to come in contact with the firm any more	Satisfied clients are prepared to pay more for a product/service
Every unsatisfied client will approximately tell nine other people about his unsatisfactory	Every satisfied client will tell five others about his good product/service

*Source: made by author according to Vranešević, T. (2000): Management of customers satisfaction. Golden marketing: Zagreb, page 183. According to Knauer, V. Increasing customer satisfaction, Pueblo, CO: United States Office of Consumers Affairs, 1992.*

The goal of the company doesn't have to be only to satisfy the customers it can also be to delight them. Top companies want to fulfill and surpass the consumer expectations and to put

a smile on their faces, and if they succeed it becomes a standard (Kotler, 2004). “We can bring satisfaction into a direct connection with product quality, with relation of the company to the consumer, with the price, that is the fact that the product shouldn’t be overrated, nor underrated, and with other factors depending on the nature of companies business.” (Kos and sur., 2011:2).

## **2.2. Buyer loyalty**

“Customer loyalty is rated in repeated purchase, forgetting eventual mistakes, recruiting new customers with the propaganda “Word of mouth”, showing what do they like, and what they don’t like” (Meler, Dukić, 2007:116). When customers are turning into loyal customers, they are going through a process that takes some time, and every step has a specific need (Grbac, Meler, 2007). According to Grbac, Meler (2007) the goal of every enterprise is to achieve the highest loyalty with the critical mass of costumers, and in that purpose it is recommended to develop a loyalty program. A loyal customer will buy a product to which he is loyal even though a competitive manufacturer has a lower price on that product. Enterprises have to be aware that building a relationship with customers, regarding to the effort and time they put in doesn’t guarantee that the customer will become loyal or that the satisfied customer will be kept. On the other hand “Loyal customer will buy a brand of a product to which he is loyal, even though competitors have chipper products because he’ll achieve a better relation on the principle value-for-money. He will also be inclined to buy other products of the same manufacturer on the “Hallo-effect” principle” (Meler, Dukić, 2007:123).

## **3. Service quality in higher Education**

Starting points for development of competence profile and existing legislation which cover the area of quality management in education is defined with a series of primary and subordinate legislation. Criteria for service quality in higher education are defined by rules, guidance and extra criteria of the Agency for Science and Higher Education (ASHE) and European Association for Quality Assurance in Higher Education (ENQA). Analyzing the current legislation we can see the highlight on defining quality standards that are expected from universities and colleges. The key role in defining quality standard in higher education in Croatia is tied with National Council for Higher Education, National Council for Science, Rectors’ Conference, Student Conference and Council of universities and colleges and ASHE. From reviewing legislations and rating application in practice, what is early said is evident, legislative framework exists, many activities are set in motion, but according to authors rating there is a lack of practical use and understanding the point of this activities. Implementation of ISO 9001 standard requirements frequently has a positive effect and eases the practical use of those requirements (Kolenc-Miličević, Britvić, Miličević, 2012:69).

### **3.1. Perceived quality of products and services**

“Costumers usually judge the quality of products and services based on different information indicators that are connected with the product. Some of those indicators are inner (intrinsic) to the product or service, while others are external (extrinsic). Together or individual, indicators provide a foundation for perceive quality of products and services” (Schiffman, Kanuk, 2000:146). According to Korda, Milfelenr (2009) perceived value of consumers can be widely defined as a total evaluation of costumers about usefulness of products or services that is based on perceptions of what is accepted and what is given. Significance of quality is different to every user and quality of the service is a subjective category. “Perception of quality of service doesn’t occur suddenly, it is shaped after a series of services and service enterprises...” (Bratko, Previšić 2001:443). “Many consumers use the image of the country of



origin as a stereotype while evaluating the quality of the product (for example “German technique is great.” Or “Japanese cars are reliable.”)”(Schiffman, Kanuk, 2000:146).

#### **4. Influence of product and service quality on customers satisfaction**

Success in keeping customers and increasing their satisfaction and gaining new customers depends on how well you know the needs of customers and understanding why do customers use certain products or services. Satisfaction of the client is based on the price while the quality isn't, that is, the satisfaction of the client is based on the delivered value which main components, but not the only ones, are quality and price. Companies that achieve high rates of satisfaction try to aware their market about that, and they understand that their satisfied clients provide some extra advantages for the company. Satisfied clients are not paying much attention on the price and they stay their customers for a longer period. With time they start to buy products that the company has introduced as a related product or improvement. Also by talking to others they speak in the benefit of the company and their products (Kotler and sur., 2006). Companies know that they are chosen by thy clients because they have the right to choose.

#### **5. Case analysis – Virovitica college**

Virovitica college is founded by Croatian Government Decree on September 7 in 2007. Development of the college from foundation to the end of 2013 has been continuously carried in three basic directions:

1. Development of human resources necessary for continuous promotion of quality of educational process, professional and applied scientific work,
2. Development of material resources necessary for assurance of optimal conditions for conducting class and improving student standard,
3. Activity in the community by creating assumptions for participation in development of local area through transfer of knowledge by realization of cooperation and partnership with economy, private, public and civil sector.

During 2009 Expert council have accepted the Strategy of College development in the period from 2009 to 2013 where one of the goals that was highlighted was the development of the Quality Assurance system and development of human, material and financial resources. By the end of 2009 setting up Quality assurance system has started. During 2011 integrated quality control system was established (which is made of ISO 9001:2008 with IWA 2:2007 guidance for educational institutes, safety management system OHSAS 18001:2007 and the Financial management and control system FMC) which is certified and once a year supervised from the certification company QS Group Zurich Switzerland. 2012 Quality control center was established. During 2014 re-accreditation by ASHE was successfully conducted and recertification by the certification company according to ISO 9001:2008. As one of the basic components in encouraging employees and managing their career is the measure to encourage them to extra education. This measure directly influences on quality of the employee which automatically projects on the quality of his work, class. Concern with the stated measure college encourages and finances their employees on further education through Postgraduate specialist and doctoral studies, as well as active writing of papers and participation on conferences, and exchange of knowledge and experience with colleagues from other higher educational institutions. In order to enable a direct analysis of quality of work of teachers in winter semester in 2009 the first student questionnaire was conducted by electronic way which has a purpose to grade the quality of teachers work and class, and that practice is kept with the present day.

## 5.1. Hypothesis

The goal of this paper is to analyze student questionnaire that is carried out on college and determine if there are indicators which point that implementation of ISO 9001:2008 with IWA 2:2007 guidelines for educational institutions is a improved quality of communication with students and the availability of class materials, organization of class seminars and exercises, and organization of colloquiums and exams. Also it is necessary to connect improvement in the performance of human potential with the satisfaction of customers, and to analyze what influence has the performance of human potential on loyalty of the customers. According to stated three hypothesis of this paper can be specified:

**H 1.** Grade of students from the area of quality communication with students and availability of class materials, organization of seminars and exercises, organization of colloquiums and exams has been improved consider the time before implementing ISO 9001:2008 with IWA 2:2007 guidelines for educational institutions;

**H 2.** Development of student grades according to the linear trend established from the available data is growing;

**H 3.** Establish interconnection between quality of work, satisfaction and student loyalty.

## 5.2. Methods of analysis

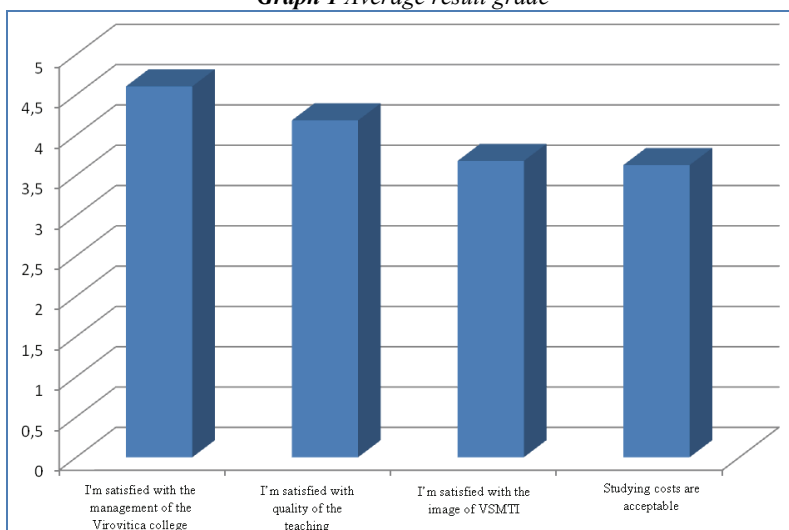
Student questionnaire in college is carried out since the academic year 2009/2010 when only 38 students participated, 7% of the total number of students. In academic year 2010/2011 156 students participated, in 2011/2012 there were 289 students participating, 2012/2013 251 students participated and in 2013/2014 there were 274 students participating. Student questionnaire in college is conducted two times a year, after listened first and after the second semester in an academic year. Each student has a right to participate in the questionnaire which is completely anonymous. All data given by the questionnaire are saved in the database on the domain server. Because the questionnaire is conducted twice in a academic year, in this paper average grades were monitor by academic year not including 2014/2015 because the second questionnaire wasn't conducted. For the collected data relative changes were observed in the current period in compared with the previous, chain indexes, average rate of change and trend. The data was processed with MS Excel. The goal of quality in education is to satisfy the need of students through teachers and Professional Service of the Faculty. "Educational service is not touchable, expendable and in the same time it is produced by service provider (teacher) and consummated by the user (student)" (Vojinić, Stojičić, 2012:21). In order to determine influence of quality in education on the satisfaction of students an extra research was conducted which had a goal to determine the level of satisfaction of students on Virovitica college and their loyalty to the college. Research was conducted on a sample of 310 students of Virovitica college. All students that were in class on January 22 in 2015 were included in the research. The tool was a questionnaire bract made by 8 statements. Students were rating the statements with grades from 1 to 5, 1 would be meant as negative, 3 undecided and 5 positive.

## 5.3. Results of research

The total rating of students from all of the areas in the academic year 2010/2011 is lower for 6,78% compared to the academic year 2009/2010. One year after implementation of ISO 9001:2008 with IWA 2:2007 guidelines for educational institutions in academic year 2011/2012 the rating has increased for 3,69 % compared to academic year 2010/2011, in the next academic year rating was increased for 6,59 % compared to 2012/2013. The grade in the period between 2009/2010 to 2013/2014 has increased by 1,00 % so with the assumption that

the development of student grades from area of organization of colloquiums and exams keep up in accordance with linear trend determined based on observed period, 2014/2015 the grade 4,26 can be expected. From previously stated indicators we can clearly see how encouragement of employees to additional education and promotion of their competence has directly influenced on the change of attitudes of users and a better picture of the college in the perception of the students. What clearly imposes that management of quality and career of the teacher has a significant influence on managing their competences what was clearly recognized by the students. Results of the questionnaire conducted on the sample of 310 students are shown graphically below. Average ratings of results collected are shown on the graphs. Grades were given according to Likerts scale from 1 to 5, 5 being the most positive. According to collected data, high satisfaction of students in all three offered levels is clearly visible.

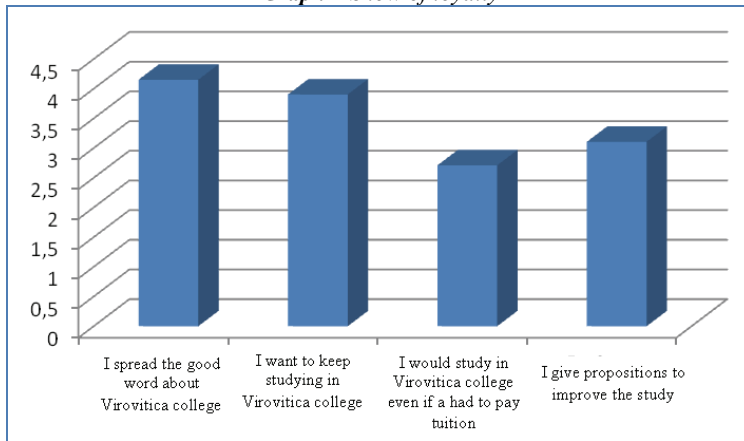
**Graph 1** Average result grade



*Source: made by the authors*

Focus of this research is pointed to the quality of the class which is interdependent with the quality of the teaching staff, and what is positively graded on the previous graph with the average of 4.18. Next question is does the so expressed satisfaction influence on the loyalty of students. According to the next graph we can see that loyalty is shown with the need to spread the good word about the Virovitica college and with the desire to continue education.

**Graph 2 Show of loyalty**



*Source: made by the authors*

It is interesting to see that the change of tuition expenses would significantly influence the loyalty of students, only the component “I would study even if a had to pay tuition” is rated with a average negative grade (2,7) what indicates that the expense has a significant influence on consumers behavior, in this case students. From the conducted research it is possible to conclude how management of human potential and directing their development under the influence of quality guidelines has a significant influence on the perception of quality from the student point of view, which causes satisfaction and loyalty.

## **7. Conclusion**

According to modern theory of marketing the goal of every organization is to satisfy the need and desires of customers and the users of products and services and to make them better than the competition. So it is important for the organization to study the behavior of customers in every moment so they could get an answer on what way to individuals buy, use and dispose products or services so they could satisfy their own needs and desires. Based on starting theoretical settings, this paper has shown through research of satisfaction on Virovitica college that quality of the study and study spaces influence on loyalty of users, in our case students. Students express their loyalty to the college by promoting and spreading the good word what results with the improvement of the colleges image what has a synergistic effect. Synergistic effect is made through improved image, and spreading the good word caused by quality encourages a larger number of students to sign in. Because of the influence the product and service quality on the loyalty of the customers, organizations manage to keep existing customers and improve their satisfaction and also to attract new ones. Quality, that is the perception of quality makes customers loyal. Quality has become a competitive need in the 21<sup>st</sup> century. Only companies that provide the best possible quality will stay successful. Satisfied and loyal customer is not a coincidence, it is a building concept, therefore the behavior of customers may and must be measured so that the results from that measurement could be used in the strategy development of satisfied customers. Career management is strictly connected to strategic decisions of the organization so the development of employees is a continuous process that needs to be motioned be the employer and implementation of ISO 9001:2008 QMS is an ideal opportunity for that. QMS defines written procedures which support the process of management of human potentials in organization, and also one of the

quality documents which can crucially influence in making human capital from human potential. It is undoubted that career management can definitely determine and document only in those organization which have implemented the QMS, so the QMS is a good foundation to build a human resources management system. From the previous, conclusion imposes that ISO 9001 standard can help in the work of educational institutions on all levels of education. The biggest advantage of ISO 9001 standard is in its simplicity. Implementation of ISO 9001 standard it is easier to fulfill requirements which legislator places in front of educational institutions, parallel with that the development of human potentials and their competences is encouraged which directly influences on competitiveness of organizations and perception of users about the organization.

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**THE ATTITUDES OF BUSINESS STUDENTS TOWARDS CORPORATE SOCIAL RESPONSIBILITY: EVIDENCE FROM EASTERN CROATIA**

**STAVOVI STUDENATA EKONOMIJE U ISTOČNOJ HRVATSKOJ O DRUŠTVENO ODGOVORNOM POSLOVANJU**

**ABSTRACT**

*Corporate social responsibility (CSR) has recently become a significant element of sustainable development and social progress. Its importance has been highlighted in theory and in practice. Companies can no longer focus solely on profit related goals. They are now responsible for making decision that are ethically and socially acceptable.*

*The purpose of this research is to examine the attitudes of business students towards corporate social responsibility, investigate the differences in those attitudes and to establish how education process can influence students' understanding of corporate social responsibility. The survey was conducted among undergraduate and graduate students of all years on the Faculty of Economics in Osijek, through a highly structured questionnaire which was designed based on adapted international scales. Business students represent future business leaders who will, with their knowledge and business decisions, create the economic future of Croatia. It is important for companies as well as for academia to consider students' perceptions of corporate social responsibility and to evaluate how prepared are they for this type of business environment. By understanding the attitudes of business students, it is possible to predict and positively influence the future of corporate social responsibility in the economy of Eastern Croatia, and the whole country as well.*

**Key words:** corporate social responsibility, ethics, students' attitudes

**SAŽETAK**

*U posljednjih nekoliko desetljeća, društveno odgovorno poslovanje je postalo značajan element održivog razvoja i društvenog napretka. Tvrtke više nisu isključivo fokusirane na ciljeve vezane uz profit, već vode značajnu brigu o donošenju etičkih i društveno prihvatljivih odluka.*

*Svrha ovog istraživanja jest utvrditi stavove studenata vezane uz društveno odgovorno poslovanje, istražiti razlike u njihovim stavovima te ustanoviti kako edukacijskim procesom utjecati na shvaćanje studenata o društveno odgovornom poslovanju. Istraživanje je provedeno među studentima svih godina preddiplomskog i diplomskog studija Ekonomskog fakulteta u Osijeku uz pomoć visoko-strukturiranog upitnika koji je oblikovan na temelju prilagođenih međunarodnih mjernih ljestvica. Studenti predstavljaju buduće poslovne vođe koji će svojim znanjem i poslovnim odlukama kreirati gospodarsku budućnost Republike Hrvatske. Tvrtkama, kao i akademskoj zajednici, važno je utvrditi kako studenti percipiraju društveno odgovorno poslovanje kako bi se ustanovilo u kojoj su mjeri oni kao budući menadžeri pripremljeni za takvu vrstu poslovnog okruženja. Na temelju istraživanja stavova studenata kao budućih menadžera, moguće je predvidjeti i pozitivno utjecati na smjer razvoja društveno odgovornog poslovanja, kako u gospodarstvu istočne Hrvatske, tako i u cjelokupnom gospodarstvu zemlje.*

**Ključne riječi:** društveno odgovorno poslovanje, etika, stavovi studenata

## 1. Introduction

Corporate social responsibility (CSR) is today a widely adopted business practice in developed countries. Modern business systems are now called upon to exercise more than what they are required by the owners. They must comply with the demands placed upon them by society. Philip Kotler in his book "Corporate Social Responsibility", states that the global idea of corporate social responsibility grew into a worldwide movement. However, society and the business world have gone a long way to the establishment and general acceptance of these new social and managerial paradigms. In the broadest sense of the definition, corporate social responsibility means that the company takes responsibility for its actions in a social context, and is driven not only by their own profits but also by its influence on the environment, community, employees, human rights, supply chain and market in general. (Meštrović, 2009, 46) It is a very broad concept whose precise understanding and definition often depends on the particular context. Krkač (Krkač, 2007, 224) pointed out that sometimes the terms "business ethics" and "social responsibility" are used synonymously, and sometimes radically different. In other case business ethics relates to the decisions of individuals or working groups whose decisions are assessed as being morally correct or incorrect, while the social responsibility refers to the broader context, within which the totality of business in relation to the totality of society is being assessed as morally correct or not. The analysis of different definitions leads to the following constituent elements that reflect the social responsibility of business: (1) continuous and voluntary commitment of a company, (2) business practices beyond the legal and ethical norms, and (3) the company's efforts to balance the effects of business activities and interests of different stakeholder groups of society in three dimensions, economic, environmental and social. (Ivanković, 2010, 26) Whether the concept of corporate social responsibility is observed in practice or in theory, we can conclude that it is an interdisciplinary field, which is within the economic entity cared by experts of various kinds, as well as being the point of interest for researchers from different scientific disciplines.

Although much has been written about corporate social responsibility and stakeholder theory, little is known about business students' attitudes towards corporate social responsibility. Understanding business students' attitudes towards corporate social responsibility is important both for companies and academia. The global business community is increasingly embracing corporate social responsibility as an essential component of improving corporate reputation and business students represent future business leaders, forthcoming entrepreneurs, managers and employees which will, with their knowledge and business decisions, create the economic future. Therefore, it is important to evaluate how prepared are they for this type of business environment. Understanding business students' attitudes about corporate social responsibility will help to determine and positively

influence the future of corporate social responsibility in the economy of Eastern Croatia and the whole country as well. Universities play a fundamental role in CSR education since they are the greatest contributors to the formation of their students and that is why it is important to investigate to what extent the CSR is represented in education. The purpose of this study was to measure their attitudes on CSR, the differences between them and the possible influential factors that may be correlated as well as to understand what can be done to enhance positive attitudes.

In the first part, this study will focus on investigating differences and influences on CSR attitudes according to gender, age primary major, year of study and GPA. The second part of the study focuses on determining the general level of CSR knowledge among the students and the representation of CSR in high education in Eastern Croatia.

## 2. Literature review

Many studies have been conducted with corporate social responsibility being the main subject. Attitudes about CSR can be important indicators of its current representation and predictors of the CSR future. Singhapakdi et al. (Singhapakdi et al., 1996) created the 13-statement "Perceived Role of Ethics and Social Responsibility" (PRESOR) instrument to measure perceptions of CSR, using a nine-point Likert scale to measure level of agreement or disagreement with each statement. The instrument's statements indicate the respondent's views on the importance of a company's short-term success, long-term success, and profitability. Elias (Elias, 2004) used the PRESOR instrument to measure student perceptions of CSR before and after high-profile corporate bankruptcies. According to his results, students in general perceive corporate social responsibility to be more important to profitability and long-term success of the company and less important to short-term success after media publicity of corporate scandals.

The future success of corporate social responsibility depends on the attitude of the coming generations. They will influence the relations between business and society, be it as a citizen, a customer or a manager. Usually, young generations are considered to be more open to social and environmental issues, promising thus a bright future for CSR. The number of students in business schools integrating optional courses in CSR or specialized programs is indeed increasing (Moon and Matten, 2004).

Many studies considered gender, age, and college major as important factors in influencing student perceptions. Elias (Elias, 2004) found that females and younger students are more sensitive to ethics and the importance of social responsibility. Some of the older studies, for example Kohlberg (Kohlberg, 1984) also suggested that age positively affects moral development. Relationship between gender and business ethics received great attention and was the subject of large number of researches. A numerous empirical researches indicated that females are more ethical than males, despite the fact that there have also been many studies which show no ethical difference between male and female respondents (Atakan et al., 2008). Burton and Hegarty (Burton and Hagerty, 1999) found that level of CSR orientation with female students is higher than with male students. In other words, this indicated that females are more likely to rate higher on scales of ethics and social responsibility than males. Smith et al. (Smith et al., 2001) found that females pay more attention to corporate ethical responsibilities than males. Other research provides evidence of additional demographic characteristics that influence student CSR perceptions. Arlow (Arlow, 1991) finds that age is related to students' CSR orientation. Kraft and Singhapakdi (Kraft and Singhapakdi, 1995) and Kraft (Kraft, 1991) find that work experience of survey respondents is an important factor as positive perceptions of social responsibility increase with work experience.

Kolodinsky et al. (Kolodinsky et al., 2010) used Forsyth's (Forsyth, 1980) personal moral philosophy model to analyze four predictors of CSR attitudes: students' materialistic values, two ethical ideologies or stances, and spirituality. The study showed that materialism is negatively



related to CSR attitudes, and also that spirituality among business students did not significantly predict CSR attitudes. As for the ethical ideologies, the study showed that students were more likely to have favorable attitudes about CSR if they held ethically idealistic views. Findings revealed that business students who indicated holding ethically relativistic views were not favorably predisposed to believing CSR was important.

Several studies were conducted to examine the question of social responsibility education, and its components, especially ethics. Business students may need training in ethics and moral reasoning more than most other students (as they face ethical challenges and dilemmas in managing), but they do not always receive such education, and if they do it is usually not mandatory. Although there is extensive research on CSR, it is usually not included in the business curricula (Gardiner and Lacy, 2005). Some older studies (e.g. Thompson, 1990) showed that business schools can have a negative effect on students' ethical views turning them into narrow minded profit makers (Matten and Moon, 2004).

Sleeper et al. (Sleeper et al., 2006) found that business students, particularly women, are indeed interested in CSR education. A substantial sample of business students reacted very positively to business school education on corporate conduct affecting social issues. Female students exhibited significantly higher scores, reflecting a stronger tendency among women than men to agree that business schools should address social issues in their curricula. Lamsa et al. (Lamsa et al., 2008) examined the effect of business education on student attitudes toward CSR. The results indicated that "as a whole, students valued the stakeholder model of the company more than the shareholder model," although attitudes differ according to gender with women more sympathetic to the stakeholder model.

(Cornelius et al., 2007) in their study stated that business schools have a responsibility to provide practitioners with training in the basics of ethics, which would ideally act as a catalyst to stimulate socially and ethically managed business organizations. Unfortunately, that is not always the case. According to Matten and Moon (Matten and Moon, 2004, 323), unless they fundamentally change, business schools are "no more than brain washing institutions educating their graduates only in relatively narrow shareholder value ideology."

### **3. Methodology**

#### **3.1. Sample**

Survey was administered to 253 business students at the Faculty of Economics in Osijek. The questionnaires were distributed in classes and students were given sufficient time to complete them. Data on several demographic variables was collected, including gender, age, class year, primary major and GPA. The personal characteristics of the respondents show that 37.9 percent of the respondents were male, and 62.1 percent female; 90.5 percent of students were between 19 and 25 years of age, and 9.5 percent of students were between 26 and 30 years of age. Furthermore, 27.3% of students were on their first year of study, 17.8% were on the second year, 21.3% were on the third year, 18.2% on the fourth year and 15.4% on the fifth year of study. The sample consists from students representing all possible primary majors at the Faculty of Economics in Osijek. 27.3% of the sample were students of the first year of study who have not yet selected their desired primary major; for 15.5% of students primary major was finance; 15.8% students' primary major was marketing; 23.3% students' primary major was management; 7.9% students' primary major was entrepreneurship and 10.3% of students' primary major was business informatics. The data showed that the most frequently reported GPA in the responses was from 3.50 to 3.99 (38.7%) followed by 3.00 to 3.49 (20.9%), 2.50 to 2.99 (15.8%), 4.00 to 4.49 (13%), below 2.50 (5.5%) and 4.50 to 5.00 (1.2%).

### 3.2.Measures

The questionnaire was constructed from scales measuring attitudes towards corporate social responsibility, general knowledge about CSR, intention of incorporating CSR in future companies, representation of CSR in education, religiousness and ethics. Respondents were given statements and a five-point Likert scale was used for the scoring system (1 indicating strongly disagree, and 5 indicating strongly agree).

Attitudes towards social responsibility of business were measured using adjusted 13-statement PRESOR instrument developed by Singhapakdi and colleagues' (1996). Before inserting in the questionnaire, the statements were translated into Croatian. Instead of original nine-point scale, Likert's five point scale was used for evaluating the statements. The internal consistency reliability of the scale (Cronbach's Alpha) was 0.768.

The scales for measuring general knowledge about CSR, the representation of CSR in education, the intention of incorporating CSR in future companies and religiousness were developed by the authors. The scale measuring general knowledge about CSR consisted of four statements with Cronbach's Alpha of 0.808. The representation of CSR in education was measured with three statements and Cronbach's Alpha of the scale was 0.770. The intention of incorporating CSR in future companies was composed from three statements with Cronbach's Alpha being 0.792. The level of religiousness was measured with three statements which show internal consistency reliability of the scale (Cronbach's Alpha) was 0.949.

The ethics was measured using two ethics constructs, idealism and relativism. Forsyth's (1980) Ethical Position Questionnaire was used for this scale. Each scale has ten items. The statements were translated into Croatian before inserting in the questionnaire. An example of an idealism item is: "People should make certain that their actions never intentionally harm another even to a small degree." An example of a relativism item is: "What is ethical varies from one situation and society to another." The Cronbach's Alpha for idealism and relativism was 0.750 and 0.737, respectively.

### 4. Results

The analysis of attitudes towards CSR showed mean score of 3.4125 (SD=0.42984). This indicates that business students have positively directed attitudes towards CSR. The mean score for students' intention of incorporating CSR in their future companies was 3.8314 (SD=0.7777) which shows that they mostly tend to incorporate CSR in their future companies. 69.6% agreed and strongly agreed on the statement that if the decision will depend on them, their company will be socially responsible. 64.4% of students agreed and strongly agreed on the statement that, no matter the position they will have in it, they will make every effort that the company they are working for incorporates social responsibility.

In accordance with previous research, this study tried to determine whether there is a significant difference in attitudes towards CSR for male and female students.

**Table 1** An independent-samples t-test results

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
CSR Attitudes	Equal variances assumed	,217	,642	-2,671	251	,008	-1,4698	0,5502
	Equal variances not assumed			-2,700	207,898	,008	-1,4698	0,5443

Source: Authors' work

An independent-samples t-test was conducted to compare the attitudes towards CSR for male and female students. The test showed there was a significant difference in mean scores for males ( $M=3.3213$ ,  $SD=0.41289$ ) and females ( $M=3.4683$ ,  $SD=0.43173$ ;  $t(251)=-2.671$ ,  $p=0.008$ ). The magnitude of the differences in the means was small ( $\eta^2=0.02$ ). The analysis explains that female respondents are more sensitive to ethics and the importance of social responsibility which is in accordance with previous research (Elias, 2004; Kohlberg, 1984; and Burton and Hegarty, 1999).

This study also aimed to explore if there is a difference in attitudes about CSR and the level of knowledge about CSR between age groups, GPA groups and primary major groups.

A one way between-groups analysis of variance was conducted to explore the impact of age on CSR attitudes as well as the average knowledge about CSR and it showed that there was no statistically significant difference in attitudes towards CSR or average knowledge about CSR between age groups. The ANOVA analysis also showed there was no statistically significant difference in attitudes towards CSR or average knowledge about CSR between GPA groups. However, there is an impact of primary major on the level of knowledge about CSR. Subjects were divided into six groups according to their primary major (Group 1: primary major not yet selected (first year of study), Group 2: finance, Group 3: marketing, Group 4: management, Group 5: entrepreneurship, Group 6: business informatics). There was a statistically significant difference at  $p<0.05$  level in average knowledge on CSR scores, as well as in attitudes on CSR. Despite reaching statistical significance, the actual difference in mean scores of attitudes on CSR between the groups was quite small. The effect size, calculated using eta squared, was 0.04. The actual difference in mean scores of average knowledge was however large. The effect size, calculated using eta squared, was 0.12. Post hoc-comparison for average level of knowledge on CSR using the Tukey HSD test indicated that the mean score for Group 1 ( $M=3.1824$ ,  $SD=0.78542$ ) was significantly different from Group 2 ( $M=3.8739$ ,  $SD=0.83199$ ), Group 3 ( $M=3.7750$ ,  $SD=0.69522$ ), Group 4 ( $M=3.8178$ ,  $SD=0.82763$ ), Group 5 ( $M=3.7875$ ,  $SD=0.53971$ ) and Group 6 ( $M=3.7885$ ,  $SD=0.78324$ ). The latter analysis is consistent with the ANOVA analysis that explored differences between level of knowledge about CSR and the year of study. It showed that there is a significant difference in the level of knowledge about CSR between first year of study and higher years of study. The average level of knowledge was higher with students on their second, third, fourth and fifth year of study than with the students on their first year of study.

Results revealed that students on the higher year of their education show greater level of knowledge about CSR which indicates that education indeed has a positive influence on the level of knowledge about CSR. The correlation matrix also confirmed the existence of statistically significant positive correlation between year of study and the average knowledge about CSR.

The correlation between ethics and attitudes about CSR was measured with ethical idealism and ethical relativism. Correlation analysis (with statistical significance of  $p<0.05$ ) showed that the business students in our sample were more likely to have a favorable attitude about CSR if they held ethically idealistic views (the correlation was 0.376). Ethical relativism is considered by Forsyth (1980, 1992) to be orthogonal to idealism. The analysis showed that correlation between ethics relativism and CSR attitudes has no statistical significance. It defers from previous studies (Singhapakdi, 1996; Kolodinsky et al., 2010) which revealed that business students who indicated holding ethically relativistic views were not favorably predisposed to believing CSR was important (beyond focusing on profit maximization and shareholder wealth).

Besides ethics, religiousness also showed statistically significant positive influence on attitudes about CSR. It means that students with higher level of religiousness tend to have more positive attitudes about CSR.

The students were asked to estimate the percent of their salary they would be willing to give up in order to work for a socially responsible company. The results showed that majority of students (85%) were willing to sacrifice some percentage of their salary. 53.4% of students said that they would be willing to give up 5-10%, 29.2% would sacrifice 15-20%, and 2.4% of students would be willing to sacrifice more than 20%. These results show that students do recognize and value the importance of CSR in considering their future careers.

The analysis of variables related to CSR in education showed that the scale of representation of CSR in education had mean score of only 2.8136 (SD=0.78519). Also, 73.9% students agreed and strongly agreed on the statement that CSR should be more incorporated in high education. These results indicate that CSR is not enough incorporated in high education and that there should be more courses dealing with the subject. The average level of knowledge about CSR had mean score of 3.6410 (SD=0.81623) which also shows there is room for improvement. The correlation matrix showed there was statistically significant (even though only 0.160) a positive correlation between the level of knowledge and the attitudes towards CSR. Multiple regression analysis indicated that, even small, level of knowledge has statistically significant positive influence on attitudes about CSR. This leads to conclusion that incorporating CSR in education more extensively can substantially contribute to creating more positive students' attitudes towards CSR.

## **5. Discussion and conclusion**

In the present study, students' attitudes toward CSR, several factors hypothesized to have a relationship with attitudes on CSR as well as CSR incorporation in educational system were examined.

The attitudes towards CSR among business students were mostly positively oriented. The research showed that students do perceive the importance of CSR which was proven by the fact that 85% of students were willing to sacrifice some percentage of their salary to work in socially responsible company. Considering the fact that the economic situation in the last couple of years in Croatia has been difficult and that the country is still struggling with the recession, students willing to sacrifice parts of their salary shows that they attribute significant value to CSR. Considering that business students represent future managers and business leaders it can be concluded that they will, depending on their position, incorporate or at least try to incorporate CSR in their future companies.

When considering the intention of incorporating CSR in their future companies, business students showed that they do intend to behave in a positive way. Business students showed notable intention of making efforts to incorporate CSR in their future companies regardless of their position in it. More than half of them stated that they will make significant effort to incorporate CSR in companies they will work for.

As for the differences in the attitudes, the results from this study seem to support some findings from previous research (Elias, 2004; Kohlberg, 1984; and Burton and Hegarty, 1999) that female students are more sensitive to ethics and the importance of social responsibility than male students. This could be due to traditionally different social roles (female role being more oriented to caring for others). It can also be considered as problematic to some extent because it is still relatively harder for women to advance into managerial and particularly to top managerial positions than men. It can be concluded that men's attitudes have and are likely to continue to have a dominating role in designing a business strategy. For business school education this poses a specific task to try to influence the attitudes of male students in particular.

As regards of ethics, the research partially differs from the research that was conducted by Kolodinsky et al. (Kolodinsky et al., 2010.) It did not confirm the conclusion that business students who indicated holding ethically relativistic views were not favorably predisposed to believing CSR was important. However, it did confirm the conclusion that students are more likely to have

favorable attitudes about CSR if they held ethically idealistic views. Idealism involves the degree to which a person has a genuine concern for others and for taking only those actions that avoid harm to others (Forsyth, 1992). This would indicate that CSR may appeal to students who have genuine concern for the well-being of others, and who align most closely with actions that do not harm others. (Forsyth, 1992; Henle et al., 2005). Results of the study showed that students' attitudes towards CSR are influenced more by ethical values than by the level of knowledge and education about CSR. This conclusion emphasizes the importance of incorporating general ethics courses and contents in business study curriculum.

Besides ethics, religiousness was found to correlate with attitudes towards CSR. The results that indicated positive influences of religiousness were expected because it is presumed that students indicating strong personal religious values and beliefs would have stronger ethics values and pay more attention to CSR. This is a variable that can be considered as important variable for segmenting for profiling students that are most susceptible to CSR contents and activities.

The difference in the level of knowledge about CSR between first year students and students on higher years of study shows that education has an important role and that it does have an effect on the level of knowledge about CSR. The average level of students' knowledge is higher on the second, third, fourth and fifth year of study than on the first year of study. The level of knowledge also progressively grows, namely the results show that the higher the year of study the higher is the level of knowledge about CSR.

Based on the analysis of the results concerning CSR in education, it has been concluded that CSR should be more extensively incorporated in the business education curriculum. The students evaluated that CSR was not sufficiently represented in their higher education program, as well as that there should be more discussions about CSR within individual courses. The fact that 73.9% of students agreed and strongly agreed on the statement that CSR should be more incorporated in high education only confirms the above.

Results of this research can be useful to all social stakeholders that are interested in raising the level of positive attitudes towards CSR. Understanding the attitudes and the factors that have an impact on them facilitates influencing those attitudes in positive direction which is an undeniably desirable social goal. It is very important for high education institutions to be aware of the level of CSR education they are providing to their students and to understand students' views and values so they could develop an effective educational program to increase the awareness and positive attitudes towards corporate social responsibility.

As future research recommendation, it would be interesting to investigate the differences in attitudes between students from different universities. Given the findings of this research, it would also be worthwhile to conduct future research to determine whether students with positive attitudes towards CSR actually act on their beliefs by choosing to work in organizations that highly value CSR and by making an effort to promote CSR in their work environment. In addition a research should be conducted in order to investigate whether similar results would be found among managers, non-management workers and business owners.

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## **SOCIALLY RESPONSIBLE CONSUMER BEHAVIOUR**

### **PONAŠANJE DRUŠTVENO ODGOVORNOG POTROŠAČA**

#### **ABSTRACT**

*The purpose of this paper is to examine the concept of social responsibility and to contribute to understanding of socially responsible consumer behaviour, that is, to determine the connection between certain models of behaviour of socially responsible consumers and movement of their income. The paper uses existing knowledge in the field of consumer preferences and utility, altruism and responsibility of an individual towards society and community. Methodologically, the paper relies on the consumer behaviour measurement scales of other researchers and TPB theory of human behaviour. The paper defines three dimensions of consumer social responsibility, socially responsible investment, green products, and good consumers, deepening the understanding of consumers social responsibility as qualitative basis for further scientific research, confirming the main scientific hypothesis of paper, and rejects the research hypothesis about positive correlation between consumers income and their willingness to allocate income for products of socially responsible companies.*

**Key words:** consumer behaviour, social responsibility, altruism, measurement scales, income

#### **SAŽETAK**

*Svrha ovog rada jest istražiti koncept društvene odgovornosti te doprinijeti razumijevanju ponašanja društveno odgovornog potrošača, odnosno utvrditi poveznicu između određenih obrazaca ponašanja društveno odgovornih potrošača i kretanja njihovog dohotka. U radu se polazi od postojećih spoznaja iz područja izbora potrošača i korisnosti, altruizma i odgovornosti pojedinaca prema društvu i zajednici. Metodološki, rad se oslanja na mjerne ljestvice ponašanja potrošača drugih istraživača te TPB teoriju o ljudskom ponašanju. Rad je definirao tri dimenzije društvene odgovornosti potrošača, društveno odgovorno ulaganje, zelene proizvode, te dobre potrošače, produbljujući spoznaje o društvenoj odgovornosti potrošača kao kvalitetne podloge za daljnja znanstvena istraživanja, potvrđujući tako temeljnu hipotezu rada, te odbacio pomoćnu*



*hipotezu rada o pozitivnoj vezi između dohotka potrošača i njihove spremnosti za izdvajanjem dohotka za proizvode društveno odgovornih poduzeća.*

**Ključne riječi:** *ponašanje potrošača, društvena odgovornost, altruizam, mjerne ljestvice, dohodak*

## **1. Introduction**

Socially responsible customer behaviour is relatively unexplored field of research. Other researches are mainly focused on corporate social responsibility on which one can find a large number of data sources. The aim of this paper is to determine the behaviour of socially responsible consumers, to examine whether consumers are truly altruistic how they represent themselves, whether they are willing to sacrifice themselves for higher goals or think that this is someone else's responsibility. In the field of altruism, the question that arises is why and when people help others, who will help and so on.

From the above mentioned theoretical problem of the lack of research papers from the primary research areas of this paper, the following research objectives are determined: to investigate, identify and elaborate social responsibility, to examine the extent to which consumers are willing to give up their income for the purpose of social benefits and to establish a link between certain patterns of behaviour of socially responsible consumers and movement of their income.

Within the framework of defined research objectives, the following research hypothesis is set: with science-based existing knowledge about social responsibility, particularly social responsibility of consumers, it is possible to identify models of behaviour of socially responsible consumers as a useful foundation for further research in this area. Research hypotheses of paper is following: consumers are more willing to allocate income for goods that offer socially responsible companies. The hypothesis is set according to the assumptions of modern theories of consumer behaviour, according to which consumers demand products due to their characteristics that maximize their utility, and not because of the product as such.

## **2. Rational customer preferences and utility**

Economic theory of allocation of resources is based on the utility function which represents consumer preferences over baskets of goods and each consumer maximizes his or her utility, taking into account their budgetary constraints. The term utility refers to subjective pleasure or satisfaction that consumer feels spending some good, and is different from consumer to consumer, depending on his needs. The assumption is that consumers are rational in their preferences. This implies that consumers are entering the market with pre-defined preferences on prices of goods and in accordance with them spend their earnings on one or the other product. Therefore, the purchasing power of consumers depends on their income and prices they face on the market.

Consumer behaviour is the area of interest of different scientific fields, such as social psychology, economics especially microeconomics, marketing and others. From a microeconomic point of view, there are different approaches to consumer behaviour and are consequently developed different theories of consumer behaviour that in its analysis include variables such as the choice between different products, features, disposable income, utility, preferences, etc. Unlike traditional theories, in which a consumer obtains utility from consumption of goods as such, the modern theory of consumer behaviour starts from new approach which has its foundation in demand for features.

Modern theories of consumer behaviour were introduced by K.J. Lancaster, as he assumes that the consumer demands goods because of their characteristics that provide him utility, and not for good as such. According to this theory, one good can have more than one characteristic, and one characteristic can be found in more than one good, with the fact that the goods which have common characteristics, may have other characteristics quantitatively different or may have the same characteristics, but in quantitatively different combination, or in different proportions. Apart from Lancaster theory of demand for characteristics, new theory of behaviour of ethical consumers was

developed by Amanor-Boadu and Schnitz in their paper "Consumers and Evolution of New Markets: The Case of the Ethical Foods". The theory of behaviour of ethical consumer is an extension of the Lancaster theory, and the authors also included socio-psychological factors of consumer behaviour. The theory has proved that an ethical consumer develops in the phase of psychological self-realization and that today there are large number of that kind of consumers, so they actually represent a specific market niche. When ethical consumer makes a decision, it is according to this theory driven by external characteristic of a product, changes the role of producer, it considers the impact of the product on the community and choosing the products that are in line with its ethical principles (Amanor-Boadu & Schnitz, 2008).

### 3. Altruism and consumer responsibility towards society and the community

Altruism can be defined as understanding for the interests of others, self-sacrifice showed for others, a willingness to help in various ways (Croatian Encyclopaedic dictionary, 2004). Altruism undoubtedly exists according to Gilboa (2010). Altruists are people who are focused on helping, even when they do not expect any benefits in return (Myers, 2005). But altruism is not necessarily connected only to the public goods in economic sense, but also with social responsibility, given that it also involves care for other economic individuals.

The basic question that arises is why and when people will help others, who will help and what can be done to increase helping others. Several theories about helping agree that in the long run, both the donor and recipient benefit from helping. In addition to the exchange of material goods, people also exchange social goods (love, information, etc.) and are guided by min-max strategy - to minimize costs and maximize reward (benefit) (Myers, 2005). Table 1 provides an overview of the theory of altruism and shows that there are three levels of explanation in which helping can be achieved: on *the psychological level* people usually help others in need or if they expect a reward for helping, on *the sociological level* helping is based on reciprocity that is socially responsible standards if the pleasure is motivated by internal factors, while at *the biological level* people usually help their relatives with the purpose of extension of a kind.

**Table 1** Comparison of altruism theories

How can altruism be explained?			
Theory	Level of explanation	External rewarding for helping	Internal rewarding for helping
Social exchange	Psychological	External rewards for helping	Trouble – internal rewards for helping
Social norms	Sociological	Reciprocity norm	Social-responsible norm
Evolutionary	Biological	Reciprocity	Helping others

Source: adapted from Myers, 2005, pp 489.

Today's consumer is characterized by its focus on making decisions that are of a wider impact on society as a whole, and so are consumers characterized as ethical consumers. In this sense, it can be observed that the ethical consumer is more altruistic than traditional consumer, and is ready to sacrifice its own well-being for the realization of ethical results that will satisfy him in the non-material way (Cerović, Stašić & Galović, 2009).

Devinney et al. define consumer social responsibility as a conscious and deliberate choice based on personal and moral convictions. It provides answers to the question of whether consumers are really noble as they present themselves, whether they are willing to sacrifice themselves for higher goals or find that it is someone else's responsibility. Devinney et al. ([http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=901863](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=901863)) identify two components of consumer social responsibility:

1. ethical component that is related to the importance of non-traditional and social components of the product of a certain company or business process,
2. consumer component, which implies that the preferences and desires of the consumer segments are partially responsible for the increased influence of ethical and social factors, and state that the consumer social responsibility occurs in three forms:

1. as expressed activity related to specific causes - such as donations or willingness to participate in protests and boycotts,
2. as expressed activity in terms of consumer and non-consumer behaviour, and
3. as expressed opinions in surveys or other methods of market research.

Consumer social responsibility is relatively unexplored field of research. Researches are mainly focused on corporate social responsibility on which one can find a large number of data sources. However, consumers have greater responsibility for social development, if this issue is viewed from the point of view of numbers. So, consumers have an extraordinary impact on companies and their adaptation to the customer's needs and requirements. Accordingly, in order to socially responsible companies fulfil their purpose, they must be supported by the positive attitudes of consumers which positively evaluate their efforts in corporate social responsibility (Morrison & Bridwell, 1999).

#### **4. Socially responsible consumer behaviour**

This part of paper conducts the research of previous achievements in the creation of consumer behaviour measurement scales, as a basis for the formation of the questionnaire. The data were collected in accordance with the research objectives, in order to prove the research hypothesis.

##### **4.1. Consumer behaviour measurement scales**

To measure the organizational behaviour of individuals, researchers use OCB (Organizational Citizenship Behaviour) scale, which was developed in 1983 and tested in 1997 (Johnson & Rapp, 2010). OCB scale is multidimensional scale in which each dimension displays a set of behaviour that is consistent with the type of individual behaviour. It was originally intended to measure the behaviour of individuals in companies and its application is most common in management, human resources management and related areas (Lo & Ramayah, 2009). However, any behaviour defined in the scale is not applicable to all behaviours and for any organization. Due to this the OCB scale is broadly applicable, and researchers take only those dimensions that are appropriate and applicable for their research questions. OCB scale includes five dimensions: civil virtue, conscience, altruism, courtesy and bravery. Because of mentioned dimensions of altruism, this scale is interesting for use in the formation of the socially responsible consumers scale. Johnson and Rapp (2010) introduced several types of consumer behaviour in their paper, that can be adapted to OCB scale, and have accordingly developed CHB scale (Customer Helping Behaviour) whose purpose is to detect the behaviour of consumers focused on helping: donations of money to non-profit organizations, volunteering, spreading positive information by-mouth-to-mouth, promotions and recommendations of good brands to other consumers, forgiveness of negative shopping experiences and participation in marketing researches of companies for their feedback. All these behaviours are part of the altruistic behaviour of consumers and are eligible for inclusion in the scale of potential consumer behaviours that would detect their socially responsible behaviour.

Besides CHB scale, another theory is emerging as a potential source and foundation for the construction of the consumer social responsibility scale, and that is the TPB theory (Theory of Planned Behaviour) whose creator is Ajzen in 1985. According to this theory, human behaviour is guided by three dimensions: beliefs about the likely consequences of behaviour (behavioural beliefs), beliefs about the normative expectations of others (normative beliefs) and beliefs about the existence of factors that could affect the performance of a behaviour (control beliefs) (Ajzen, 1991). So Fishbein & Ajzen (2010) suggest assembling a 7-stage bipolar scale of claims (adjectives) that adapts to the research topic, and includes direct measurement of attitudes, subjective norms, perceived behavioural control, intention and actual behaviour. The relative contribution of attitudes, norms, perceptions, intentions and prediction of behaviour can be determined by using multiple regression analysis and structural equation.

Very little researches were conducted in the area of developing appropriate measurement scales that could identify a specific consumer behaviour in the field of helping. To accurately determine the characteristics of socially responsible consumers it is necessary to conduct a series of tests in the domain of psychology, and one way is to synchronize already developed measurement scales to form a scale adapted for this research.

According to theoretical knowledge about social responsibility in general, as well as knowledge about the consumers social responsibility, using a combination of the above described measurement scales, three main areas of consumers social responsibility were derived (Figure 1).

**Figure 1** Dimensions of consumer social responsibility



Source: own results

*Socially responsible investment dimension* is derived from the TPB theory, CHB scale (donations of money and volunteering), OCB scale (altruism) and additional theoretical knowledge of altruism (helping, sensitivity to exploitation of vulnerable groups), and assumes that the categories which consumers can partially give away are income and leisure time. It consists of the willingness of consumers to spend their income for the products of socially responsible companies and free time for social well-being.

*Green products dimension* is derived from knowledge of the corporate social responsibility (environmental dimension) and consists of the consumer readiness to spend income for organically produced products and products that protect the environment.

*Good consumers dimension* is derived from CHB scale (the willingness of consumers to communicate with other consumers and producers). It consists of spreading positive information about the products by mouth-to-mouth, promotions and recommendations of good brands and forgiveness of negative experiences. Given that such consumers (demand side) are desirable from the point of enterprises (supply side), dimension is called "good consumers".

## 4.2. Measures

The questionnaire consists of three types of questions, from the list of statements to which respondents can answer by expressing their agreement/disagreement, which used Likert scale with five levels determined by the scale from "always" to "never", from the statements to which respondents can answer by expressing their agreement/disagreement by choosing answers "yes" or "no", and from the questions that included free data entry.

A questionnaire was made according to detected dimensions of social responsibility, and consists of four parts:

1. socially responsible investment – first part of the questionnaire included seven questions that were related to the degree of agreement with certain statements about donations to charity, dedication of free time for volunteering, and care of the exploitation of vulnerable groups; two questions with yes/no formation, which were related to product selection of products of socially responsible companies; and one question in which the consumer states the amount of money that he spends monthly for products of socially responsible companies; a total of ten questions;

2. green products – second part of the questionnaire included four questions in which respondents expressed the level of agreement with statements about the purchase of organic products and products that protect the environment;
3. good consumers – third part of the questionnaire included nine questions in which respondents expressed the level of agreement with statements about the transfer of positive shopping experiences and sharing negative experiences with producers;
4. sample profile – fourth part of the questionnaire included information on gender, age and monthly income of the respondents through the choice of the information provided.

Prior to the research, the questionnaire was subject of verification by expert from the field of psychology, and as such was approved. The verification was related to the logical order of questions and assumptions about the formation of scale in terms of defining the degree of agreement of respondents with specific claims.

### 4.3. Research objectives and hypothesis

From the above mentioned theoretical problems of the lack of research papers from the primary research areas of this paper, the following research objectives were determined:

To investigate, identify and elaborate social responsibility, to examine the extent to which consumers are willing to give up their income for the purpose of social responsibility and to present a link between certain patterns of behaviour of socially responsible consumers and movement of their income.

The following econometric model was set in the study:

$$y_i = \alpha + \beta x_i \quad (1)$$

where  $y_i$  is the dependent variable, ie the monthly amount which respondents allocated for the products of socially responsible companies, while  $x_i$  is independent variable, or the amount of the monthly net income.

Within the defined research objectives, following basic scientific hypothesis was set: With scientifically based knowledge about social responsibility, especially on the social responsibility of consumers, it is possible to determine the pattern of consumer behaviour as a useful basis for further research in this area.

The auxiliary hypotheses of scientific research is following: Consumers are willing to spend more income for goods that offer socially responsible companies.

Hypotheses are set according to the assumptions of contemporary theories of consumer behaviour according to which consumers claimed goods because of the qualities that they bring maximum utility, not because of goods as such. According to these theories, one good may well have more than one feature, and one feature can be find at more goods (theory of demand for features), and also in addition to external, goods can have internal features that consumers value when they choose goods (theory of ethical consumers). Further to this theory, it is possible to develop a theory of behaviour of socially responsible consumer which represent is a "step" over the theory of behaviour of ethical consumer, because the ethical consumer is just one dimension of socially responsible consumer. All this assuming the introduction of budget constraints and the fact that the consumer is limited by monthly income that is distributed according to their preferences and possibilities.

### 4.4. Research methodology

The survey was conducted in February 2014. Online questionnaire was used and distributed via email and social networks. Research included population with a common feature that all respondents are employed, ie, that they generate regular monthly income. The sample was intentional and chosen based on the availability of units for testing.

From 200 sent questionnaires, 66 of them were fulfilled (33%), which is considered a relevant response, considering that the data was collected electronically (Cook, Heath & Thompson 2000). Table 2 shows the structure of the sample according to a monthly net income of respondents.

**Table 2** The structure of the sample according to a monthly net income of respondents

Net income in HRK	Frequency	Percent	Valid percent	Cumulative Percent
Up to 1999	2	3,0	3,0	3,0
2000-3499	6	9,1	9,1	12,1
3500-4999	4	6,1	6,1	18,2
5000-6499	23	34,8	34,8	53,0
6500-7999	13	19,7	19,7	72,7
8000-9499	9	13,6	13,6	86,3
9500 and more	9	13,6	13,6	100,0
<b>Total</b>	<b>66</b>	<b>100,0</b>	<b>100,00</b>	

Source: own results

The table 2 shows that the predominant part of the sample consists of respondents with monthly income ranging from 5000.00 to 6499.00 HRK, that is 34.8%. All respondents who entered the sample generate monthly income and are considered to be employed persons, which was the only condition for their inclusion in the sample. Answers of respondents who do not receive a regular monthly income, were excluded from further processing.

Data were analyzed using the statistical package IBM SPSS Statistics 20. The results are presented descriptively and using tables.

#### 4.5. Research results and hypothesis testing

Research results are presented in the context of pre-defined three dimensions of social responsibility of consumers.

Field of research on *socially responsible investment of respondents* has shown the following results: 51% of respondents occasionally anonymously donates money to charity, while 54.5% of respondents never dedicates its free time for the activities of social benefits (eg. volunteerism), which proves that respondents are more willing to separate money than their free time for social benefit. Even 60% of respondents occasionally selects a product whose purchase donates one product to charity instead of buying the product they constantly purchase, and on the other hand more respondents, 72.7% of them, prefer to select a product whose purchase donates a part of the profits to charity, instead of the product they constantly buy. Surprisingly small percentage of respondents (28.8%) often takes care that the in the production process of product they buy, different vulnerable groups are not exploited (eg. women, children, etc.), because 77.3% of respondents believe that institutions should prevent such production processes.

Field of research on *green products* has shown the following results: even 69.7% of respondents occasionally buy organically produced products, while also large percentage (60.6%) occasionally buy products that protect the environment. Further research wanted to determine if this result is consequence of disbelief of respondents towards green products, but large number of respondents (around 44%) never disbelieves so further researches must be done to determine possible causes of this behaviour.

Field of research on good consumers has shown the following results: 80% of respondents often talks about good experiences with products to other people, colleagues and friends, in comparison to 74% of respondents who often talk about negative purchase experiences. Even 33% of respondents never forgives negative purchase experiences, but 45.5% of them contact producers on their positive purchase experiences in comparison to 54.5% of respondents who talk to producers only on their negative experiences.

Simple linear regression analysis was used to test the research hypothesis, where the dependent variable is monthly amount of money which respondents allocate for the products of socially responsible companies, and the independent variable is the amount of monthly net income of respondents.

Table 3 shows descriptive statistics for sample used in research. The table shows that the average value for *amount of income* variable, which respondents monthly allocate for the products of

socially responsible companies, is 393.18, while the standard deviation is 531.47. For *monthly net income* variable average value is 4.55, which means that the majority of respondents are in income category from 5000.00 HRK to 6499.00 HRK.

**Table 3** Descriptive statistics

	Mean	Std. Deviation	N
What amount of income do you monthly allocate for purchase of products of socially responsible companies?	393,18	531,466	66
Monthly net income	4,55	1,551	66

Source: own results

Table 4 summarizes the econometric model, shown in equation (1), which shows the coefficient of determination  $R^2 = 0.022$ , and confirms that the model explains 2% variation in the amount of monthly income that is allocated. So, 2% variation in monthly income can be explained by variations in the amount which respondents allocate for the purchase of products of socially responsible companies.

**Table 4** Coefficient of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,148 <sup>a</sup>	,022	,007	529,725

a. Predictors: (Constant), monthly net income

Table 5 shows the analysis of variance and F value that indicates the significance of the model. According to the analysis, the F value indicates that the model is not significant at a significance level  $\alpha < 0.05$ .

**Table 5** Analysis of variance

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	400696,876	1	400696,876	1,428	,237 <sup>b</sup>
	Residual	17958934,942	64	280608,358		
	Total	18359631,818	65			

a. Predictors: (Constant), monthly net income

b. Dependent Variable: What amount of income do you monthly allocate for purchase of products of socially responsible companies?

Table 6 shows the t value or significance of variables. According to the findings, monthly net income is not a significant variable at a significance level  $\alpha < 0.05$ .

**Table 6** Model parameters

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	163,081	203,298		,802	,425
	Monthly net income	50,622	42,363	,148	1,195	,237

Source: own results

From conducted regression analysis it can be concluded that the monthly net income is not linked to the amount that consumers are willing to allocate for the products of socially responsible companies. From these results it can be concluded that the research hypothesis is rejected.

By rejecting research hypothesis, the contribution to scientific hypothesis is made, in the field of establishing patterns of behaviour of socially responsible consumers. That is, the fact that the monthly net income is not linked to the amount that consumers are willing to allocate for the products of socially responsible companies, is new in a series of understandings necessary to ensure

a good foundation for further research in this area. The above raises a number of research questions, among which the issue of the income elasticity of demand, ie categorization of these goods inside / outside the existing group of normal / inferior goods, and many other issues in economics, social psychology and other.

#### **4.6. Research limitations**

In addition to contribution for further researches and getting knowledge of interesting facts about the behaviour of socially responsible consumers, research also has some limitations on the choice of units of the sample. Convenience sample was used in research in which the sample units were selected with according to their availability, rather than randomly. Limitation of research is also the size of the sample of which is relatively small according to the length of research conduction. The inclusion of a large number of respondents would give more representative results.

#### **5. Conclusion**

The research shown that there are three basic areas that are part of social responsibility of consumers, and that are socially responsible investing, green products and good customer domain. All three areas were included in the research questionnaire which was distributed among the respondents. Research has shown that the majority of respondents (84.8%) would choose the product of socially responsible companies despite a higher price compared to products of competition, which was confirmed by the control questions on the frequency of purchase of such products.

Hypothesis that consumers are more willing to allocate their income for goods that offer socially responsible company research is rejected, as was shown by the analysis of simple linear regression. The model could explain only 2% variation in the amount of monthly income that is allocated, while the F value indicated that the model is not significant with a significance level  $\alpha < 0.05$ .

According to limitations of research and assumptions according to which the research hypothesis was set, it can be concluded that the behaviour of socially responsible consumer is not determined by the amount of their income, but by other factors, such as, for example, lifestyle, learned behaviour, ethics, moral and other. Therefore, it is necessary to carry out further researches which would include a larger number of respondents and determine the other factors that influence the consumer's choice. The research results have led to important insights in confirmation of the hypothesis that starts from defining patterns of consumer behaviour as a useful basis for further research in this area.

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## **THE ROLE OF SOCIAL ENTREPRENEURSHIP IN EMPOWERMENT OF WOMEN IN RURAL AREAS OF CROATIA**

### **ULOGA DRUŠTVENOG PODUZETNIŠTVA U OSNAŽIVANJU ŽENA U RURALNIM KRAJEVIMA HRVATSKE**

#### ***ABSTRACT***

*This paper aims to contribute to better understanding of the role of social entrepreneurship in empowering women in rural areas. Women, and women in rural areas in particular, are one of the most vulnerable social groups exposed to a high risk of poverty and social exclusion. At the same time, findings have shown that women do not lag far behind men regarding generation of business ideas and perceiving and exploiting business opportunities. Although a relatively new concept and phenomenon, social entrepreneurship in Croatia has already shown its potential in addressing the needs of marginalized social groups and has therefore emerged as a model that might contribute to women's empowerment. The important characteristic of social entrepreneurship is its collective nature. Solidarity, mutual support and sharing of risks and responsibilities, which are provided through social entrepreneurship, might encourage women in rural areas to enter and sustain in entrepreneurial activities. To assess the role of social entrepreneurship in empowerment of rural women, the paper will focus on two case studies of social enterprises led by women from two different rural regions of Croatia. By employing focus groups and in-depth interviews with representatives and participants of the chosen social enterprises, the empirical research will focus on the assessment of the role social enterprises might play on various dimensions of women's empowerment in local rural community.*

**Key words:** *social entrepreneurship, women from rural areas, empowerment*

## SAŽETAK

Ovaj rad ima za cilj doprinijeti boljem razumijevanju uloge koju društveno (socijalno) poduzetništvo ima u osnaživanju žena u ruralnim područjima. Žene, a posebice žene iz ruralnih područja, pripadaju jednoj od najranjivijoj društvenih skupina s obzirom da su posebno izložene visokom riziku od siromaštva i socijalne isključenosti. Istodobno, istraživanja su pokazala da žene ne zaostaju daleko iza muškaraca kada je riječ o generiranju ideja, te uočavanju i iskorištavanju poslovnih prilika. Iako relativno nov koncept i fenomen, društveno je poduzetništvo u Hrvatskoj već iskazalo potencijal u poboljšavanju položaja marginaliziranih društvenih skupina i nametnulo se kao model koji može doprinijeti osnaživanju žena. Važno obilježje društvenog poduzetništva je njegova kolektivna priroda. Društveno poduzetništvo omogućava solidarnost i uzajamnu potporu, te dijeljenje rizika i odgovornosti što ženama iz ruralnih krajeva omogućuje da započnu, ali i održe poduzetničke aktivnosti. Kako bi istražio ulogu društvenog poduzetništva u osnaživanju ruralnih žena, ovaj će se rad fokusirati na dva društvena poduzeća iz dvije različite hrvatske ruralne regije kojima upravljaju žene. Koristeći fokus grupe i dubinske intervjue sa ženama uključenima u izabrana društvena poduzeća, empirijsko će istraživanje biti usmjereno na procjenu utjecaja koji društvena poduzeća mogu imati na različite aspekte osnaživanja žena u lokalnoj ruralnoj zajednici.

**Ključne riječi:** socijalno poduzetništvo, žene iz ruralnih krajeva, osnaživanje

### 1. Introduction

*“When I first came to join Cooperative I was not able to say my name in front of the others. Today, I am much more communicative, I present my opinions easily and I even started standing up for myself and argue if I think someone is wrong.”*

Women living in rural areas are among the most marginalized social groups. In large part, they are women with lower levels of education and fewer employment opportunities. Their unfavourable position is further exacerbated by traditional and patriarchal system of values that does not support women as socially and economically independent agents, but perpetuates the notion by which women are primarily seen as housewives and mothers. Social entrepreneurship has been recently identified as a possible solution for many social problems such as poverty, social exclusion and unemployment. As such, social entrepreneurship may have an important role in lives of all the socially marginalised groups, especially women in rural areas.

Notwithstanding some efforts to direct more attention to problems of women in rural areas of Croatia, the results are still far from sufficient. Studies on social entrepreneurship in Croatia are rare, especially those concerning the impact of social entrepreneurship on vulnerable social groups, their employment and social inclusion. The purpose of this paper is, therefore, to examine the ways in which social entrepreneurship may contribute to empowerment of women in Croatian rural areas. The paper will first examine the available data on entrepreneurial activities and status of rural women in Croatia. In the second part, it will present the concept of social entrepreneurship and available research of its impact on women, and rural women in particular. It will then turn to the concept of women empowerment and the ways in which it relates to social entrepreneurship. After discussing the selection of cases and methodological approach, it will present the findings on the role of two social enterprises from rural areas of Croatia and their impact on women empowerment. The conclusion will summarize main findings and argue that social entrepreneurship provides positive contribution to women empowerment.

### 2. Entrepreneurial activities and socioeconomic status of women in Croatian rural areas

While women make a majority of population in almost any country in the world, they remain at the same time in minority when considering the economic and entrepreneurial activities. The same is

true in Croatia. Although the share of women in total unemployment has been decreasing over period of couple of years, this is not due to rising female unemployment, but rather the increase of male unemployment in the context of the economic crisis of 2008. What is particularly troublesome is that the share of long-term unemployment rates is unproportionally high, with rates in 2012 being 65% overall female unemployment.<sup>1</sup> This potentially may lead to women exiting the labour market all together.

While still relatively small, participation of women in entrepreneurial activities is changing for the better. According to the data of Croatian Association of Businesswomen „Krug“, in 2007 out of the total number of registered companies 22,3% were owned by women<sup>2</sup>. In 2012 the percentage increased to 30%, out of which 23% were companies and 7% crafts. This, however, still ranks Croatia only 28th on the list of 32 European countries.<sup>3</sup> Although development of female entrepreneurship is receiving more and more attention of policy makers, overall support still largely depends on level of development of a particular country. According to GEM 2006 Report on Women and Entrepreneurship, low/medium income countries record higher percentage of entrepreneurial activities among women than in high-income countries, especially in early stages of entrepreneurship. The reason for this is that majority of women in low and medium income countries get involved in starting their own business because of necessity – unemployment, poverty or underpayment. Although women do not lag far behind men regarding development of business ideas, in those countries the possibilities of establishing business venture are very limited. This is due to restricted access to financial resources, insufficient support in balancing their work and family life, as well as the deep-rooted prejudice that starting one's own business is not a suitable career path for women (Delić & Perić, 2009).

European Commission's Report, DG Enterprise and Industry<sup>4</sup>, identifies three levels of barriers for female entrepreneurship:

- Contextual – educational choices, horizontal and vertical segregation of women in employment, low recognition of women's inventions and innovations, gender stereotypes supporting views of science and technology as male dominated sectors or traditional views about the role of women in society;
- Economic – difficulties in accessing financial resources;
- Soft – lack of access to relevant technical and scientific networks, lack of business training focused on technical and scientific skills, women's perception that they lack personal/entrepreneurship skills, lack of role models.

GEM research has also found that women have lower perception of opportunities, higher level of fear from failure and lower level of self-confidence about their competencies to start and run a business venture. This indicates that even when faced with same external barriers, these will have a different impact on women than on men.<sup>5</sup> Furthermore, while these barriers affect both urban and rural women, the later are being more strongly affected, due to their lack of capacities. In their study of female entrepreneurs in rural and urban areas, Savitha, Siddaramaiah and Nataraju (2009, cited in Joo, 2013) found that urban women were more educated, had higher socio-economic status, and higher level of investment than rural women. This is valid in the case of Croatia as well. Due to poverty and lower social status, women in rural areas have limited options in choosing their profession and are less likely to enrol in higher education.<sup>6</sup> Research conducted by the Croatia's Ministry of Agriculture in 2011 confirms these findings.<sup>7</sup> Out of 1656 women respondents, majority

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<sup>1</sup> The World Bank, 2015.

<sup>2</sup> Croatian Association of Businesswomen „Krug“, Zagreb, 2010, <http://www.krug.com.hr/UserDocsImages/Projekti/Ostvarenje%20potencijala%20žena.pdf>

<sup>3</sup> Organizacija za građanske inicijative (OGI), 2013.

<sup>4</sup> According to European Commission, 2008.

<sup>5</sup> CEPOR, 2009.

<sup>6</sup> Ženska platforma, 2011.

<sup>7</sup> Ministry of Agriculture, Fishery and Rural Development and ADEPTA, 2011.

were housewives (33.57%), while 23.01% were employed and 26.63% were unemployed. Furthermore, 21.07 % of women had only primary education, 56.4% had secondary and only 4.16% of women held a degree in tertiary education. Although there is a tendency toward lifelong learning, 59.4% of women did not have any possibility for further education. This is mostly due to lack of financial resources, problems of harmonizing family life (e.g. taking care of children and elderly), as well as limited transportation options.

In addition to difficult position in the labor market, the research conducted within GARD project showed that life conditions in rural areas still influence family relations. Most families in rural areas are still traditional ones with large number of children and relatives (grandparents and other members) and with a significant patriarchal background.<sup>8</sup> According to the already mentioned report of the Ministry of Agriculture, majority of women in rural areas are also exposed to domestic violence – 74.52 % of women have, often or occasionally, experienced domestic violence and almost all of them have declared that they needed help in its prevention. When it comes to their social status, both in family and society in general, 84.24 % of women believed that their work was not appreciated enough and that patriarchy was manifested in division of labor, difference in raising male and female children, promotion of men in the family, politics and media, domestic violence and traditional education. Furthermore, as data of Croatian Bureau of Statistics shows that women in rural areas are not equally participating in local politics and development of strategies, they remain excluded from making decisions that can influence the improvement of their social status.<sup>9</sup> These report all indicate that rural women prevail largely on the margins of labor market and society as a whole. However, great majority of women (94.85%) think that their status can be improved by encouraging and supporting the development of small and media sized enterprises. Growth of entrepreneurial activities is also seen as a key factor for overall development of rural areas. Therefore, creation of entrepreneurial climate that will enable employment and self-employment is recognized as one of the important stimulus for improving the social status of women from rural areas. Engagement in economic activities is also seen as crucial for building their self-confidence and acknowledging themselves as equals both within their families and a society.

### **3. The Conceptualization and Impact of Social Entrepreneurship**

Social entrepreneurship, initially emerged in the late 1980ies, has become increasingly popular over the last two decades. With growth of numerous social entrepreneurship initiatives and organizations, the social entrepreneurship sector has gained recognition as valuable contributor in addressing social needs and encouraging employment of vulnerable social groups. By combining social goals with economic activities, social entrepreneurship also offers innovative models for socio-economic development in local communities.

Due to its novelty, complexity and hybrid nature, social entrepreneurship is not easily defined. Different approaches to social entrepreneurship emphasize different aspects of the concept and phenomenon. Some of them prioritize addressing the social needs in an innovative way (Johnson, 2003; Mair & Marti, 2005; Peredo & McLean, 2006), while others emphasize social entrepreneurs as change makers and real drivers of social transformation (Dees, 2001; Bornstein, 2004). Some authors primarily see social entrepreneurship as a way for non-profit organizations to earn income (Young & Salamon 2002) and the entrepreneurial skills are seen as the most important factor in achieving that goal (Emerson & Twersky, 1996). Others see important to distinguish social entrepreneurship from commercial (or traditional) entrepreneurship. These authors emphasize the social dimension, expressed in existence of social mission, as main driver of social entrepreneurship, super ordinate to all the others, particularly to the accumulation of profit (Austin et al., 2006; Yunus, 2007).

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<sup>8</sup> OGI, 2013.

<sup>9</sup> According to Ministry of Agriculture, Fishery and Rural Development and ADEPTA, 2011.

Rather than insisting on the precise definition, it appears to be more beneficial to use EMES<sup>10</sup> approach (Defourny, 2001; Defourny & Nyssens, 2012) and provide main dimensions of social entrepreneurship. These dimensions are meant to serve as a compass offering appropriate guidance through a landmark of social enterprises emerging in different societies. Defourny and Nyssens (2012) presented three sets of indicators which reflect three main dimensions of social entrepreneurship: economic (entrepreneurial), social and participatory governance. Serving as ideal types, these dimensions provide specific characteristics of social enterprises which differs them from both traditional non-profit civil organizations and traditional commercial enterprises. The economic dimension includes indicators such as: continuous economic activity (producing goods and/or selling services), a significant level of economic risk and a minimum amount of paid work. The social dimension means that there is an explicit aim to benefit the community or a specific group of people, that initiative is launched by a group of citizens, civil society organization or cooperative (social enterprises are more often results of collective dynamics than individual initiatives) and that profit distribution is limited (there is often a constraint on the distribution of profit, but surplus may be distributed to a limited extent). Finally, participatory governance means that social enterprise is supposed to demonstrate a high degree of autonomy (both from public authorities and private firms), democratic governance (based on "one member, one vote" principle, regardless of the capital ownership), and representation of multiple stakeholders' interests. During last two decades, social entrepreneurship demonstrated its ability to effectively address social needs and tackle poverty, unemployment and social exclusion. This was recognized by the European Union which promotes this sector through various policy strategies and documents. Most important are Europe 2020 - A strategy for smart, sustainable and inclusive growth of March 2010, The Commission Commitment Taken Under the Single Market Act With a Special Focus on Key Action 12: Social Cohesion and Social Entrepreneurship and the Social Business Initiative (SBI) of October 2011. Both documents aims at making the European enterprises more responsible and innovative and at building the right ecosystem for social entrepreneurship in Europe<sup>11</sup>. Due to its specificities, social entrepreneurship emerges as a model that might contribute to empowering of women in rural areas and improving their socio-economic status. Studies have shown that entrepreneurship helped women overcome their subordination within the family and the society (Ramanigopal, Palaniappan and Mani, 2011). Furthermore, due to its specific nature of collective and participatory activities, social entrepreneurship may be particularly valuable model for smaller communities. These communities are characterized by stronger social capital, closer connections and higher level of solidarity and trust, which may facilitate easier engagement in entrepreneurial activities and risks. The study conducted in India based on the case of women's social cooperative showed that this collective form of entrepreneurship has empowered women in three ways: economic security, development of entrepreneurial behaviour, and increased contributions to the family (Datta & Gailey, 2012). Similar findings are evident in Chauhan's and Sharma's (2011) study, which saw women's participation in cooperatives enhancing their mobility and social interaction, furthermore leading to changes in their decision-making position within household. Collective aspects of social entrepreneurship were found to be the very effective in empowerment of women. Solidarity, cooperation and mutual support expressed in social enterprises, largely contribute in overcoming restrictions of commercial activities (Jones, Smith & Wills, 2012). This is particularly the case with rural women who are lacking individual capacities (knowledge and skills), as well as initial financial capital. They more often recognize the advantage of collective entrepreneurship in ensuring market competitiveness (Babović, 2012: 124). Collective support in social enterprises, in particularly cooperatives, have proved to be more stable for women in terms of productivity and economic wellbeing, compared to individual entrepreneurship that are not members of cooperatives (UNSDN, 2012). Social entrepreneurship not only enables women to achieve better position in market, but also empowers them in social and personal aspects. Studies

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<sup>10</sup> EMES International Research Network is active in comparative research of social enterprises since 1990-ies. More information available at: [www.emes.net/what-we-do/?no\\_cache=1](http://www.emes.net/what-we-do/?no_cache=1)

<sup>11</sup> See European Commission, 2010; 2011a; 2011b.

showed that women tend to experience higher self-esteem and gain higher number of social contacts (Jones, Smith, Wills, 2012) when being engaged in cooperative. By becoming stronger and more independent in economic and social sense, women may change their position in households too.

#### **4. The Conceptualization of Women Empowerment and its Relation to Social Entrepreneurship**

Tracing back to the mid 17th century, the concept of empowerment has much longer history than the concept of social entrepreneurship. However, its use in development discourse, much as the social entrepreneurship itself, emerged only after the 1980ies. Originating in the civil rights movement, the legalistic meaning of the concept of empowerment „to give official authority or legal power “gave way to its modern use with an emphasis on „to promote the self-actualization or influence of”<sup>12</sup>. In the 1990ies, such notion of women empowerment became prominent in the development agenda, facilitated by the growing understanding of synergies between feminist goals and official development objectives. In most policy documents of major international development agencies, women empowerment is conceived both as an intrinsic goal and as a way to promote other valuable development priorities, most prominently in the field of fertility planning, children's mortality and welfare, poverty reduction and better governance. This led to attempts to clearly conceptualize and measure women's empowerment, despite the fact that there is still no universally shared definition of women's empowerment. However, *process* and *agency* emerged in most of the accounts as the two key elements that distinguish it from related concepts (Malhotra, Schuler and Boender, 2002). We will briefly discuss these two features, limiting ourselves to the ways in which they connect with the concept of social entrepreneurship and the ways in which they affect the issues of measurement.

Emphasis on the process entails that any notion of empowerment must capture the progression from one state to another. The feature that differentiates the empowerment from such concepts as gender equality or women's autonomy is that the concept of empowerment necessarily and explicitly includes the process of change from the condition of disempowerment (Malhotra, Schuler and Boender, 2002). In that regard, Kabeer (2001) notes that: „People who exercise a great deal of choice in their lives may be very *powerful*, but they are not *empowered* in the sense in which I am using the word, because they were never disempowered in the first place“ (*emphasis of the author*). As such, the notion of empowerment is inextricably bound up and cannot be separated from the condition of disempowerment. As mentioned earlier, social entrepreneurship is also marked by a social mission or an explicit aim to benefit the community or specific group of people. For these reasons, social entrepreneurship may have the advantage over purely economic initiatives to address the needs of disempowered groups and be particularly well suited in advancing the process of empowerment. The growing body of research on the effects of microcredit programmes on women's empowerment, perhaps the most studied of all programmatic interventions, may reflect just such expectations although the evidence remains equivocal (see Kabeer, 1998). Overall, the research on the impact of particular programmes and policy initiatives on women's empowerment, while relatively established in the field, suffer from some common difficulties and shortcomings. Defining the empowerment as a process imply change over time which, as Jejeebhoy (2000) notes, may not be so easily measurable as some of the similar, though more static concepts, such as women's autonomy. Empirical research seems to confirm such reservations. In their review of 45 empirical studies on women's empowerment, Malhotra, Schuler and Boender (2002) found that „only three of the studies ...use data from more than one point in time to asses empowerment, whereas this scope of data and analysis is entirely missing from all the other studies“. This limitation is probably even more pronounced in studies that wish to explore the impact of particular programmatic intervention on women's empowerment.

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<sup>12</sup> According to: <http://www.merriam-webster.com/dictionary/empower>, accessed on April 10, 2015.

Agency as the second key element of the concept of empowerment poses additional challenges to empirical research. What qualifies the improvements in the indicators of gender equality to be considered as empowerment is women being the very agents of change rather than its mere recipients. Agency implies the women's ability to define their life goals and act upon them, whether individually or collectively. This is why Kabeer (2001) defines the empowerment as "the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them." Similarly, Bennett (2002) emphasises the role of agency and working from below when defining the empowerment as "the enhancement of assets and capabilities of diverse individuals and groups to engage, influence and hold accountable the institutions which affect them". Both social dimension of social entrepreneurship and its dimension of participatory governance have the potential to be particularly beneficial for facilitating the process of empowerment if we are to place agency at its core. As initiatives launched by group of people that share well-defined need or mission and where decision-making power is essentially participatory in nature, social enterprises are more in line with bottom-up approaches to development which are set out to bring disempowered groups into defining the goals and managing the development processes. However, strong focus on agency also implies that empowerment is both context specific and subjective process which may pose significant challenges in measurement. Malhotra, Schuler and Boender (2002) rightfully point that "one of the major difficulties in measuring empowerment is that behaviours and attributes that signify empowerment in one context often have different meaning elsewhere." For these reasons, indicators of empowerment need to be tailored for particular context without at the same time falling into the trap of relativism. Also, agency cannot be reduced to making choices or decisions, but is inherently subjective and inextricably linked with self-assessment of one's actions. As Kabeer (2001) puts it: "agency is about more than observable action: it also encompasses the meaning, motivation and purpose which individuals bring to their activity, their *sense* of agency, or 'the power within'.

## **5. Selection of Cases and Methodological Approach**

The above mentioned characteristics of empowerment make it a concept difficult to measure by the regular survey data. Most of the available indicators, rather than capturing agency itself, include proxy measures which focus either on resources enhancing the ability to make choices (eg. employment or education) or the expected outcomes or achievements of exercising agency (eg. life expectancy or political representation). Those that do attempt to capture agency are not routinely collected, but are often just "one-of-a-kind attempts" (Malhotra, Schuler and Boender, 2002). While generally useful, these are of limited value if we are to understand empowerment as a process, rather than an endpoint (Bennet, 2002). Also, quantitative studies can be of limited usefulness in capturing more intangible, subjective processes entailed in the concept of empowerment. For these reasons, qualitative studies have the advantage in capturing the changes in women's lives over time. In-depth group interviews, or focus groups, offer the possibility of retrospective narratives that may contribute significant insights into the very process of empowerment. As Kabeer (2001) warns, indicators such as Gender Empowerment Measure (GEM) "entail the movement away from the criteria of women's choices, or even values of the communities in which they live, to a definition of 'achievement' which represents the values of those who are doing the measuring". Women's own interpretation and self-assessment of their actions are also more readily available in qualitative studies, which makes them better suited in capturing the empowerment as a subjective process. For all these reasons, in order to assess the impact of social entrepreneurship on empowerment of women in rural areas, we have used qualitative studies and focused on two cases of social enterprises from different rural regions of Croatia – Baranja and Lika, both being among Croatia's most underdeveloped areas. Two social enterprises chosen for the study were Social cooperative



"Ruke"<sup>13</sup> and association "Gačanka". The former is a social cooperative, and the later is non-profit association. Both are led by women who also make up for the most of their membership. Social cooperative "Ruke" is located in Osijek-Baranja County, which is located in easternmost part of Croatia. Osijek-Baranja County is above the average when it comes to important natural resources, such as land, water and forests. Despite these facts, according to Index of Development presented by Ministry of Regional Development and EU Funds<sup>14</sup>, Osijek-Baranja County is one of the underdeveloped regions, with a high percentage of unemployed (32.1% at the end of 2013, out of which 54% are women<sup>15</sup>). Likewise, the UNDP report on Quality of life in Croatia: Regional Disparities<sup>16</sup> found that Osijek-Baranja County was one of the five counties with poorest quality of life considering happiness and life satisfaction of its inhabitants.

Social cooperative "Ruke" was established as an initiative of the Association Baranja (active since 1994) whose main mission was to develop local rural community and to advance social position of vulnerable groups, such as long term unemployed, women and elderly, through capacity building and inter-sectoral collaboration. In 2007, Association Baranja finished a project financed by the European Union aimed at prevention of violence against women in the region and their economic empowerment. In order to ensure self-sustainability of Association and to continue working on women empowerment, the establishment of social cooperative "Ruke" in 2009 seemed to be logical next step. The Cooperative has no employees and all activities are conducted on a voluntary basis. Most of the volunteers are women that have participated in some of the activities of the Association Baranja. The Cooperative still faces some financial issues and is still largely dependent on national and international funding.<sup>17</sup> "Ruke" started their activities with a campaign to raise public awareness about different models of entrepreneurship and with promotion of programs of social cohesion for women. One of its main programmes is to educate unemployed women not only about doing business, but also on ways of motivating themselves and raising their self-esteem, which was and still is one of the main problems facing rural women. Around seventy women participated in different workshops, seminars and meetings, some of which even started their own businesses managing to achieve sales revenues and increase their home budgets.

Association Gačanka is located in Lika- Senj County, one of the largest counties in Croatia, yet least populated (around 1.2% of total population)<sup>18</sup>. According to the Development Index, this is one of the least developed regions as well.<sup>19</sup> For the last few decades the County is marked with trends of continuous depopulation (between 1991 and 2001 population decreased for 37%)<sup>20</sup>, increased aging (30.1% of population is older than 60)<sup>21</sup> and low ratio of educated population (21.2% of population with second and higher education).<sup>22</sup>

"Gačanka" was established in 2004 as an association focused on preserving traditional women's crafts. It gathered local women interested in sewing, wool, crochet, knitting, embroidery and related activities. Their main economic revenue comes from the production and sale of modern goods with traditional patterns (clothes, bags, cap, scarf, etc.) as well as original souvenirs, which are mostly offered to tourists. Furthermore, the association regularly provides education and workshops in traditional crafts, produces showpieces for museums and organizes promotional events for tourists. Association Gačanka also has no employees, but mostly women volunteers. It is facing similar

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<sup>13</sup> Eng. Hands

<sup>14</sup> Ministry of Regional Development and EU Funds, 2015; available at: <http://www.mrrfeu.hr/default.aspx?id=405>, accessed on April 24, 2015.

<sup>15</sup> According to Osječko-baranjska županija, 2014.

<sup>16</sup> According to Japec, Šučur, 2007.

<sup>17</sup> "Ruke" produces vegetables on 400 m<sup>2</sup> of greenhouse space and hot peppers on about 5000 m<sup>2</sup> of land. At this point, the yield is still only 1-2% which is not enough for "Ruke" to be self-sustainable.

<sup>18</sup> According to Ličko-senjska županija, 2010.

<sup>19</sup> Ministry of Regional Development and EU Funds, 2015; available at: <http://www.mrrfeu.hr/default.aspx?id=405>, accessed on April 24, 2015.

<sup>20</sup> According to Ličko-senjska županija, 2010.

<sup>21</sup> Ibid.

<sup>22</sup> According to Croatian Employment Service, 2013.

problems in ensuring financial sustainability as many others social enterprises in Croatia, and majority of their projects were financed by the EU funds, national and local government. The data on the impact of these two cases of social entrepreneurship was collected by various methods. Two focus groups (one in each organization) were conducted with women who were members or active participants of the organizations, with intention to identify their own perception of engagement in social enterprises and ways in which it has influenced their lives in different aspects. Also, in-depth interviews were conducted with the representatives of the organizations in order to gain background information on social enterprises, their activities, governance and challenges they are facing. Finally, available documents (statutes, reports, web site's materials, etc.) were used for getting additional information for descriptive analysis. In total, the study included 12 participants. The focus groups lasted around ninety minutes, while interviews with representatives lasted around sixty minutes. Majority of women - participants in group interviews were unemployed, and they varied according to their age (from 13 to 70), marriage status (single, married and widowed), level of education (from without school to higher education) and length of engagement in organization (some of them are involved since the establishment of organization, while some are active only few months). Following a modified classification of different dimensions of women empowerment offered by Malhotra, Schuler and Boender (2002: 13), discussion in focus group covered several overlapping thematic areas: economic (access to employment, control over income, contribution to and access to family resources); socio-cultural (freedom of movement, education, participation in extra-familial groups and social networks, participation in public spaces, understanding of gender roles, lack of discrimination against daughters, commitment to education of daughters); political (awareness of and involvement in local politics); familial (participation in domestic decision-making) and psychological (self-esteem, self-efficacy, sense of well-being).

## 6. Findings

Women expressed different reasons for joining the social enterprise. For majority of participants in social cooperative "Ruke" the common reason was the need to improve the financial status of their families, while gaining income was not the primary goal for women in "Gačanka", who mostly joined for the opportunity to "go outside the house". The need to socialize, learn something new and raise their own self-esteem were among strongly emphasised reasons as well.

In that regard, participants from "Gačanka" noted how income they gain from economic activities of social enterprise is still more symbolic than "life-changing", and it does not significantly improve their financial status.

*"We cannot earn much yet. Income is not regular, nor stabile. It's more like pocket money."*

Yet, for participants in the study, neither income nor employment were seen as a necessary outcome. Actually, more than a few women, even after finishing different kinds of workshops end up staying housewives or unemployed. However, none of them seems to see this as a misfortune as they became more social, more communicative and experience greater life satisfaction. For others, though, engagement in social enterprise provided valuable resources that enabled them to become economically independent. In both social enterprises, some of the women decided to start their own businesses, after becoming more skilled and confident in their own abilities.

*"I saw an opportunity to increase production. I have already worked in my yard planting spicy pepper and I saw this as an ideal opportunity to learn more about what I love doing and to be able to commercialize it"*

Gaining access to various skills and education provided through many workshops offered by social enterprise since its establishments seems to be crucial for women's later economic activity. Women

have learned how to make a business plan; they gained basic knowledge of informatics and important entrepreneurial skills such as communications skills, strategic planning, teamwork and conflict resolution. They had possibilities to learn different traditional crafts or became knowledgeable in ecological agriculture. The participants in the study appreciate new knowledge and skills they have gained through educational programs in their organizations. However, most of the women in the focus group (and according to their opinion other members of the Cooperative as well) do not have a tendency toward lifelong learning. Lack of financing and not being able to harmonize their family life are main reasons for low level of enthusiasm towards education. However, they strongly support the education of their children, especially daughters, and their right to make their own decisions on the career path to follow. It is seen as particularly important for daughters get better education and gainful employment in order to ensure their independency, and exit from “housewives lives”.

*“Yes, we want them to be able to earn own money. Not that their husbands complain on everything they buy.”*

This support does not fade in light of the awareness that by educating children most of them will leave home and rarely come back to the local community. They believe that despite the current unfavourable situation, it will be easier for their children to find employment and have a better life than their parents.

The participants also acknowledged the increased mobility and opportunity to travel and go outside of their own town for themselves. This is especially true for members of “Gačanka”, whose orientation on touristic promotion provides them with relatively frequent visits to other places. Most of all, participants recognise importance of support they receive from other members of social enterprise and collective activities are perceived as fundamental part of the increase in their life satisfaction. With limited options for social life in rural areas, these types of organization were perceived as very important and much needed venues for socializing with other members of the community.

*“We feel good. We get together, we work, we create, we help each other...”*

When it comes to their social status in local communities, it is perceived that women’s engagement in social enterprises and organisations of civil society may empower women and significantly improve their status in the community.

*“What I noticed is that women who work in non-profit organizations are really powerful. Not only in home. And they are equal. They are maybe even bosses.”*

Women members of “Ruke”, therefore, emphasized that they have achieved a visibility and that more and more women have become interested in joining the cooperative. They are perceived as hardworking women who managed to raise the awareness of women in rural areas as well as to benefit development of their community. This does not, however, translate neatly to their participation in local politics. While they all agree that cooperation with institutions and organizations at the local level is not bad they see a lot of room for improvement. In both cases the local government sees them, primarily, as a good opportunity for branding their villages. However, participants from both communities believe that their status can become better only if local government supports the development of rural areas more strongly through better regulation, subventions and encouragement of SMEs. While participation in social enterprise raised their awareness of the programs in local communities, none of the women is politically active. The exception is the leader of “Gačanka”, who demonstrated leader’s characteristics and expressed ambitions for engagement in local politics. However, women-leader in rural areas are still the exception rather than the rule. Majority of participants still believe that, although they could contribute to rural development, both local and national government do not have interest in what

women from rural areas have to say. The support they receive, both tangible and intangible is just not sufficient either for the empowerment of women, or, for that matter, development of rural areas in general.

When it comes to their status in families, women participants emphasized that some of their fellow local women wanted to come and join the social enterprise, but their families, mainly husbands, are against it. Furthermore, some of them needed to end their engagement after not receiving support from their husbands or families. Participants perceived it as very traditional and patriarchal attitude that has negative impact on women self-esteem.

*“They have to give up, because their husbands said ‘Why you need that? It's better for you to stay at home’”.*

However, for the women included in the study status in the family has significantly changed. Prior to joining social enterprises they were perceived in the first place as the housewives. By becoming more self-aware women have assumed a right to speak up and they have experienced that their family members started to respect their opinion too. Since some of them started to bring more income to the households, they became more of an equal partner in family decision making process.

*„Before, everybody would know that the man is the head of the family. He would object all the time mostly by arguing that he is the one who brings home the pay check. But now it is the other way around. Now I make more money and my husband must listen to what I have to say. Of course, I am joking a little bit, but the truth is that I started to be the one who makes decisions in our households, or, at least, we are making them together. In any case, my husband is accepting my suggestions now. “*

Almost all of the women expressed to be very satisfied with themselves, especially those that were very previously „invisible“ in their households and their communities. The social enterprises empowered them in a significant way, changed them both personally and professionally and helped them gain the sense of self-efficacy and self-esteem.

*“Today I do more things I like.”*

*“Life is different, better. I am more satisfied. With myself. I meet others, my world is broader. It is nice.”*

Indeed, better self-esteem is recognized as most valuable outcome of their engagement in social enterprise. Even though they still don't have enough time for everything they would like to do, their lives have become better and more fulfilled and they feel proud of themselves because they can contribute.

## **7. Conclusion and implications for further research**

The findings of the study have shown considerable impact of social entrepreneurship on the empowerment of women in Croatian rural areas. Since their engagement in local social enterprises, most of the women have reported significant positive changes in various aspects of their lives: some advances in income and employment opportunities, access to education, widening of social networks, increased mobility, improved visibility and status in local communities, as well as increased awareness of local politics and programs. What is particularly important is that women express commitment to ensuring advancement of opportunities and independence for their daughters by emphasising the need for their education and gainful employment. This shows that social entrepreneurship does not only facilitate the process of empowerment for the present

generation of women, but may equally carry the potential for transformative change in the longer term.

Findings, however, do not suggest equal levels of change in all the dimensions of women empowerment. Economic and political arenas seem to pose the most serious challenges for the women involved. Access to stable employment and source of income is still underdeveloped as is the women's participation in local politics. However, we have to bear in mind inherently subjective nature of the empowerment process and its inextricable link with the self-assessment of one's actions. Significant portion of women largely stated reasons other than employment or income for joining the enterprise. As most clearly pointed by the words of woman quoted at the beginning of the paper, majority of women involved in social enterprises express profound change in their own sense of power and ability to improve their standing in their families and local communities.

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## **CORRELATION OF FUNDAMENTAL AND TECHNICAL INDICATORS FOR A PARTICULAR STOCK AT THE BANJA LUKA STOCK EXCHANGE**

### **UZAJAMNA POVEZANOST FUNDAMENTALNIH I TEHNIČKIH POKAZATELJA POSLOVANJA ZA ODREĐENE DIONICE NA BANJALUČKOJ BERZI HARTIJA OD VRIJEDNOSTI**

#### **ABSTRACT**

*The fundamental business indicators are based on an analysis of previous incomes and financial research statements of companies. Unlike the fundamentals, a technical analysis (indicator) is based on the forms related to the movement of stock prices, and determines whether they are repetitive and whether they are predictable. In the capital market in BH, there is a common phenomenon that indicates that certain shares are not traded for more than one day, due to low liquidity, and because of the lack of information and high risk. Also, this paper will analyze one segment of the capital market in BH, i.e. shares of stock index BIRS (Banja Luka Stock Exchange of Securities). The main objective of this research is to determine whether there is a mutual dependence and interdependence in the movement of technical and fundamental analysis indicators, i.e. whether fundamental indicators can affect the movement of stock prices through a multiple linear regression. As independent variables will be used: return on average equity - ROAE, then earnings before interest, taxes, depreciation and amortization – EBITDA, the ratio of total debt to total assets (Leverage) and dividend per share. The price – earnings ratio will be observed as a dependent variable. This study covers the period from 2005 to 2013.*

**Keywords:** *technical indicators, fundamental indicators, P/E ratio, undervaluation of stock, slow economic activity.*

#### **SAŽETAK**

*Fundamentalni pokazatelji poslovanja se zasnivaju na analizi ranijih prihoda te proučavanjem financijskih izvještaja preduzeća. Za razliku od fundamentalnih pokazatelja, tehnička analiza (pokazatelji) se bazira na obrascima u vezi kretanja cijena dionica, odnosno utvrđivanju da li se ponavljaju i da li su predviđivi. Na tržištu kapitala u BiH je uobičajena pojava da se određenom dionicom ne trguje jedan ili više dana, kako zbog niske likvidnosti, tako i zbog neinformisanosti i visoke rizičnosti. U ovom radu će se analizirati jedan segment tržišta kapitala u BiH, tj. dionice berzanskog indeksa BIRS (Banjalučka berza hartija od vrijednosti). Osnovni cilj ovog rada je da se utvrdi da li postoji međusobna zavisnost i uslovljenost u kretanju tehničkih i fundamentalnih pokazatelja analize, tj. da li fundamentalni pokazatelji mogu utjecati na kretanje cijene dionica putem višestruke linearne regresije. Kao nezavisne varijable će se koristiti: povrat na prosječni dionički kapital – ROE, zatim zarada prije kamata, poreza, deprecijacije i amortizacije – EBITDA, racio ukupnog duga prema ukupnoj aktivi (leveridž) i dividenda po dionici. Racio tržišna cijena/zarada – P/E će se posmatrati kao zavisna varijabla. Ovo istraživanje obuhvata razdoblje od 2005 do 2013. godine.*

**Ključne riječi:** tehnički indikatori, fundamentalni indikatori, P/E racio, podcjenjenost dionica, usporena ekonomska aktivnost.

## 1. Introduction

Similar companies use different national accounting standards to report different earnings. Some accounting standards are more conservative than others in terms that lead to lower reported earnings. Some comparative studies have attempted to measure the relative conservatism of national standards. According to research Radebaugh and Gray (1997) accounting principles in the United States are far more conservative than U.K. accounting principles but significantly less conservative than Japanese and Continental European accounting principles. If the United States earnings are arbitrarily scaled at 100, Japanese earnings will scale at 66, German earnings at 87, French earnings at 97, and British earnings at 125. These national accounting principles also affect the reported book value of equity.

Price-earnings (P/E) ratios are of great interest to international investors, who want to compare the P/E ratios of companies in the same industrial sector across the world. The P/E ratio divides the market price of a share by its current or estimated annual earnings. Japanese companies have traditionally traded at high P/E ratios in comparison with U.S. companies. For comparison purposes, P/E ratios should be adjusted because of the accounting differences in reporting earnings (Solnik & McLeavey, 2009, p. 215-216).

In the most developed financial market, i. e. the US financial market dividends paying ratio ranging from 0.33 to 0.56. In the Republic of Srpska average annually in the form of dividends paid 1.5% of GDP. Applied conservative model recommends that the share of GDP should be around 2.6% of GDP in the form of dividend payments. First of all, the low dividend affects low accumulation of the economy of the Republic of Srpska.

Investors are more willing to pay for shares of companies whose earnings grow rapidly, less for companies whose earnings are declining, more during periods of optimism, less during period of pessimism, also more when interest rate are low (meaning less competition for bond investment), less when interest rate are high ( Appel, 2007, p. 182 – 183). Usually, risky companies have a more required rate of return, which implies a lower P / E ratios. Thus, the present value of any expected earnings or dividends is lower when the risk is higher cash flows. If you look at The Wall Street Journal, we will find many small, risky companies with very high P / E ratios. This is the reason that the market of the company expects high growth rates (Bodie, at al. 2009, p. 407).

The structure of the financial system of the Republic Srpska remains extremely bank type orientaited and an inadequate attitude towards saving and investments have a significant impact on companies that although have a need for the new capital still insufficiently use the capital market as the primary source of financing its own development. The beginning of the development of the capital market in the Republic Srpska is linked to the privatization process and the formation of capital market institutions; the Securities Commission in 2000, the Central Registry of Securities and the Banja Luka Stock Exchange, in 2001. The first transaction on the Banja Luka Stock Exchange was conducted in March 2002. Small market, inadequate development of privatized companies and problems arising in the privatization process had the decisive influence on the degree of development of the Republic Srpska capital market. The beginning of the development of the capital market in the Republic Srpska is linked to the privatization process and the formation of capital market institutions; the Securities Commission in 2000, the Central Registry of Securities and the Banja Luka Stock Exchange, in 2001. The first transaction on the Banja Luka Stock Exchange was conducted in March 2002. Small market, inadequate development of privatized companies and problems arising in the privatization process had decisive influence on the degree of development of the Republic Srpska capital market (Securities Commission of the Republic Srpska, 2014, p. 6)

This research is designed and presented in three sections of this paper. The first part looks at the variables of the price-to-earnings ratio and the selected indicators of the financial health of the capital market of the Republic of Srpska. The second part describes the theoretical assumptions and perceptions, the regression model and gives a definition of significant independent variables that affect the price-to-earnings ratio alone. The last part of the paper discusses the results of my research on the application of the regression model. In this context, it is stated that the observed independent variables have the greatest impact on the growth or decline price-to-earnings ratio for the capital market in the Republic of Srpska. We will test the significance of observed financial variables in the model, where the null hypothesis is the reason the independent variables do not significantly affect the dependent. In this context, it is stated that the observed independent variables have the greatest impact on the growth or decline of the price-to-earnings ratio for the capital market in the Republic of Srpska.

## 2. Literature Review

According to research by Banz (1981), the small size company have higher average return than large size company even after adjusted for their systematic risks. Bhandari (1988) finds that there is a positive relation between leverage and average returns in tests that include both (market equity – ME) and  $\beta$ . According to research by Reilly et al. (1983) concerning the relationship between the variables of price-earnings ratio – P/E and stock index S & P 500 through multiple regression analysis as well as for the period from 1963 to 1980 they came to the conclusion that the P / E ratio increases with the payment of dividends, realized earnings growth and dividend growth rate also increases, and on the other hand it decreases with increasing business failures, i.e. negative financial results, risk-free rate of return, inflation and volatility of earnings.

Shamsudin and Hiller (2004) conducted a study on the Austrian market, which refers to the analysis of the main factors affecting the P / E ratios within the stock index of the Austrian Stock Exchange - ASE 200 and for the quarterly period from 1984 to 2001 and from 2001 to 2003. Results research showed that the P / E ratios increasing function of dividend payments, the appreciation of the Austrian currency, growth of gross domestic product and improving consumer confidence. On the other hand, the P / E ratio decreases as a function of interest rates and market volatility.

Companies can sell shares at different prices, which appear different understanding of whether it is better to sell them with higher or lower P / E ratio. A higher P / E ratio tells investors about major development opportunities of the company. However, one should be very cautious when making decisions on the basis of P / E indicators, because it very differ between branches. Usually, the higher the P / E ratio is in the fields of high technology, which does not automatically mean that it is a high-quality company. Therefore, for the consideration of the company's success requires a wider analysis that includes other aspects of development opportunities, competitive position analysis, financial analysis and so on (Eric, 2003, p. 368).

In the finance literature, there are two approaches that explain the volatility of stock prices under the influence of certain variables. The first approach is based on parsing dividends-price into two components, namely the expected return and expected cash flow. Results of the study the first access point to the fact that the aggregate expected cash flows do not affect significantly the volatility of stock prices. The second methodology is a methodology that studies the volatility of stock returns rather than dividend – price ratios (Campbell, 1991 & Vuolteenahoo, 2002). Anderson and Brooks (2006) have analyzed all the companies in the UK for the period from 1975 to 2003, where they came to the conclusion that the P / E ratio affects the following specific variables: the size of the company, the year in which the P / E ratio is calculated and the effect of industries.

### 3. Market And Financial Indicators in the Capital Market in Republic of Srpska

In the past ten-year, a good infrastructure and regulatory framework of the Republic of Srpska capital markets have been created. The market development was primarily based on the concept of mass voucher privatization of state-owned capital. The global economic and financial crises, which has been manifested in large declines in stock prices and turnovers (BLSE, Annual Report, 2013, p. 11).

Significantly rapid growth of turnover and prices on the Banja Luka Stock Exchange by the first half of 2007 followed the stock market trends in neighbouring countries, after which, as in most capital markets, influenced by the global financial and economic crisis, a decline and stagnation of activities occurred (Securities Commission of the Republic of Srpska, Annual Report, 2013, p. 6).

**Table 1:** Exchange Transactions on BLSE for the period: 2008 – 2014 (million EUR)

Indicator	2008	2009	2010	2011	2012	2013	2014	Index	Index
1	2	3	4	5	6	7	8	9(8/2)	10(8/7)
Turnover	140.651	92.285	90.087	217.532	133.412	192.172	299.927	113.24%	56,07%
Market Capitalization	1.884.484	1.920.689	1.908.297	1.961.022	1.956.515	2.112.618	2.271.062	20.51%	7.50%
Number of Trading Days	-	250	-	249	248	247	248	-	0.40%
Number of Transaction	28	11	10	9	15	16	11	(60.71%)	(31.25%)

Source: <http://www.blberza.com> (Adjusted by Author)

The degree of the development of secondary financial markets is measured by the amount of market capitalization, market size, and the ratio of market capitalization to gross domestic products, the volume of trading on the financial markets, liquidity of the market and the number of listed companies (Alihodžić, 2014, p. 176). As can be seen in Table 1 on Banja Luka Stock Exchange, the turnover recorded an increase in the value of 56.07% compared to 2013., and increase of 113.24% compared to 2008. Turnover on BLSE was increased due to issues of treasury bills and bonds of the Republic of Srpska. Despite, in absolute term, the large turnover growth it is still relatively small, because turnover accounts for only 1,4% of total market capitalization (Bulletin, CBBH, 2014, p. 68). The total market capitalization of all securities traded on the Banja Luka Stock Exchange of 30 December 2014 amounted to EUR. 2.271.062 which represent a relative increase by 7,50% compared to 2013., and also was recorded increase by 20.51% compared to 2008. Market depth measured by the turnover ration (as relation between market capitalization and turnover) is on approximately the same level as in the previous two quarters, but is still below the maximal level reached at the beginning of the year (1%). In the fourth quarter, turnover accounted for 0.7% of market capitalization, which is an extremely low relative value of turnover. On average, in the past two years, quarterly BLSE turnover represented only 0.66% of market capitalization of all financial instruments in BLSE quotation (Bulletin, CBBH, 2013, p. 80). As can be seen in Table 1 on Banja Luka Stock Exchange, the turnover recorded an increase in the value of 56.07% compared to 2013., and increase of 113.24% compared to 2008. Turnover on BLSE was increased due to issues of treasury bills and bonds of the Republic of Srpska. Despite, in absolute term, the large turnover growth it is still relatively small, because turnover accounts for only 1,4% of total market capitalization (Bulletin, CBBH, 2014, p. 68). The total market capitalization of all securities traded on the Banja Luka Stock Exchange of 30 December 2014 amounted to EUR. 2.271.062 which represent a relative increase by 7,50% compared to 2013., and also was recorded increase by 20.51% compared to 2008. Market depth measured by the turnover ration (as relation between market capitalization and turnover) is on approximately the same level as in the previous two quarters, but is still below the maximal level reached at the beginning of the year (1%). In the fourth quarter, turnover accounted for 0.7% of market capitalization, which is an extremely low relative

value of turnover. On average, in the past two years, quarterly BLSE turnover represented only 0.66% of market capitalization of all financial instruments in BLSE quotation (Bulletin, CBBH, 2013, p. 80).

Growth of indices in all markets in the region was strong until the half of the year 2007 and the high value of indices in that period was the result of this growth. Since 2008, there was a larger drop in the price of securities in all markets in the region. Markets in the region, in the same period, lost the value in the range of 11.3%, which records the Croatian market to 34.4% decline in the value that captures the Slovenian market. Market recovery in 2009 was modest and moderate, and this trend continued in 2010, when there was a slight fall in turnover and total capitalization compared to the year 2009. In 2011, all observed markets again recorded declines of indicators of capital market activities, for this reason, this year there was a decline in the indices of all of these markets. Only in 2012 there has been a rise in the index in a few of observed market, such as the markets in Austria, Greece, and Germany, while the other observed market continued its negative trend in the movement of stock indices. This trend continues in the year 2013 (Securities Commission of the Republic of Srpska, Annual Report, 2013, p. 9-10).

**Table 2 :** Analysis of financial and market indicators of the financial health of certain companies in composition of BIRS index for the period: 2012 - 2013

Financial variables	2012					
	HEDR-R-A	RITE-R-A	BOKS-R-A	TLKM-R-A	KRJN-R-A	BVRU-R-A
Sales	14.229.350	52.322.038	19.036.697	244.320.114	3.827.317	5.980.948
EBITDA	8.085.658	15.374.837	2.761.438	120.030.161	578.329	1.644.187
Capital	299.394.015	231.570.370	18.184.041	355.411.671	27.263.818	19.633.835
Market capitalization	83.382.252	16.707.254	5.656.989	399.472.433	9.004.441	11.166.673
Return on Assets - ROA	0.79	-0.94	1.05	12.73	0.55	2.42
Return on equity - ROE	0.82	-1.09	1.70	15.82	0.66	2.76
P/S	5.86	0.32	0.30	1.63	2.35	1.87
Net Income Per Share - EPS	0.01	-0.01	0.03	0.22	0.03	0.03
Book Value Per Share	0.67	0.61	1.05	0.72	2.41	0.58
Price – to – earnings ratio –P/E	34.15	-6.61	18.48	7.10	50.38	20.79
Dividend per Share	0.01	-	0.02	0.22	-	0.04
Financial variables	2013					
	HEDR-R-A	RITE-R-A	BOKS-R-A	TLKM-R-A	KRJN-R-A	BVRU-R-A
Sales	20.954.776	67.648.387	21.067.433	238.345.428	3.492.086	6.203.360
EBITDA	13.697.842	20.106.035	3.087.869	111.941.550	718.293	1.682.562
Capital	303.816.190	233.918.729	18.837.620	354.083.016	27.642.436	19.684.273
Market capitalization	83.382.252	16.707.254	5.656.989	399.472.433	9.004.441	11.166.673
Return on Assets - ROA	2.53	0.83	2.19	11.89	1.22	2.49
Return on equity - ROE	2.64	0.98	3.53	14.46	1.38	2.84

P/S	3.98	0.25	0.27	1.68	2.58	1.80
Net Income Per Share - EPS	0.03	0.01	0.07	0.20	0.06	0.03
Book Value Per Share	1.34	0.61	1.08	0.71	2.45	0.58
Price – to – earnings ratio –P/E	10.45	7.29	8.65	7.79	23.78	20.03
Dividend per Share	0.03	-	-	0.20	-	-

Source: <http://www.blberza.com> (Adjusted by Author)

The table above illustrates the analysis of the fundamental and technical performance indicators for a number of companies that are part of stock index - BIRS, and for the period from 2012 to 2013. Given that the subject of research P / E ratio for a number of companies included in the stock index -BIRS which is in the last three years has had a positive financial result, if we compare the profitability ratios, i.e. ROA and ROE with a P / E ratio, then we can come to conclude that between them there is an inverse proportionality, i.e., with increasing profitability ratios lead to decreased P / E ratio. From the first payment of dividends on the financial market of the Republic of Srpska, has passed a little more than 10 years a very long period of significance analysis of market indicators of the Banja Luka stock exchange. Yield strength of companies on the Banja Luka Stock Exchange has averaged a little, where the payment of dividends is not yet an alternative interest, where no shares are not yet an alternative to bank savings deposit. Dividends paid to companies whose shares are traded on the Banja Luka Stock Exchange takes place in a way that leads one company while other companies follow a policy of a given company.

#### 4. Methodologies And Date

Price-to-earnings ratio is one of the most important and most used methods of fundamental analysis to assess the value of the shares. This relationship establishes a direct connection between the current market price of shares and earnings per share. A P/E index is defined the weighted average

of the individual companies price-to-earnings  $\frac{p_j}{e_j}$  weights are companies earnings  $\frac{e_j}{n_j}$  relative to market earnings E:

$$\frac{P}{E} = \sum \left[ \left( \frac{p_j}{e_j} \right) \left( \frac{e_j n_j}{E} \right) \right] \quad (1)$$

By multiplying the numerator and the denominator by  $n_j$ , the aggregate P/E can also be shown to equal the market value of all companies relative to their total earnings:

$$\frac{P}{E} = \sum \frac{V_j}{E} \quad (2)$$

Therefore, a P/E index can be interpreted as a weighted average of companies price –earnings as in equation (1) also is equal to the total market value relative to total earnings as in (2) equation.

The regression model is an equation with a finite number of parameters and variables. Depending on whether a model comprised only one or more variables, there are simple and multiple linear regression models respectively. In addition to a dependent variable and one or more independent variables, each regression model contains a random variable. A simple linear regression model expresses a relationship between the two parameters as follows:

$$Y_i = \alpha + \beta X_i + \varepsilon_i \quad i = 1, 2, \dots, n, \quad (3)$$

where:

$Y$  – dependent variable,

$\alpha$   $\beta$  – unknown parameters that need estimate, and

$\varepsilon_i$  – stochastic variable (error distances)

Unlike the simple regression, the multiple-linear regression model is different in that it comprises two or more independent variables.

$$Y_i = \alpha + \beta_1 X_{i,1} + \beta_2 X_{i,2} + \dots + \beta_j X_{i,j} + \dots + \beta_k X_{i,k} + \varepsilon_i \quad (4)$$

$$i = 1, 2, \dots, n.$$

Specifically, this model consists of one dependent variable  $Y$ , and  $k$  independent variables, which are referred to as:  $X_{i,j} = 1, 2, \dots, k$ .

This empirical study refers to the selected stock company into the stock exchange index of Banja Luka Stock Exchange - BIRS for the period from 2005 to 2013. The data used for this study are the official data (statistical analysis) of the Banja Luka Stock Exchange

The BIRS market index is a weighted index, which means that the share of individual stocks in the BIRS is determined by a market capitalization of each issuer. The market capitalization included ordinary shares held by public (free float). Maximum participation of each issuer in the BIRS on the date of the formation and revision is limited to 25%. The BIRS is also a price index and does not include dividends paid in cash. Shares of 5 to 30 issues can be included in the BIRS. The number of issuers whose shares are part of BIRS depends on the number of issuers that meet the requirements for the composition of BIRS.

**Table 3 : Composition of BIRS Index on 23 November 2014**

Symbol	Issuer	Adjusted Number of Shares	% of BIRS
BLPV-R-A	Banjalučka pivara, Banja Luka	20.775.188	4,98%
BOKS-R-A	Boksit, Milići	17.287.671	1,76%
BVRU-R-A	ZTC Banja Vrućica, Teslić	33.600.177	4,63%
CIST-R-A	Cistoća, Banja Luka	9.603.944	1,06%
DEST-R-A	Hemijska industrija destilacije, Teslić	23.228.364	1,52%
EKBL-R-A	Elektrokrajina, Banja Luka	92.276.622	1,30%
ELBJ-R-A	Elektro Bijeljina, Bijeljina	38.486.953	0,64%
ELDO-R-A	Elektro Doboj, Doboj	31.117.961	1,50%

Symbol	Issuer	Adjusted Number of Shares	% of BIRS
HEDR-R-A	Hidroelektrane na Drini, Višegrad	441.955.312	13,59%
HELV-R-A	Hidroelektrane na Vrbasu, Mrkonjić Grad	102.354.487	3,90%
HETR-R-A	Hidroelektrane na Trebišnjici, Trebinje	385.164.196	13,45%
IPBL-R-A	Industrijske plantaže, Banja Luka	108.393.599	5,41%
KRJN-R-A	Krajina GP, Banja Luka	11.289.203	0,94%
LJUB-R-A	Rudnici željezne rude Ljubija, Prijedor	50.777.428	1,52%
MRDN-R-A	Meridian, Banja Luka	7.842.578	0,61%
NOVB-R-E	Nova Banka, Banja Luka	94.435.314	11,55%
RiTE-R-A	RiTE Gacko, Gacko	379.959.879	2,97%
RNAF-R-A	Rafinerija nafte, Brod	262.914.061	0,25%
RTEU-R-A	RiTE, Ugljevik	256.013.165	3,41%
TLKM-R-A	Telekom Srpske, Banja Luka	491.383.755	25,00%

Source: <http://www.blberza.com/Cms2FileCache/files/cms2/docver/44734/files/BIRS%2021%20redovna%20revizija.pdf>

In this research are taken into account the companies that had in the past three years a positive financial result, and that paid dividends in the past 10 years. The companies that are the subject of research include: Hidroelektrane na Drini, Višegrad – HEDR-R-A, RiTE, Ugljevik RiTE, Ugljevik – RiTE, Boksit, Milići –BOKS-R-A, Telekom Srpske, Banja Luka – TLKM-R-A, Krajina GP, Banja Luka - KRJN-R-A, ZTC Banja Vrućica, Teslić –BVRU-R-A.

This study used a multiple-linear regression model which assesses the nature and strength of the bond between a dependent variable, and K independent variables that are marked with  $X_{(i, j)}$  = 1,2 , ....., K. Therefore, in this study, the price-earnings ratio (PE) is used as dependent variable, and the following ones as independent variables: Return on average earnings (ROAE), Earnings before interest, taxes, depreciation and amortization (EBITDA), ratio of total debt to total assets (LEV), and dividend payout. (DP).

**Table 4 :** Descriptive explanation of the variables in the model

Variable	Symbol	Description
Price-earnings ratio	PE	Calculated by ratio of share price to earnings per share of company
Return on average equity	ROAE	The ROAE indicator is the ratio between net profit and average equity capital, and is often referred to as the yield on shareholder equity
Earnings before interest, taxes, depreciation and amortization	EBITDA	
The ratio of total debt to total assets	LEV	Leverage – computed a ratio of total debt to total assets the company
Dividend payout	DP	Measured by ratio of dividend per share to earnings per share, the company

Source: Calculation by Author

In this research, we took the price – earnings ratio as the dependent variable. The independent variables are as follows. The regression model in this study is presented as follows:

$$(PE)_{it} = \alpha + \beta_1 ROAE_{it} + \beta_2 EBITDA_{it} + \beta_3 LEV_{it} + \beta_4 DP_{it} + \varepsilon \quad (5)$$



Where:

$PE_{it}$  – Price-earnings ration;

$ROAE_{it}$  – Return on average earnings;

$EBITDA_{it}$  - Earnings before interest, taxes, depreciation and amortization;

$LEV_{it}$  – Leverage - ratio of total debt to total assets;

$DP_{it}$  - Dividend Payout.

The representativeness of the model will be examined by the calculation of the correlation coefficient  $r$ , the coefficient of determination  $R^2$  and adjusted coefficient of determination  $\bar{R}^2$ . Also, the paper will contain the analysis of variance (ANOVA test). With a cumulative test it is assumed in a null hypothesis that all independent variables are equal to zero, i.e. than not a single independent variable included in the model is significant in this model. An alternative hypothesis assumes that at least one the important independent variables is important in the model.

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$$

$$H_1: \exists \beta_j \neq 0, j = 1, 2, 3, 4.$$

**Table 5: Descriptive statistics of the observed variables for the period: 2005 – 2013**

Dependent and independent variables in the model	Means	Std. Deviation	N
P/E	25.09	41.30	45
ROAE	8,26	13.53	45
EBITDA	36,61	18.56	45
LEV	0.19	0.12	45
DP	0.10	0.34	45

*Source: Calculation by Author (SPSS 16.0)*

Growth in price-to-earnings ratio for certain companies within the stock index BIRS, as well as the EBITDA ratio showed their highest volatility with a standard deviation of 41.30% and 18.56% for the period from 2005 to 2013 year. Differences in P/E rates of different companies are based on different expectations in terms of growth of these companies. Thus, the P/E rate reflects the optimism of the market in terms of development opportunities companies (Alihodzic & Plakalovic, 2013, p. 210). Most companies in the capital market of the Republic of Srpska in the observed period had very high volatility of P/E ratios, i.e. low P/E ratio. Companies with low P / E ratio may be unstable earnings, little likelihood of generating profit, and poor prospects for growth.

#### 4.1. Research Results and Discussion

Result obtained by the regression analysis show that there is a correlation between the movement of the price-earnings ratio - P/E and independent variables: return the average equity - ROAE, earnings before interest, taxes, depreciation and amortization - EBITDA, the ratio of total debt to total assets – LEV and dividend per share - DP. The regression analysis was obtained by the coefficient of correlation  $r = 0,54$  that there is a medium correlations between a dependent variable of the price-earnings ratio – P/E and independent variables: EBITDA, the ratio of total debt to total assets – LEV and dividend per share - DP. The coefficient of determination is  $R^2 = 0,29$ , while

the corrected coefficient of determination is  $\bar{R}^2 = 0,22$  , indicating that the observed model described 22% of deviation of independent variables, which makes this model relatively representative. Also, the conducted test of significance indicates there is a significant effect of independent variables on the dependent ones. Testing the first hypothesis of significance indicated there was a significant effect of the independent variables at a significance level of  $\alpha = 5\%$  , and that empirical F – ratio was 4,04. As for this study, the value of the empirical F – ratio (4,04) is greater than the theoretical value of F – ratio (2,61) for the 4 – degree of freedom in the numerator and 40 in the denominator, when we come to the conclusion to reject the null hypothesis that the independent variables have a significant impact on the dependent variable. Durbin-Watson statistics shows high correlation with the value of over 1.

**Table 6:** Regression Analysis between the price – earnings ratio – P/E and return on average equity - ROEE, earnings before interest, taxes, depreciation and amortization – EBITDA, the ratio of total debt to total assets (Leverage) - LEV and dividend per share – DP

Regression Statistics	
Multiple R	0.536
R Square	0.288
Adjusted R Square	0.216
Std. Error of the Estimate	36.563
Durbin - Watson	1.597

Source: Calculation by Author (SPSS 16.0)

**Table 7:** Analysis of Variance between the price – earnings ratio – P/E and return on average equity - ROEE, earnings before interest, taxes, depreciation and amortization – EBITDA, the ratio of total debt to total assets (Leverage) - LEV and dividend per share – DP

ANOVA	df	SS	MS	F	Significance F
Regression	4	21.586,953	5.396,738	4.037	0.005
Residual	40	53.474,433	1.336,861	-	-
<b>Total</b>	<b>44</b>	<b>75.061,387</b>	-	-	-

Source: Calculation by Author (SPSS 16.0)

**Table 8:** The matrix of correlation coefficients between the parameters of: the price – earnings ratio – P/E and return on average equity - ROEE, earnings before interest, taxes, depreciation and amortization – EBITDA, the ratio of total debt to total assets (Leverage) - LEV and dividend per share – DP, for the period: 2005 – 2013

	P/E	ROAE	EBITDA	LEV	DP
P/E	1.000	-0.291	0.208	-0.502	0.160
ROAE	-0.291	1.000	0.327	0.362	0.855
EBITDA	0.208	0.327	1.000	-0.509	0.141
LEV	-0.502	0.362	-0.509	1.000	0.234
DP	0.160	0.855	0.141	0.234	1.000

Source: Calculation by Author (SPSS 16.0)

The coefficient of correlation can have values between -1 and 1. The obtained coefficient indicates the strength of the connection; the value of 1.0 indicates that the correlation is complete and positive while the value of -1.0 indicates that the correlation is complete and negative. The table above clearly shows that most of the explanatory variables are slightly positively correlated, and, on the other hand, it shows that the small number of observed variables have a negative correlation.

Given the case analysis of the influence of independent variables on the dependent variable, and the price-earnings ratio, it can be seen that the strongest positive correlation was observed between the

price-to-earnings ratio and the earnings before interest, taxes, depreciation and amortization – EBITDA (0,208). Companies with a high growth rate, lower funding costs and higher return on financing should have a higher value of the EBITDA, and vice versa, companies with lower growth rates in significant costs of depreciation should have a lower value of the EBITDA (Damodaran, 2010, p. 306). For this reason, with increasing values of EBITDA comes to increasing the value of P/E ratios. There was also a positive correlation (0,160) between the dividend payout ratio and price-to-earnings ratio, which is quite logical, because DP explain that investors are willing to pay high value for those companies which pay high dividends to their shareholders. According to White (2000) an increase of 1% in DP ratio leads to a 20 times increase in P/E ratio. On the other hand, the strongest negative correlation was observed between the price-to-earnings ratio and the ratio of total debt to total assets -leverage (-0,502).

**Table 9:** Regression analysis coefficients between the following parameters: the price – earnings ratio – P/E and return on average equity - ROEE, earnings before interest, taxes, depreciation and amortization – EBITDA, the ratio of total debt to total assets (Leverage) - LEV and dividend per share – DP, for the period: 2005– 2013

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	95% Confidence Interval for B			Correlations	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero order	Partial	Part
(Constant)	37.267	28.495	-	1.308	0.198	-20.323	94.857	-	-	-
ROAE	-1.664	1.238	-0.545	-1.344	0.187	-4.166	0.838	-0.291	-0.208	-0.179
EBITDA	0.423	0.542	0.190	0.779	0.440	-0.674	1.519	0.208	0.122	0.104
LEV	-95.158	79.070	-0.289	-1.203	0.236	-254.965	64.649	-0.502	-0.187	-0.161
DP	42.423	38.558	0.347	1.100	0.278	-35.505	120.351	-0.160	0.171	0.147

Source: Calculation by Author (SPSS 16.0)

From the table above it is clear that the price-to-earnings ratio (PE) has the strongest positive linear relationship to the dividend per share - DP (0.347), and the earnings before interest, taxes, depreciation and amortization - EBITDA (0.190). On the other hand, the weakest linear relationship was observed at the return on average earnings - ROAE (-0.545) and the ratio of total debt to total assets – LEV (- 0.289). For this reason, this result is quite logical because the increase in the cost of financing leads to decreasing in P/E ratio. Also, high earnings growth or trade-off between return and risk leads to an increase in investor's confidence and the price-to-earnings ratio. Also, the negative correlation was observed between the price-to-earnings ratio and the return on average equity (-0.291). It is quite reasonable and understandable because a high return on equity is very good point, however, but we must be cautious not to pay too high of a P/E ratio. Mathematically, a high P/E stock has a higher price-to-book value ratio, and on the other hand given the same return on equity ([www.investorsfriend.com](http://www.investorsfriend.com)). Also, the DP ratio has a positive correlation with the P / E ratio. Dividend payout ratio differs from company to company. Stable and large companies have higher dividend payout ratio. On the other hand, companies which are young and seeking growth such as the companies in the capital market of the Republic of Srpska have lower or modest dividend payout ratio. If the companies pays high levels of dividends, it may become for it to maintain such level of dividends if the earnings fall in the future. For this reason, high dividend payout ratio can have implications for the cash management and liquidity of the company (<http://www.readyratios.com>).

In practice, it also can identify situations in which a high P / E ratio does not mean that shares have a high value. Business enterprises in the highly growing sectors with excellent growth prospects, high level of investor confidence in management forecasts, the predictability of future gains, high

barriers to entry for other companies, creating added value are some of the elements that indicate that it is worth to pay a high price for the shares to be issued higher yields in the future.

## 5. Conclusion

This paper analyzes the variables of the price-to-earnings ratio of certain companies in the capital market of Republic of Srpska in the period between 2005 and 2013, using multiple linear regression models. In the quantitative analysis, we assume the price-to-earnings ratio (PE) is used as dependent variable, and the following ones as independent variables: return on average earnings (ROAE), Earnings before interest, taxes, depreciation and amortization (EBITDA), ratio of total debt to total assets (LEV), and dividend payout (DP). The null hypothesis was rejected because it was not shown that the independent variables affect the dependent variable.

On the highly developed markets, the market price reflects the available information about the company, which affects the formation of the real equilibrium prices, as well as the real P / E ratio. On inefficient and underdeveloped markets such as capital market in the Republic of Srpska appear absurd values of P/ E ratio. Therefore, unbalanced supply and demand, market illiquidity, lack of information have consequences for the impossibility of forming a realistic price of shares. This research suggests that the price-to-earnings ratio with dividend payout ratio as the most influential indicators, that investors are willing to pay high for those companies which pay high dividends to their shareholders.

At the peak of the business cycle when operating profit reached the highest value usually is the P / E ratio at the lowest level, and vice versa, as one might notice in the analysis of the studied companies within the stock index BIRS. In addition, if the economic activity is stable and P / E ratio is stable. Analyzing the P / E ratio is very difficult to conclude whether high or low if you do not take into account the growth rate of the company and the industry average, which suggests that we should not make investment decisions only on the basis of this indicator. At the peak of the business cycle when operating profit reached the highest value usually is the P / E ratio at the lowest level, and vice versa, as one might notice in the analysis of the studied companies within the stock index BIRS. In addition, if the economic activity is stable and P / E ratio is stable. Analyzing the P / E ratio is very difficult to conclude whether high or low if you do not take into account the growth rate of the company and the industry average, which suggests that we should not make investment decisions only on the basis of this indicator.

According to current indicators in the capital market of the Republic Srpska, significant structural changes are indispensable, primarily in the part related to the efficiency of the real sector and credibility of individual issuers of securities. Frontier markets such as the capital market of the Republic Srpska are highly dependent on foreign investors who at the time of the crises withdrew substantial funds. In order to attract foreign investors various project to promote capital market in BH were prepared, such as the listing BATX index on the Vienna Stock Exchange.

Further development of the securities market will depend on the ability of management and entrepreneurs to adequately prepare development project, and on their willingness to carry out their own duties in terms of fair treatment of all interested parties in the work of a business company, in order to gain the confidence of investors in their honest intentions and the sincere desire to provide effective protection of minority shareholder.

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**DETERMINANTS OF THE AMOUNT OF BANKS' LOANS TO  
NON-FINANCIAL CORPORATIONS IN THE REPUBLIC OF CROATIA**

**DETERMINANTE IZNOSA KREDITA BANAKA NEFINANCIJSKIM  
TRGOVAČKIM DRUŠTVIMA U REPUBLICI HRVATSKOJ**

**ABSTRACT**

*Croatian capital market is extremely bank-based market and most companies, in addition to their own internally generated funds, are financed primarily by borrowing from banks. Banks in Croatia are mainly focused on financing the household population while the proportion of funds that are approved to corporations is significantly smaller. Furthermore, government often indirectly requires banks to buy government debt securities. Croatian non-financial corporations have no significant possibility to finance their business with debt or equity securities but have to mainly rely on financial institutions and in the Republic of Croatia financial institutions are generally banks. A bank, in such a business environment, defines the basic conditions and the amount of financing which will be allocated to non-financial corporations. The aim of this paper was to identify, via multiple regression, among certain variables those variables that have significant influence on the amount of bank loans to non-financial corporations in the Republic of Croatia. The results show that the ratio of the share of loans granted to the central government in total loans, the share of loans granted to households in total loans and the share of purchased long-term central government debt securities in total assets has a statistically significant negative effect on the amount of loans granted by banks to non-financial companies. On the other hand, the increased share of banks' reserves with the Croatian National Bank in total assets ratio has a statistically significant positive effect on the amounts of loans granted by banks to companies. A conclusion can be made based on the obtained results about the impact of certain variables on the amount of loans to non-financial companies. Direct or indirect influence on certain variables can affect the amount of loans granted by banks to non-financial companies in the Republic of Croatia.*

**Key words:** loan, corporation, bank, financing, securities.

**SAŽETAK**

*Hrvatsko tržište kapitala je bankocentrično tržište. Na takvom tržištu trgovačka društava pored vlastitih interno generiranih sredstava, za financiranje investicija i tekućeg poslovanja prvenstveno se zadužuju kod banaka. Banke u Republici Hrvatskoj uglavnom su orijentirane na financiranje stanovništva dok je udio sredstava koji se odobrava trgovačkim društvima značajno manji. Također*

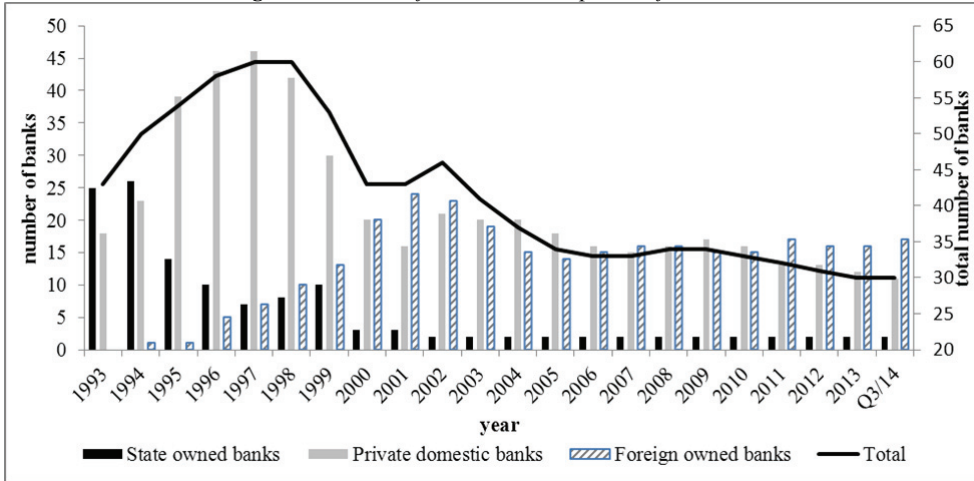
*i država često indirektno zahtijeva od banaka da kupuju njezine dužničke vrijednosne papire. Hrvatska nefinancijska trgovačka društva nemaju mogućnosti značajno se financirati drugim dužničkim ili vlastitim vrijednosnim papirima već se u velikoj mjeri moraju prvenstveno osloniti na financijske institucije, a u Republici Hrvatskoj to su prvenstveno banke. Banka u takvom poslovnom okruženju definira osnovne uvjete kreditiranja koje odobrava trgovačkim društvima i iznose koje će namijeniti trgovačkim društvima. Cilj rada bio je putem višestruke linearne regresije ispitati koje varijable među odabranim varijablama značajno utječu na iznos kredita koje banke odobravaju nefinancijskim trgovačkim društvima u Republici Hrvatskoj. Dobiveni rezultati pokazuju kako udio odobrenih kredita središnjoj državi u ukupno odobrenim kreditima, udio odobrenih kredita stanovništvu u ukupnim kreditima kao i udio dugoročnih dužničkih vrijednosnih papira kupljenih od središnje države u ukupnoj imovini banaka ima statistički značajan negativan utjecaj na iznos kredita koje banke odobravaju nefinancijskim trgovačkim društvima. S druge strane povećanje udjela pričuva banaka kod Hrvatske Narodne Banke u ukupnoj imovini banaka ima statistički značajan pozitivan utjecaj na iznose kredita koje banke odobravaju trgovačkim društvima. Temeljem dobivenih rezultata može se donijeti zaključak o utjecaju pojedinih varijabli na iznose kredita koje banke odobravaju nefinancijskim trgovačkim društvima. Putem istih može se indirektno ili direktno utjecati na iznose koje banke odobravaju nefinancijskim trgovačkim društvima u Republici Hrvatskoj.*

**Ključne riječi:** kredit, trgovačko društvo, banka, financiranje, vrijednosni papir.

## **1. Introduction**

A country's financial system consists of its currency, the payment system, financial markets, financial institutions, and the institutions that regulate and supervise their work. In the Republic of Croatia commercial banks take up a commanding position in the financial system and their work is regulated and supervised by the Central Bank – Croatian National Bank (CNB). Commercial banks are the most active financial institutions, and in the payment system, as well as on the financial markets. On the money market commercial banks collect the free funds and give them as loans to physical persons and legal entities. Banks give loans in form of liquidity and interact on the so-called interbank market, and occasionally take such liquidity loans on the money market and from other legal entities that are not banks. In the last few years records show consolidation of the market on the Croatian bank market. Figure 1 shows the movement of the number of banks on the market for a period from 1993 until the end of the third quarter of 2014. In 1993 in the Republic of Croatia there were 25 state-owned banks, whereas in 2013 there were only 2 banks state-owned banks. In 1993 there were 18 private domestic banks whereas in 2013 there were 12 such banks. The only constantly increasing figures, when compared to 1993, are the ones regarding foreign owned banks. In 1993, there were no foreign-owned banks in the Republic of Croatia, whereas in 2013 there were 16 foreign banks. The number of foreign banks in the early 2000 's was higher, but due to the already mentioned consolidation of the market, today there are 17 such banks. The largest number of banks on the market of the Republic of Croatia was recorded in 1997 and in 1998 when there was a total of 60 banks. Today the number is half that size and there are 30 banks on the market.

**Figure 1** Number of banks in the Republic of Croatia

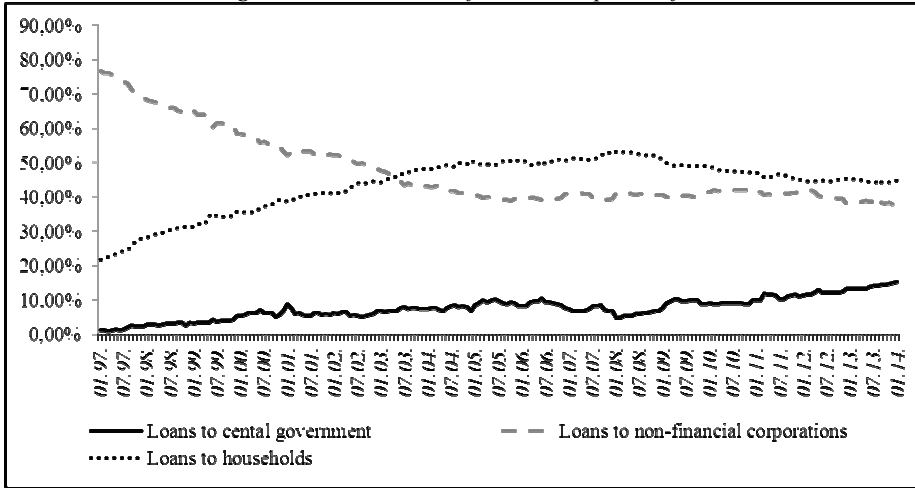


Source: authors' research based on data available on [www.hnb.hr](http://www.hnb.hr)

Croatian financial market is said to be highly bank-centred, meaning that bank loans are the primary source of financing companies. In such a situation, banks should be the mainstay of economic development in the Republic of Croatia. However, figure 2 shows just the opposite. Nowadays banks most usually finance by the population. In the mid-1990s the largest share of loans were loans given to non-financial corporates (companies). The share of corporate loans was over 70%, and in January 1997, it was as high as 76.63%. Still, since then on, up to present, the share of loans to companies has been decreasing significantly. These days banks give loans primarily to households. Household lending finances consumption (primarily the purchase of housing and cars), while financing investments (through loans to companies) is not quintessential. The share of household loans in January 2014 amounted to 44.81%, whilst the share of corporate loans amounted to 38.09%. In the long run, if there is no investment, there is no growth in disposable income which can ultimately lead to a situation in which the population will not be creditworthy either. An interesting fact that stands up is the increase of the share of lending to the government. In January 2014, the share of loans to the state amounts to 15.21% and it is constantly growing over the observed period. By taking loans more and more from the banks on the domestic market, the state also takes away the potential liquidity of banks that could be directed to financing companies and, ultimately, new investments. These days, the state does not invest, but mostly spends, making this an absurd situation. In Croatia, by financing the population, banks are oriented primarily to financing consumption, while the companies have, as their only alternative, bank loans (if they do not have a sufficient amount of their own funds). According to the above mentioned, financing companies is not the bank's primary job.



*Figure 2 Loan structure of banks in Republic of Croatia*



*Source: authors' research based on data available on [www.hnb.hr](http://www.hnb.hr)*

In such circumstances, when the bank prefers financing the population, and the only potential source of external financing imposed to companies is again the bank, banks firmly hold a privileged position. In such a business environment, the bank is the one that defines the basic funding conditions such as interest rate on loans granted. The aim of this study was to examine with multiple regression which variables among chosen ones have significant influence on the amount of bank loans to non-financial corporations in the Republic of Croatia. The paper consists of four main parts. The first one is the introduction that puts forward the basic concepts of the banking system in Croatia. The second part sets the research basis, describes the method or multiple linear regression, used in the research. The second part consists of descriptive statistics of variables explored. The third part of the paper presents the results of the research, while the fourth section holds the conclusion.

## 2. Methodology and data description

As already mentioned, the aim of this paper was to examine with multiple regression which variables among the chosen ones have significant influence on the amount of bank loans to non-financial corporations in the Republic of Croatia. Research is done in statistic software STATA. Based on the obtained results a conclusion about the impact of certain variables on the amount of loans to non-financial companies can be given. Direct or indirect influence on recognized variables can have effects on the amount of loans granted by banks to non-financial companies in the Republic of Croatia.

The data taken for the survey are defined on a monthly basis for the period from January 2011 to December 2014. Descriptive statistic of dependent and independent variables is shown in table 1. Marks for variables  $y_1$ ,  $x_1$ ,  $x_2$ ,  $x_3$ ,  $x_4$ ,  $x_5$ ,  $x_6$ ,  $x_7$ ,  $x_8$  are in the first column. Previously mentioned marks represent dependent variable ( $y_1$ ) – share of bank loans to non-financial corporations in the Republic of Croatia in total credits and independent variables ( $x_1$  do  $x_8$ ). Independent variables included in research are:  $x_1$  – share of loans granted to the central government in total loans,  $x_2$  – share of loans granted to households in total loans,  $x_3$  – ratio of non-financial corporation's demand deposits with credit institutions and total loans granted to non-financial corporations,  $x_4$  - ratio of households' demand deposits with credit institutions and total loans granted to households,  $x_5$  - share of banks' reserves with the Croatian National Bank to total assets ratio,  $x_6$  – share of T-

bill in total bank asset, x7 - share of purchased long-term central government debt securities in total assets and x8 – due and undue claims on the basis of granted loan interests ratio.

The following tables show the results of the research. Abbreviated designation (y1, x1, x8 ...) was used in order to simplify the review of the results.

**Table 1** Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
y1	45	0,3022	0,0141	0,2825	0,3217
x1	45	0,1181	0,0146	0,0881	0,1389
x2	45	0,4507	0,0068	0,4419	0,4681
x3	45	0,1845	0,0337	0,1233	0,2521
x4	45	0,1299	0,0116	0,1167	0,1575
x5	45	0,1188	0,0046	0,1092	0,1285
x6	45	0,0313	0,0037	0,0262	0,0377
x7	45	0,0346	0,0039	0,0279	0,0395
x8	45	0,3628	0,1774	0,0776	0,7896

Source: authors' research based on data from statistic software STATA

Total number of observations per each variable is 45. Share of bank loans to non-financial corporations in the Republic of Croatia in total credits (y1) is stable during the observed period of investigation with mean of 30,22%. Other independent variables show low volatility too, except due and undue claims on the basis of granted loan interests ratio.

Multiple linear regression model was used to test the influence and direction of the independent variables on the share of bank loans to non-financial corporations in the Republic of Croatia in total credits. The aim of the regression analysis is to present or describe the connection between the observed variables by means of an appropriate analytical mathematical expression, i.e. regression model (Papic, 2005, 142). If the regression analysis examines the connection between the dependent and a larger number of independent variables, then the most commonly used model is the linear multiple regression model. Using several independent variables can lead to distorted and unrealistic assessment of contributions of individual independent variables when trying to explain the dependent variable. This problem is created by high dependence (collinearity) of two, i.e. multicollinearity between more than two independent variables.

The assumptions that should be followed in multiple regression model assert that the independent variables are inter-independent (Rozga, 2006, 197).

Table 2 shows the results of the research and examines the problem of multicollinearity between the independent variables.

**Table 2** Correlation matrix

	x1	x2	x3	x4	x5	x6	x7	x8
x1	1,0000							
x2	-0,6408	1,0000						
x3	0,7497	-0,1411	1,0000					
x4	0,7756	-0,3154	0,9015	1,0000				
x5	0,1321	-0,0619	-0,1043	-0,2372	1,0000			
x6	0,7994	-0,2721	0,8760	0,8742	0,0476	1,0000		
x7	0,3990	-0,3269	0,1717	0,3534	-0,1379	0,2342	1,0000	
x8	-0,4256	0,0865	-0,4270	-0,4595	-0,0027	-0,4806	-0,1547	1,0000

Source: authors' research based on data from statistic software STATA

The consequences of multicollinearity are unrealistically high standard errors regarding estimates of regression coefficients, i.e. unrealistically low values of t-tests and can lead to a wrong conclusion about the significance of certain variables in the examined model. To avoid the problem of multicollinearity in the set of independent variables, only the ones that are not highly correlated are to be chosen; i.e. the ones with the correlation coefficient in absolute value below 0.7.

Table 2 shows that there is a high degree of dependence among certain independent variables, i.e. there is a problem of multicollinearity. Following the instruction that asserts that one of the solutions to the problem of multicollinearity is excluding independent variables that contribute to multicollinearity problem, this research did the same. The independent variables x3, x4, x6 were excluded from further research.

After excluding variables that create the problem of multicollinearity, the possible presence of the same problem was once again examined among the remaining three independent variables as shown in Table 3.

**Table 3** *Correlation matrix among the remaining independent variables in research*

	x1	x2	x5	x7	x8
x1	1,0000				
x2	-0,6408	1,0000			
x5	0,1321	-0,0619	1,0000		
x7	0,3990	-0,3269	-0,1379	1,0000	
x8	-0,4256	0,0865	-0,0027	-0,1547	1,0000

*Source: authors' research based on data from statistic software STATA*

Table 3 shows the solution to the problem of multicollinearity. The following step is to go ahead with the survey by linear model of multiple regression with the remaining five independent variables (x1, x2, x5, x7, x8). The following is the equation of the model:

$$y_1 = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_5 + \beta_4 x_7 + \beta_5 x_8 \quad (1)$$

### 3. Empirical results

On the basis of equation 1, multiple linear regression was performed and its results are shown in Table 4.

**Table 4** Multiple regression results

Source	SS	df	MS	Number of obs. = 45		
Model	0,0085	5	0,0017	F( 5, 39)	= 211,58	
Residual	0,0003	39	7,9954E-06	Prob > F	= 0,0000	
Total	0,0088	44	0,0002	R-squared	= 0,9644	
				Adj R-squared	= 0,9599	
				Root MSE	= 0,0028	
y1	Coef.	Std. Err	t	P > t	[95% Conf.Interval]	
x1	-1,0709	0,0455	-23,5500	0,0000	-1,1628	-0,9789
x2	-0,4376	0,0858	-5,1000	0,0000	-0,6112	-0,2640
x5	0,4646	0,0950	4,8900	0,0000	0,2724	0,6568
x7	-0,2214	0,1235	-1,7900	0,0810	-0,4711	0,0283
x8	-0,0036	0,0028	-1,3000	0,2010	-0,0092	0,0019
_cons	0,5797	0,0441	13,1400	0,0000	0,4904	0,6689

Source: authors' research based on data from statistic software STATA

Table 4 shows how multiple determination coefficient (R2) represents the proportion of variance of the dependent variable interpreted by the model. Table 4 shows that this coefficient is 0.9644, i.e. 96.4% of the variance of share of bank loans to non-financial corporations in the Republic of Croatia in total credits explained with share of loans granted to the central government in total loans, share of loans granted to households in total loans, share of banks' reserves with the Croatian National Bank to total assets ratio, with share of purchased long-term central government debt securities in total assets and with due and undue claims on the basis of granted loan interests ratio. Multiple determination coefficient (R2) serves as a measure of representativeness of the model and the value it shows indicates a highly representative model.

Statistical significance of the model can be determined based on the p-values of the empirical F-ratios in Table 4. If the p-value of the empirical F-ratio is statistically significant, this leads to a conclusion that at least one of the independent variables significantly affects the dependent variable. More specifically, it can be said that the model is statistically significant. F-ratio of the tested models is less than 1%, and it can be argued that the model shown in equation 1 as a whole is statistically significant.

The data in Table 4 show the statistical significance of some independent variables in the model. Four of five independent variables are statistically significant. x1, x2, x5 are statistically significant at the level of 1%, while the independent variable x7 is statistically significant at the level of 10%. X8 variable is not statistically significant. The variables x1, x2 and x7 are negatively correlated with the dependent variable, and the variable x7 is positively correlated with the dependent variable. Data from Table 4 lead to equation 2 of multiple regression model with listed coefficients.

$$y1 = 0,5797 + -1,0709x1 + -0,4376x2 + 0,4646x5 + -0,2214x7 + -0,0036x8 \quad (2)$$

The following is the interpretation of statistically significant variables of the model:  $\beta_0$  (0.5797) - if all five independent variables were equal to zero, than average value of share of bank loans to non-financial corporations in the Republic of Croatia in total credits would be 12.32%

$\beta_1$  (-1.0709) - if the share of loans granted to the central government in total loans increased by 1

percentage point, while the other four variables remain unchanged, the share of bank loans to non-financial corporations in the Republic of Croatia in total credits would decline by 1.0709%

$\beta_2$  (-0.4376) - if the share of loans granted to households in total loans rise for 1% ,, and the other four independent variables remain unchanged, share of bank loans to non-financial corporations in the Republic of Croatia in total credits would decline by 0.4376%

$\beta_3$  (0.4646) - if the share of banks' reserves with the Croatian National Bank to total assets ratio increased by 1% and other four independent variables stay unchanged, the share of bank loans to non-financial corporations in the Republic of Croatia in total credits would rise by 0.4646%

$\beta_4$  (-0.2214) - if the share of purchased long-term central government debt securities in total assets increased by 1%, and other four independent stay unchanged, the share of bank loans to non-financial corporations in the Republic of Croatia in total credits would decline by 0,2214%

#### **4. Conclusion**

Choosing independent variables and testing their impact on the share of bank loans to non-financial corporations in the Republic of Croatia in the total credits leads to obtaining a model of high degree of interpretability. 96.64% of all changes in the share of bank loans to non-financial corporations in the Republic of Croatia in total credits can be explained by examining variables: share of loans granted to the central government in total loans, share of loans granted to households in total loans, share of banks' reserves with the Croatian National Bank to total assets ratio, share of purchased long-term central government debt securities in total assets and the due and undue claims on the basis of granted loan interests ratio. Croatian economy is characterized by import orientation and orientation to financing consumption. But, again, this consumption is the one of imported goods whose production does not include Croatian companies. Recognizing the variables which can be used to increase the share of bank loans to non-financial corporations can help formulate guidelines that would, among other activities, contribute to the development of business entities and, ultimately, the economic growth. The government's policy has to be oriented towards encouraging banks to reduce lending to the population, and, also, decrease financing the expensive state apparatus from banks operating in the Republic of Croatia, or find other source of financing. Consequently, banks would direct the excess of liquidity towards the economy, which would have a positive effect in the long term for everybody.

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## **CHALLENGES OF DEVELOPMENT OF THE CROATIAN ECONOMY AND COMPETITIVENESS**

### **IZAZOVI RAZVOJA HRVATSKOG GOSPODARSTVA I KONKURENTNOST**

#### ***ABSTRACT***

*Since 2002, the Republic of Croatia has been included in the Global competitiveness report, which is led by the The World Economic Forum. Likewise, other type of the economic reports are introduced by the organisations like GEDI, GEM, etc.*

*The competitiveness report encompasses hundred forty-four world's economies. The report traces and measures a stage of national competitiveness on the national state level, as well as a set of institutions, policy and factors, which are determined by level of the productivity.*

*Seen from 2007 to 2014, the Croatian global competitiveness index has reported his decline for six years out the observed period of eight year. Therefore, the competitiveness index for the Republic of Croatia is located at the bottom of the list of the European Union countries scale and among the European counties in general.*

*Aim of this paper is to show a current position of GCI, GEDI, and TEA indices, for the Republic of Croatia, that indicate factors that drive the economy, innovativeness efficiency, which furthermore indicate the basis of foundation for the economic growth and development. Also, the aim of this paper is to point out the weakest pillars and component of the indices, as well as those which are currently satisfactory in regard to the others countries. At the end, it will be suggested recommendations and measures that can improve the current economic situation.*

**Key words:** *competitiveness, economy, innovativeness, GCI, GEDI, GEM*

#### ***SAŽETAK***

*Od 2002. godine, Republika Hrvatska je uključena u izvješće o globalnoj konkurentnosti, što je poveo Svjetski gospodarski forum. Isto tako, druge vrste gospodarskih izvješća su uvedene od strane organizacija kao što su GEDI, GEM, itd.*

*Izvrješće o konkurentnosti obuhvaća sto četrdeset i četiri svjetskih gospodarstava. Izvrješće prati i mjeri stupanj nacionalne konkurentnosti na razini države, kao i niz institucija, politika i faktora koji su određeni razinom produktivnosti.*

*Gledano od 2007. do 2014., hrvatski globalni indeks konkurentnosti je zabilježio pad od šest godina unutar promatranog razdoblja od osam godina. Dakle, indeks konkurentnosti za Republiku Hrvatsku nalazi se na dnu popisa zemalja Europske unije i među europskim regijama u cjelini.*

*Cilj ovog rada je prikazati trenutni položaj GCI, GEDI, i TEA indeksa, u Republici Hrvatskoj, koji ukazuju na čimbenika koji utječu na gospodarstvo, inovativnost učinkovitosti, što nadalje ukazuju na osnovu temelja za gospodarski rast i razvoj. Također, cilj ovog rada je ukazati na najslabije stupove i komponente indeksa, kao i one koji su trenutno zadovoljavajući u odnosu na druge zemlje. Na kraju, biti će predložene preporuke i mjere koje mogu poboljšati trenutnu gospodarsku situaciju.*

**Ključne riječi:** konkurentnost, gospodarstvo, inovativnost, GCI, GEDI, GEM

## **1. Introduction**

In the last ten years, both on the global and European Union level, lot of organizations whose aim is to follow economic activities and particular world economies movement trends have been founded. Each of these organizations is focused on specific components that are eventually published, generally in a form of a report. Reports are based on detailed methodology defined within the document, based on good theoretical fundamentals. They usually contain the detailed description of the economic activities of the target group of countries, as well as the rank list according to global or particular measurement index.

The aim of these measurements is multiple. The first aim is to point out the weakest components of particular index to particular economies, as well as those parts that are currently at the satisfactory level. Furthermore, both professionals and the public are to become more aware about the importance of particular measurements. By constructing the rank lists, both competing and aspiration for progress within particular categories are encouraged. By defining the current position, foundations for benchmarking are being established, specific recommendations and guidelines for further development are given on the basis of the obtained results.

This paper will analyse a few different reports in which the Republic of Croatia is participating and which have specific perennial trends. Also, the current position will be stated within the defined coordinate systems. According to that, the current position of the Republic of Croatia in regards to other observed countries will be pointed out. Observed organizations and indices are: World Economic Forum (WEF) – Global Competitiveness Index (GCI); Global Entrepreneurship Development Institute (GEDI) –Global Entrepreneurship Development Index (GEDI); Global Entrepreneurship Monitor (GEM) – index: Total Early-Stage Entrepreneurial Activity (TEA).

## **2. Competitiveness**

In the last few years the concept of competitiveness has risen as a new paradigm in economic development although Michael Porter has already mentioned it in his book „Competitive advantage of nations“ from 1990 which was based on the productivity that was a tool for competing instead of traditional advantages like natural resources or workforce.

Competitiveness encompasses the consciousness about limits and challenges that global competitiveness brings at the times when the efficient management is bounded with calculation



boundaries and the private sector is faced with significant obstacles when racing at local and foreign market.<sup>1</sup>

Competitiveness, according to the OECD definition, indicates a country's ability to, in free and equal market conditions, produce goods and services that pass the international market test while keeping and raising long lasting real population income. The term is often used to describe the loss of the competitiveness when the expenses raise because of the unfavorable influence on the price or the profit/margin without the product's quality improvement.<sup>2</sup>

Competitiveness especially depends on the proportion of product's quality and price rank. There are a lot of factors which are assumed to have an indirect influence on competitiveness, innovation, service quality or producers' corporative image:<sup>3</sup>

- Quality of the product (services),
- Productivity - the ability of the production to produce as many products (services) as possible of the defined quality.
- Lower costs enable lower prices
- Quality of services – the ability to satisfy customers, users or citizens' needs
- Image

Competitiveness is measured and followed because it gives an objective image of our strengths and weaknesses that can, when working hard and being willing to change, be both raised and increased and in that way the company, country or region management can be improved and can make some progress.

## 2. GCI Index

GCI is a Global Competitiveness Index, which is made of different aspects of competitiveness that are captured in 12 pillar and its purpose is to evaluate the productivity and efficiency of countries. GCI attempts to quantify the impact of a number of key factors which contribute to create the conditions for competitiveness.<sup>4</sup> Its particular focus is on the macroeconomic environment, quality of country's institutions, and the level of country's infrastructure and technology.

Global Competitiveness Index is accepted tool for evaluating country's growth potential. It provides insight into the comparative advantages of each country by comparing most of the world's countries.

GCI estimates the following factors of Economic and Social well-being: the existence of an environment supporting growth, development of human capital, the performance of the governing body and it is an appropriate index to estimate the aforementioned components of Quality of Life, especially when complimented by the IMD Competitiveness Index.<sup>5</sup>

Also, Global Competitiveness Index provides a possibility to compare economic and business potential of countries. For each country, GCI allows decision makers to estimate the productivity of each sectors and economy as a whole.

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<sup>1</sup> [http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2009-10.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2009-10.pdf) (accessed 16/ 04/ 2015)

<sup>2</sup> <http://www.konkurentnost.hr/Default.aspx?sec=77> (accessed 16/ 04/ 2015)

<sup>3</sup> <http://www.konkurentnost.hr/Default.aspx?sec=77> (accessed 16/ 04/ 2015)

<sup>4</sup> <http://www.gaportal.org/global-indicators/global-competitiveness-index> (accessed 17/ 04/ 2015)

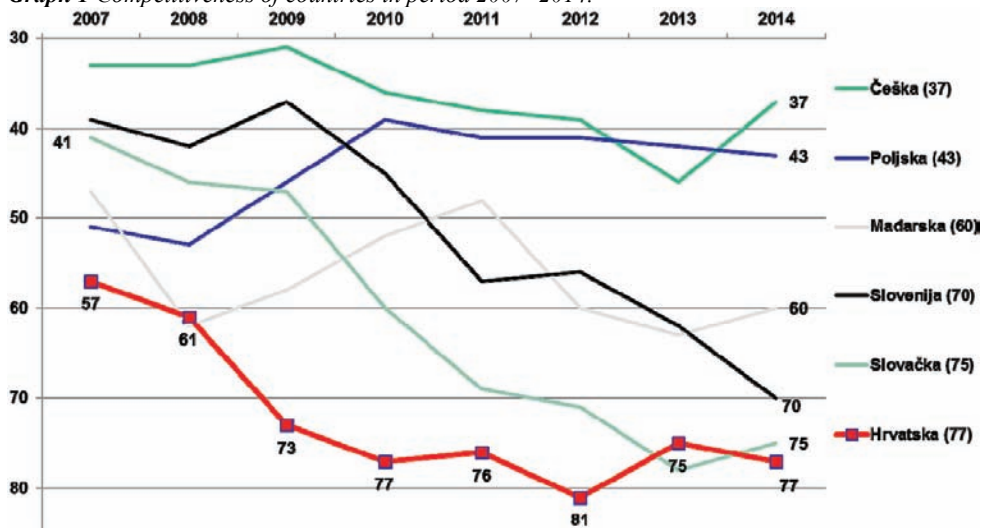
<sup>5</sup> <http://reut-institute.org/en/Publication.aspx?PublicationId=1312> (accessed 17/ 04/ 2015)

**Table 1** Pillars of Global Competitiveness Index.

Basic conditions	Efficiency enhancement	Innovations and sophistication
Subindex	Subindex	Subindex
1. pillar: Institutions	5. pillar: Higher education and training	11. pillar: Business sophistication
2. pillar: Infrastructure	6. pillar: Efficiency of commodities market	12. pillar: Innovation
3. pillar: Macroeconomic environment	7. pillar: Efficiency of labor market	<b>Basis for economies based on innovation factors</b>
4. pillar: Health care and primary education	8. pillar: Development of financial market	
<b>Basis for economies based on primary factors</b>	9. pillar: Technological readiness	
	10. pillar: Market size	
	<b>Basis for economies based on efficiency factors</b>	

Source: Report on global competitiveness 2014.-2015., WEF

**Graph 1** Competitiveness of countries in period 2007- 2014.



Source: Report on global competitiveness 2014.-2015., WEF

According to the Graph 1., it is noticeable that in 2014 Croatia has the lowest global competitiveness index of the countries in EU that are taken into sample, and Croatia also holds the lowest place of them all (Czech Republic, Poland, Hungary, Slovenia, Slovakia). According to the global competitiveness index Croatia was 77th (with 4.1 index), following 76th Slovakia, 76th Slovenia, 60th Hungary, 43rd Poland and, 37th Czech Republic. In the period of 2008 and 2007 the decrease of the index is noticeable among all countries (except for Hungary and Poland where the

decrease is seen one or two years after), and that decrease is caused by world crisis that had started in 2008 and spread quickly which led to losses, deficits, production volume reduction and has consequently affected investment climate that became worse which led to efficiency and competitiveness decrease.

Slow increase is noticeable with Slovakia and Hungary in 2014, while Croatia, Poland and Slovakia all have a decrease, Slovenia having the biggest decrease especially in last three years which is probably a consequence of political instability that was going on in Slovenia in that period of time.

### 3. GEDI index

A composite indicator that points out to the quality of the development of entrepreneurship of particular economy is GEDI (Global Entrepreneurship Development Index). Whole measurement is synthesized with one number called GEDI Index.<sup>6</sup>

That number represents the composition of a few important categories that are furthermore divided in concrete economic indicators. GEDI Index shows the entrepreneurship status, education status, workforce status, innovation status, technology and financial status, and is interesting for its proper correlation with gross domestic product of a specific country.<sup>7</sup> It can be said that using the GEDI Index it is possible to „diagnose“ the growth of the specific economy. *Picture 7* graphically shows the correlation of GEDI Index curve with gross domestic product per capita figure.

In the annual edition for year 2013 results for Croatia and Slovenia are shown in the Table 2.

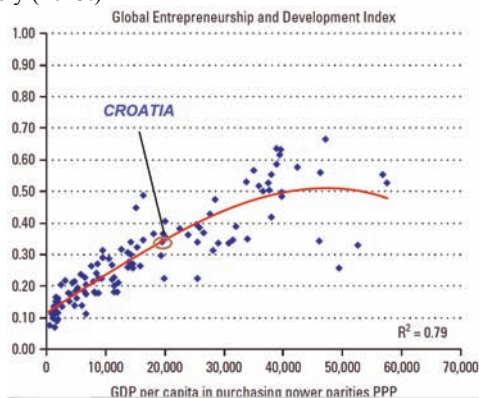
**Table 2** Comparison of GEDI index and subindex for Croatia and Slovenia

Results 2013.	BDP	GEDI index	Rang	ATT subindex	ABT subindex	ASP subindex
The Republic of Croatia	19,516	0,34	37-43	0,31	0,4	0,31

Source: <http://www.thegedi.org>, accessed 03/12/2015

For 2013 Croatia is on 37th – 43rd place (same place held by more countries).

Picture 1. Correlation GEDI indeks curve depending on gross domestic product per capita figure. Croatia is shown separately (2013.)



Source: <http://www.thegedi.org>, accessed 03/12/2015

<sup>6</sup> <http://www.thegedi.org>, Global Entrepreneurship Development Index (accessed 03/12/2015)

<sup>7</sup> Pšeničny, V, Jakopin E., Vukčević, Z. and Čorić. G. (2013): **Dynamic entrepreneurship - generator of sustainable economic growth and competitiveness**, International Conference: Challenges of Europe, Proceedings. Faculty of Economics, University of Split, October 21-23, pp. 353-376.

Composite GEDI index consists of three main blocks or subindices that are also called 3A:

- ATT - entrepreneurial attitudes
- ABT - entrepreneurial abilities
- ASP - entrepreneurial aspirations<sup>8</sup>

Those three subindices or blocks are additionally divided into 15 pillars whose constitution is a combination of individual and institutional variables that show micro and macro view of entrepreneurship. (Picture 2.)

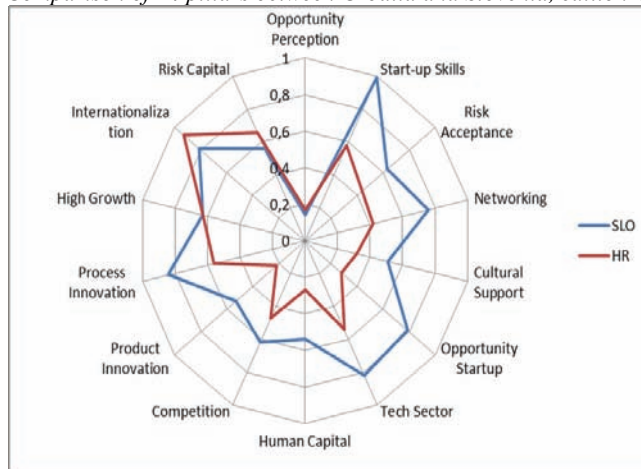
*Picture 2 GEDI index with 3A categories and 14 pillars*

GLOBAL ENTREPRENEURSHIP AND DEVELOPMENT INDEX (GEDI)														
Entrepreneurial Attitudes Sub-Index					Entrepreneurial Activities Sub-Index					Entrepreneurial Aspirations Sub-Index				
OPPORTUNITY PERCEPTION	STARTUP SKILLS	NONFEAR OF FAILURE	NETWORKING	CULTURAL SUPPORT	OPPORTUNITY STARTUP	TECHNOLOGY SECTOR	QUALITY OF HUMAN RESOURCES	COMPETITION	NEW PRODUCT	NEW TECH	HIGH GROWTH	INTERNATIONALIZATION	RISK CAPITAL	

Source: <http://www.thegedi.org>, accessed 03/12/2015

The worst link is the ability to recognize an opportunity which 0,17 for Croatia. Croatia also has very bad results in the field of innovative products, recognized opportunity, human capital etc., and the best one in the field of internationalization.

*Picture 3 Comparison of 14 pillars between Croatia and Slovenia, edition GEDI 2015*



Source: <http://www.thegedi.org>, accessed 03/12/2015

#### 4. GEM index

Founding the consortium of Global Entrepreneurship Monitoring in 1999 attempts were to unify and consolidate particular researches on country levels in order to get a good basis for further

<sup>8</sup> <http://www.thegedi.org>, Global Entrepreneurship Development Index (accessed 03/12/2015)

research. Accordingly, different variables have been introduced, and one of them was extremely useful and that was the motivation to enter the entrepreneurship world.<sup>9</sup>

By dividing the entrepreneurs' motivation to enter on those who started their business because of necessity and those who started their business because of opportunity, a clearer image about connection of entrepreneurship and economic activities is gotten.

The research has shown that the bigger entrepreneurship activity because of necessity does not serve the economy development while activities of entrepreneurs who have started a business because of opportunity significantly correlate with economy growth. Detailed research has proved that the proportion opportunity/necessity has an exceptional connection with economy growth.<sup>10</sup>

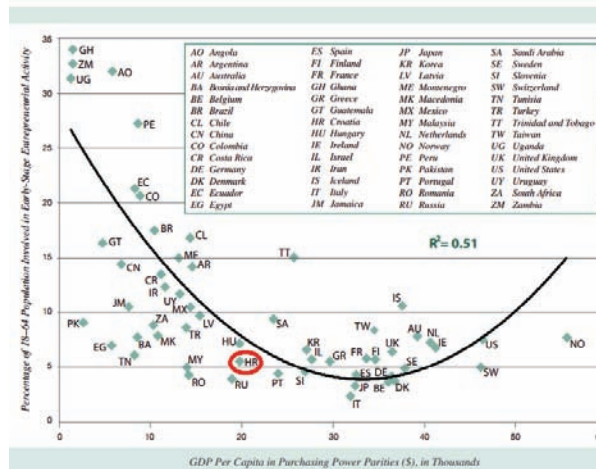
Initial research problem of entrepreneurs' behavior, attempts and success was non – standardization of research on the particular countries level. That was the reason there was no common denominator to carry out consistent results. Project GEM (Global Entrepreneurship Monitor), that runs the research on annual basis (until 1999), was the solution for that problem.<sup>11</sup>

When defining the variables there was a question how to actually measure entrepreneurs' activity which was later defined by two indicators: activities of nascent business and activities of start – up business that have survived the initial phase (up to 42 months old). Also, in addition to entrepreneurs' activities, motivation to enter the business was also measured consistently, and it was later proven to be the key correlation indicator of the main economic indicators of the particular economy.<sup>12</sup>

Generally, the common activity of entrepreneurship can be shown using the „U“ graph (Picture 4), where undeveloped and developed economies are on the borderline, while developing countries are in the middle.<sup>13</sup>

**Picture 4** Total entrepreneurs' early phase activity Per Capita GDP 2010.

Figure 5 : Total Early-Stage Entrepreneurial Activity Rates and Per Capita GDP 2010<sup>14</sup>



Source: Amorós, J.E., Bosma, N.S. and Levie, J. (2011): *Ten Years of Global Entrepreneurship Monitor: Accomplishments and Prospects*, International Journal of Entrepreneurial Venturing, forthcoming, Global Report

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## 5. Conclusion

The Republic of Croatia is currently in the transition phase from the efficiency – driven economy into innovation – driven economy. In the last few years from the global economical crisis emersion according to the mentioned indicators the economy has shown a negative transition trend, and convergence to developing countries.

Croatia is a little bit under the world economies average per certain index (CGI, GEDI, TEA). From the results mentioned above it can be concluded that there is a lot of space for development especially in the field of state levies, human resources, legal framework, employees education, innovation, raising awareness about entrepreneurship opportunities and motivation to enter the business enterprise. Listed items, indicate the least developed components of Croatian economy development.

There are structures that currently are on the satisfactory level but those mainly refer to IT, traffic and other types of infrastructures, on the low inflation rate, quality of life and so on.

In order to develop further on, it is needed to work on the weakest points and pillars shown in this paper by introducing the combination of structural and short – term measures that may be the most adequate at this point of time. Institutions like GEDI, do also give special instructions and suggestions how to and in which way to direct the further economy development.

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## **THE STRUCTURE OF RENEWABLE ENERGY SOURCES IN ENERGY PRODUCTION IN THE EUROPEAN UNION STATES, WITH PARTICULAR CONSIDERATION OF POLAND AND CROATIA**

### **STRUKTURA OBNOVLJIVIH IZVORA U PROIZVODNJI ENERGIJE U ZEMLJAMA EUROPSKE UNIJE S POSEBNIM OSVRTOM NA POLJSKU I HRVATSKU**

#### **ABSTRACT**

*According to the Directive 2009/28/EC dated April 23, 2009, the European Union intends to achieve, it is required that 20 percent of the energy consumed within the European Union will be renewable by 2020. The share of energy from renewable sources in transport is to achieve 10 percent at the same time. It is the mandatory minimum target for all Member States.*

*Due to the high diversification of potentials of particular Member States, related to the renewable energy sources (water conditions, wind conditions, sun illumination, resources of biomass and biogases) and initial conditions of the states, the 20 percent share of the entire Community has been recalculated to specify the individual (national) targets. Therefore, following the list of the Member States, Poland is to achieve the 15 percent and Croatia the 20 percent share of energy from the renewable sources in the final gross energy consumption.*

*In order to achieve these targets, Poland (in 2010) and Croatia (in 2013) approved the National Action Plans in the Field of the Renewable Energy Sources. These plans determine the concepts, time schedules and instruments of implementation of the actions assumed by the EU.*

*The objective of the paper is to discuss the descriptive and comparative analysis of the structure of the renewable energy sources in the energy production, in relation to the targets specified by the EU for particular Member States. The detailed analysis will cover the structure of energy mixes of Poland and Croatia, including, first of all, water power, wind energy, sun energy, biomass and biogases.*

**Keywords:** *energy, renewable energy sources, wind energy, sun energy, biomass, biogases.*

#### **SAŽETAK**

*Europska unija, u skladu s direktivom 2009/28/EC od dana 23. travnja 2009. godine treba do 2020. godine, postići 20 posto udjela obnovljive energije u ukupnoj potrošnji energije i 10 posto udjela energije iz obnovljivih izvora u sektoru transporta (kao obveznog minimalnog cilja za sve zemlje članice). Zbog velikih razlika u potencijalu država članica u području obnovljivih izvora energije (resursi vode, vjetrova, sunca, biomase, bioplina) i njihov početni položaj, pa je 20 postotni udio ka cilj zajednice, preračunat na pojedinačne ciljeve (nacionalno). Dakle, u izvješću zemlja članica, Poljska do 2020 očekuje dosegnuti 15 posto, a Hrvatska 20 posto udjela energije iz obnovljivih*

izvora u bruto potrošnji energije. Kako bi se postigli ovi ciljevi, Poljska je u 2010 i Hrvatska u 2013. donijela Nacionalni akcijski plan za obnovljive izvore energije koji definiraju koncepte, planove i instrumente za provedbu ciljeva postavljenih od strane Europske unije. Svrha ovog članka je analizirati opisno-usporedne strukture obnovljivih izvora energije u proizvodnji energije u odnosu na zahtjeve koje postavlja EU u pojedinim državama članicama. Detaljnom analizom će biti obuhvaćena struktura energetske troškova Poljske i Hrvatske, a u tom prije svega hidroenergije, vjetroenergije, solarne energije, biomase i bioplina.

**Ključne riječi:** energija, obnovljivi izvori energije, energije vjetra, solarne energije, biomase, bioplina.

## 1. Introduction

Renewable energy sources are such sources of energy, which are renewed within a short time and thus their utilisation is not connected with their long-term deficit. Renewable energy sources include, among others, wind, solar radiation, water gravitational energy, biomass, biofuels, geothermal energy. The policy of development of energy based on renewable energy sources in all EU Member States has been defined in the Directive of the European Parliament and of the Council 2009/28/EC on promotion of the use of energy from renewable sources. Its main objective is to limit greenhouse gas emissions and to meet the resolutions of the Kyoto Protocol to the Framework UN Convention on climatic changes, as well as to meet other EC and international obligations in the field of limitation of greenhouse gas emissions. Those objectives are in line with the European strategy against climatic changes „20-20-20”. This plan assumes to achieve the following objectives to 2020:

- to limit greenhouse gas emissions by 20%,
- to increase the energy efficiency by 20%,
- a share of renewable energy equal to 20%.

Therefore, each Member State has individual goals in the field of renewable energy sources in the overall energy balance, depending on their possibilities and predispositions. In the case of Poland, the objective is to achieve 15%, and in the case of Croatia – the 20% share of renewable energy sources to 2020 in the final gross energy consumption.

## 2. Renewable energy sources in Poland and Croatia in comparison to the EU

Hydroelectricity, wind and wave power, solar and geothermal energy and combustible renewables and renewable waste (landfill gas, waste incineration, solid biomass and liquid biofuels) are the constituents of renewable energy. The gravitational energy of water is mostly used in the world as the renewable energy source. In 2013 it was used for production of 71% of energy from renewable sources. Successive sources are: wind energy (12%), biomass and biofuels (7.7%), solar energy (2.4%) and geothermal energy (1.4%). The current trends suggest that wind and solar energy will produce amounts of energy similar to hydropower plans to 2020, and the share of renewable energy will exceed 20% (1: accessed 15 February 2015). Table 1 presents the share of particular sources in the primary energy production in Poland and Croatia, within the EU structure.

**Table 1** Share of particular sources in production of the primary energy in Poland and Croatia within the EU structure

Country	Total production of primary energy, 2012 [Mtoe]	Share of total production, 2012 [%]			
		Solid fuels	Natural gas	Crude oil	Renewable energy
Poland	71.1	80.9	5.4	0.9	11.9
Croatia	3.5	0	47.3	16.1	34.2

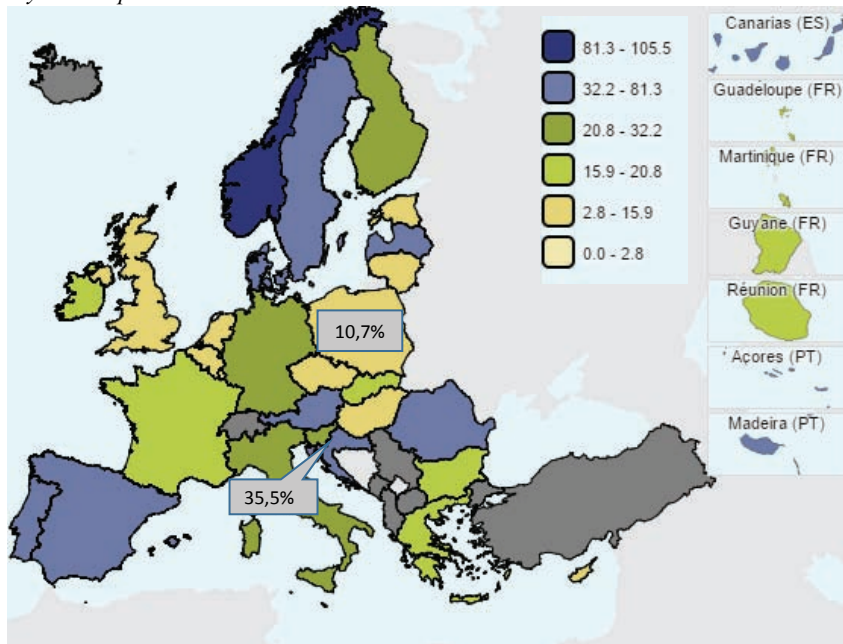
Source: Own work, basing on

[http://ec.europa.eu/eurostat/statisticsexplained/index.php/Energy\\_production\\_and\\_imports/pl](http://ec.europa.eu/eurostat/statisticsexplained/index.php/Energy_production_and_imports/pl)



Figure 1 shows the contribution of electricity produced from renewable energy sources to the national electricity consumption in 2012. Electricity produced from renewable energy sources comprises the electricity generation from hydro plants (excluding pumping), wind, solar, geothermal and electricity from biomass/wastes. Gross national electricity consumption comprises the total gross national electricity generation from all fuels (including autoproduction), plus electricity imports, minus exports.

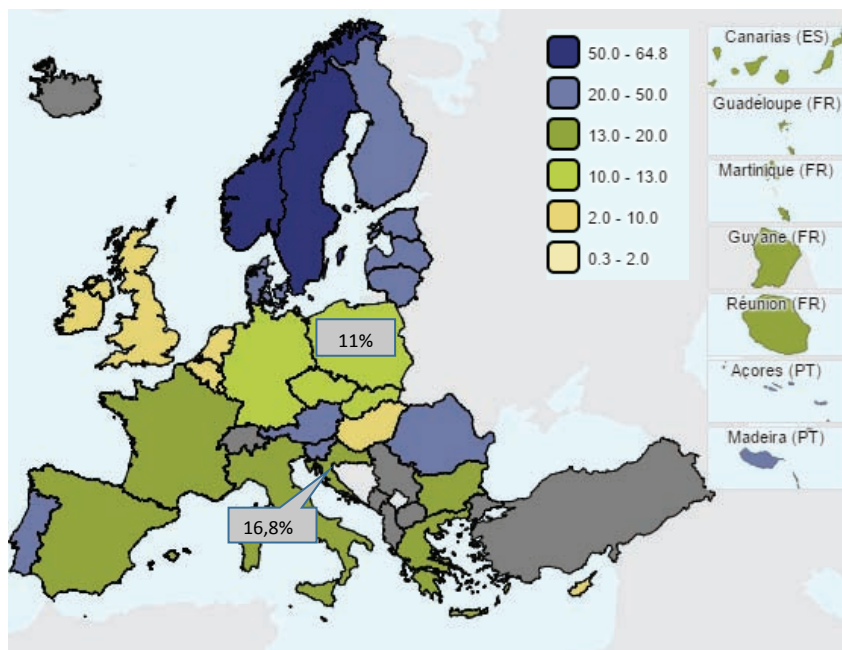
**Figure 1** Contribution of electricity produced from renewable energy sources to the national electricity consumption in 2012



Source: <http://ec.europa.eu/eurostat/web/energy/statistics-illustrated>

In Poland the share of renewable energy sources in the primary energy production has been increasing every year. It equalled to 2.6% in 2005 and it reached 8.2% in 2011; this means the increase by 312% and 30%, respectively, comparing to 2012. In Croatia, considering the higher starting level of the share of renewable energy sources in the primary energy production, this increase was not as impressive as in Poland; it reached 8% comparing to 2005 (32.8%) and almost 4% comparing to 2011 (34.2%). The share of renewable energy in gross final energy consumption in 2012, amounts respectively 11% for Poland and 16,8% for Croatia (Figure 2).

**Figure 2** Share of renewable energy in gross final energy consumption in 2012



Source: <http://ec.europa.eu/eurostat/web/energy/statistics-illustrated>

### 1.1. Selected parameters of renewable energy sources in the EU with particular consideration of Poland and Croatia

#### I. Solid biomass

Solid biomass is acquired, first of all, from energy trees and crops. After harvesting they are used in the form of the fresh biomass or they are specially processed. Each year the consumption of the solid biomass for the production of electric power and heat in the European Union is increased. Following the data collected by the EuroObserv'ER, the consumption of the primary energy from the solid biomass equalled to 91.5 MToe in 2013 in the European Union; this means the increase by 3.3% comparing to 2012. At the same time in Poland the decrease of almost 7% was noticed; in Croatia the moderate increase of 0.6% was noticed.

**Table 2** Selected parameters of solid biomass in Poland and Croatia in comparison to the EU.

	2012			2013		
	UE	Poland	Croatia	UE	Poland	Croatia
Primary energy production of solid biomass [Mtoe]	86.043	6.988	0.694	88.100	6.497	0.700
Gross consumption of solid biomass [Mtoe]	88.639	6.988	0.497	91.459	6.497	0.500
Gross electricity production from solid biomass [TWh]	80.204	9.529	0.037	81.684	8.024	0.048
Heat production from solid biomass [Mtoe]	8.591	0.462	0.002	8.809	0.345	0.003

Source: Own work basing on EuroObserv'ER Solid biomass barometer 2014

## II. Biogas

Primary energy production of biogas contains landfill gas, urban and industrial sewage sludge gas, others biogas (decentralised agricultural plant, municipal solid waste methanisation plant, centralised co-digestion plant). Following the data collected by the EurObserv'ER, the share of the biogas in the primary energy production equalled to approx. 13.4 Mtoe in 2013 in the European Union; this means the increase by 10.2% to 2012. However, the increase intensity in the sector was slower than in 2012 (16.9%, i.e. the increase by 1.8 Mtoe). In Poland the increase by 29.6% and in Croatia – by 8.4% comparing to 2012 was noticed in 2013.

**Table 3** Selected parameters of biogas in Poland and Croatia in comparison to the EU.

	2012			2013		
	UE	Poland	Croatia	UE	Poland	Croatia
Primary energy production of biogas [ktoe]	12 137.1	193.8	16.6	13 378.7	251.2	18.0
Gross electricity production from biogas [GWh]	46 419.1	565.4	56.8	52 327.2	882.5	63.2
Gross heat production from biogas [ktoe]	353.2	5.1	2.7	432.4	7.2	3.0

Source: Own work basing on EuroObserv'ER Biogas barometer 2014.

## III. Renewable municipal waste

Municipal solid waste is an unavoidable by product of human activities. Estimates compiled by EurObserv'ER suggest that the production of primary renewable energy recovered by household refuse incineration plants in the countries of the European Union, only increased by 0.7% in 2013 to achieve 8.7 Mtoe.

**Table 4** Primary energy production from renewable municipal waste in Poland and Croatia in comparison to the EU

	2012			2013		
	UE	Poland	Croatia	UE	Poland	Croatia
Primary energy production from renewable municipal waste [ktoe]	8 668.7	32.5	-	8 727.0	32.5	-

Source: Own work basing on EuroObserv'ER Renewable municipal waste barometer 2014

## IV. Solar power plants (photovoltaic)

Photovoltaics is a method of converting solar energy into current electricity, or production of the electric current of the sun radiation, using the photovoltaic effect. Following the estimated values of the EurObserv'ER, 24% decrease of the number of installed and connected photovoltaic devices was noticed in the EU in 2012, comparing to 2011.

Besides, the share of the EU in the global photovoltaic market, equalled to 73.6% in 2011, is currently reaching only 26,5%. This sector has been clearly shrinking, mainly due to the reduced system of investment incentives, and resulting restoration of inspection of its development.

**Table 5** Photovoltaic capacity installed and connected in Poland and Croatia in comparison to the EU

	2011			2012		
	UE	Poland	Croatia	UE	Poland	Croatia
Photovoltaic capacity installed and connected [MWp]	22075.7	0.8	-	16692.9	1.2	3.6

Source: Own work basing on EuroObserv'ER 13th annual overview barometer.

## V. Wind energy

Electrical energy produced of wind energy is considered ecologically clean, since, apart from financial inputs required for construction of a wind-powered plant, production of energy does not involve combustion of any fuel. In 2013 the increase of 10.2% of the total power of wind-powered plants, comparing to 2012, was noticed in the EU; however its slowdown comparing to the past years was also noticed. In 2013 Poland reached the third place on the EU wind energy market in terms of the increase intensity of new investment comparing to 2012.

**Table 6** Selected parameters of wind energy in Poland and Croatia in comparison to the EU.

	2012			2013		
	UE	Poland	Croatia	UE	Poland	Croatia
Installed wind energy cumulative capacity [MW]	106806.6	2496.7	179.6	117730.0	3389.5	298.8
Electricity production from wind energy [TWh]	203.507	4.746	0.329	234.386	6.600	0.494

Source: Own work basing on EuroObserv'ER Wind energy barometer 2014.

## VI. Small hydro power plants

The small size hydroelectricity sector groups together installation with capacities of up to 10 MW yet has a vital role to play in achieving the targets set by UE for 2020. Following the estimations of the EurObserv'ER, the increase by 9.7% of the small hydraulic gross electricity production was noticed in 2012 in the EU, comparing to 2011.

**Table 7** Selected parameters of small hydro power plants in Poland and Croatia in comparison to the EU

	2011			2012		
	UE	Poland	Croatia	UE	Poland	Croatia
Small hydraulic gross electricity production < 10MW [GWh]	41128	943	63	45135	940	77
Total small hydraulic net capacity < 10MW [MW]	13730.9	268	28	13928.0	273	28

Source: Own work basing on EuroObserv'ER 13th annual overview barometer.

## 2. Polish and Croatian renewable energy sources strategy

Individual demands of particular EU Member States come down to the achievement of the 15% share by Poland and the 20% share by Croatia of energy from renewable energy sources in the final gross energy consumption to 2020. In order to achieve those goals Poland in 2010 and Croatia in 2013 adopted the National Action Plans for renewable energy sources. Those plans determine the ideas, time schedules and instruments for implementation of actions, specified by the EU, depending on predispositions and potential of renewable energy sources in each state.

National objectives for the year 2020, concerning the consumption of energy from renewable sources in three sectors, i.e. heating and cooling, electric power engineering and transport are presented in Table 8.

**Table 8** Share of renewable energy sources in heating and cooling, electric power engineering and transport to 2020

Sector	Poland	Croatia
Electric power engineering	19.1%	39.0%
Heating and cooling	17.0%	19.6%
Transport	10.1%	10.0%

Source: Own work basing on Polish and Croatian National action plan for renewable energy sources.

Following the provisions of the Croatian National action plan, utilisation of renewable energy sources in transport is to achieve 10% in 2020, and 19.6% in heating and cooling sectors. It was also decided to increase the share of renewable energy sources in the electric power engineering sector, from 35%, assumed in the past, to 39%, since its share already achieved 36.6% in 2013.

The Polish Action Plan is not a one-variant plan; it assumes different scenarios (the optimal, i.e. the recommended, the minimal and the maximal scenarios). According to the optimal variant, the target for 2020 is to achieve 10% energy from renewable energy sources in transport, 17% - in heating and cooling, and 19.1% in electric power engineering.

### 2.1. Share of renewable energy sources in particular sectors

#### Ia) Electric power engineering - Croatia

Table 9 presents the assumed share of particular renewable energy sources technologies in electric power engineering to 2020.

**Table 9** Share of particular renewable energy sources in electric power engineering to 2020

Renewable energy sources	Megawatts
Biomass plants (solid biomass and biogas)	125
Geothermal	10
Wind energy	400
Large hydropower plants	2356
Small hydropower plants	100
Solar energy photovoltaic	52

Source: Own work basing on Croatian National action plan for renewable energy sources.

In Croatia in 2020, the following breakdown of RES is expected in electricity production: 80,7% from large and small hydropower plants, 13,1% from wind plants, 4,1% from biomass plants, 0,3% from geothermal plants and 1,7% from solar plants. In Croatia, having the considerable potential in the field of renewable energy source and the opportunities to select different variants, it was decided to assign high priorities to the biomass, biogas and hydropower plants. On the other hand it was decided to enter limitations for wind energy production to 400 MW, and for solar energy production to 52 MW. One of the most important conditions was the perspective of possible creation of more new jobs than it would be possible in the case of promotion of solar and wind energy production.

#### Ib) Electric power engineering – Poland

Table 10 presents the assumed share of each of renewable energy technology in electric power engineering to 2020.

**Table 10** Share of renewable energy sources in electric power engineering to 2020.

Renewable energy sources	Megawatts
Biomass plants (solid biomass and biogas)	2530
Wind energy	6650
Large hydropower plants	772
Small hydropower plants	380
Solar energy photovoltaic	3

Source: Own work basing on Polish National action plan for renewable energy.

In Poland in 2020, the following breakdown of RES is expected in electricity production: 64.3% from wind plants, 24.5% from biomass plants, 11.1% from large and small hydropower plants. Thus, the highest attention has been paid to the wind and biomass energy. However, due to the geographic location of Poland, the share of the solar energy is marginal in the list of the total energy production.

#### IIa) Heating and cooling – Croatia

Table 11 presents the assumed share of each renewable energy technology in heating and cooling to 2020.

**Table 11** Share of particular renewable energy sources in heating and cooling to 2020.

Renewable energy sources	Ktoe
Geothermal energy (excluding heat energy from low-temperature sources in applications of heat pumps)	15.7
Solar energy	97.3
Biomass (solid biomass and biogas)	396.8
Renewable energy from heat pumps	95.6

Source: Own work basing on Croatian National action plan for renewable energy sources.

The total amount of renewable energy for heating and cooling in 2020 will be about 605.4 ktoe. Biomass, with a share of 65.5% in 2020 will play the main role in total energy from RES in the production of thermal energy for heating and cooling. Solid biomass includes wood biomass and biomass from agriculture. Of the total consumption of biomass for heating and cooling, 50.7% is planned for consumption in general consumption (households, services, agriculture, construction). Solar energy will have a 16.1% share in total RES in heating and cooling. The Republic of Croatia has set the goal for installation of 0.225 m<sup>2</sup> of heat collectors per capita in 2020 for the preparation of hot water. In the heating and cooling system, heat pumps will have a share of 15.8%, of which air-based heat pumps will account for 12.6%, and water-based heat pumps for 3.2%. The share of geothermal energy in total RES in heating and cooling will be 2.6% to 2020.

#### IIb) Heating and cooling – Poland

Table 12 presents the assumed share of every renewable energy source technology in heating and cooling to 2020.

**Table 12** Share of particular renewable energy sources in heating and cooling to 2020.

Renewable energy sources	Ktoe
Geothermal energy (excluding heat energy from low-temperature sources in applications of heat pumps)	178
Solar energy	506
Biomass (solid biomass and biogas)	5089
Renewable energy from heat pumps	148

Source: Own work basing on Polish National action plan for renewable energy.

In Poland the total amount of renewable energy for heating and cooling in 2020 will be about 5921 ktoe. Biomass, with a share of 85,9% in 2020 will play the main role in total energy from RES in the production of thermal energy for heating and cooling. Solar energy will have a 8,5% share in total RES in heating and cooling. In the heating and cooling system, heat pumps will have a share of 2,5%. The share of geothermal energy in total RES in heating and cooling will be 3,0% to 2020.

#### IIIa) Transport – Croatia

In Croatia the total amount of renewable energy in transport to 2020 will be about 162 ktoe. Renewable energy consumed for transport in 2020 will primarily consist of energy from biofuels 8,85%, while the remainder to the 10% share will be electricity 1,15%, which will be used in all types of transport.

### IIIb) Transport - Poland

In Poland the total amount of renewable energy in transport to 2020 will be about 2018 ktoe. Renewable energy consumed for transport in 2020 will primarily consist of energy from biofuels 9,98%, while the remainder to the 10% share will be electricity 0,2%, which will be used in all types of transport.

### 3. Final remarks

The European Community target, assuming the 20% share of energy from renewable energy sources in the final gross energy consumption in 2020 is implemented through objectives, determined for each of the Member States. In order to achieve those targets, the Member States adopt national action plans in the field of energy from renewable energy sources, including their provisional assumptions in the sectors of transport, electric power engineering, cooling and heating. The Polish and Croatian conditions allowing for the RES development are different. In the electric power engineering Poland is focused on the wind energy and Croatia – on the water power. On the other hand, in both countries the biomass (solid biomass and biogas) is to become the main source of renewable energy in heating and cooling.

Advantageous natural conditions of Croatia, i.e. the high hydropower potential, favourable conditions for utilisation of the wind energy, high biomass resources and the high level of sunshine, allow to easily achieve the 20% share of energy produced by RES, assumed by the EU, in covering the total, national energy demands. The multi-variant Action Plan in Poland points to the possibilities to achieve the 15% share of energy from renewable sources in the final gross energy consumption. One of the variants is considered to be the optimal, i.e. recommended variant. The minimal and maximal variants have been also prepared. Thus, the Action Plan has been prepared in a flexible way. Besides, it assumes the certain overcapacity for the case of drought, which could result in much lower biomass volume and its periodically limited use. However, legal, technical and financial barriers, as well as the insufficient level of co-operation between institutions, which are responsible for implementation of administrative procedures, characterised by uncertainty and risk in the field of RES investments, may create some threats both in Poland, and in Croatia. Investors are discouraged by the lack of transparency and appropriate regulations in the field of the financial support for a given investment. In Poland such issues will be regulated, to some extent, by the act of February 20, 2015 on renewable energy sources. It introduces the auction system, which will include tenders for production of electric energy from RES sources. The lowest price is to be the criterion of offer selection and the guarantee concerning the support for energy producers is to be valid for 15 years. Separate auctions will concern plants to 1MW and above 1MW. Besides, these new regulations promote the utilisation of locally available resources, and, as a result, at least 25% of electric energy would be produced in RES installations of installed power to 1MW.

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## **REGIONAL COMPETITIVENESS OF THE EUROPEAN UNION**

### **REGIONALNA KONKURENTNOST EUROPSKE UNIJE**

#### ***ABSTRACT***

*The aim of this paper is to analyse the competitiveness of the European Union (EU) NUTS 2 regions by estimating the regional competitiveness function based on labour (productivity) as the determinant of regional competitiveness. The dynamic panel data analysis is applied in accordance with the explained theoretical framework on defining and measuring regional competitiveness. The results of the study have shown that employment and labour productivity have significant, positive and the highest impact on regional competitiveness, human capital has significant and positive influence while real unit labour costs have significant and negative influence on regional competitiveness of the observed regions in the EU. Human capital is not a significant determinant if the modelling is applied only on convergence regions and regions of the new member countries while unit labour costs are not a significant determinant in the sample of the new member countries of the EU. The results imply that competitiveness is not homogeneous between the regions of the EU and can have implications for regional policy makers, regarding utilisation of examined determinants. The importance of less developed regions should not be disregarded in competitiveness analysis especially if we take into account that this may result in a re-allocation of resources from the less developed to (“better places”) the more developed regions which will contribute to widening inequalities and possibly lower the competitiveness of less developed areas or even problems in more developed regions regarding its capacity and problems of congestion. This has confirmed the need to analyse competitiveness on regional level and that it is necessary to observe regional specificities in future creation of competitiveness measures.*

**Key words:** regional competitiveness, NUTS, labour productivity, human capital, unit labour costs

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This study (with revisions) is part of the unpublished (defended in 2013) doctoral dissertation of the first author of this paper, titled “*The Influence of Labor Productivity on Regional Competitiveness in the EU*”, that was done under the supervision of the second author of this paper.

## SAŽETAK

Cilj rada je analizirati konkurentnost NUTS 2 regija Europske unije (EU) procjenom funkcije regionalne konkurentnosti kojom se pobliže utvrđuje utjecaj (produktivnosti) rada, jedne od temeljnih odrednica regionalne konkurentnosti. Primijenjena je dinamička panel analiza u skladu sa prikazanim teorijskim okvirom o definiranju i mjerenju regionalne konkurentnosti. Rezultati istraživanja ukazuju na pozitivan i najznačajniji utjecaj zaposlenosti i produktivnosti rada na regionalnu konkurentnost u EU, ljudski kapital ima značajan i pozitivan utjecaj, dok jedinični troškovi rada imaju značajan i negativan utjecaj. Ljudski kapital nije značajna odrednica ukoliko se modeliranje provodi na uzorku regija konvergencije i na uzorku koji obuhvaća regije novih država članica EU, dok jedinični troškovi rada nemaju značajan utjecaj na konkurentnost regija novih država članica EU. Rezultati istraživanja također upućuju na značajne razlike u konkurentnosti između pojedinih skupina regija, odnosno impliciraju da u promišljanju o ulozi promatranih odrednica u jačanju konkurentnosti kreatori regionalne politike trebaju sagledati regionalnu heterogenost. Mogućnosti slabije razvijenih regija u analizi konkurentnosti ne smiju ostati zanemarene. Naime, nedovoljna participacija slabije razvijenih regija u implementaciji mjera regionalne politike koje su usmjerene prema jačanju konkurentnosti može doprinijeti realokaciji resursa od slabije razvijenih prema razvijenijim regijama, što dovodi do povećanja regionalnih nejednakosti i smanjenja konkurentnosti slabije razvijenih regija. Navedeno ujedno može i oslabiti konkurentnost razvijenijih regija ukoliko se pojave problemi narušavanja njihovog razvojnog kapaciteta, odnosno prevelikog iskorištavanja postojećih resursa. U konačnici, u radu je potvrđeno da je u cilju jačanja konkurentnosti EU potrebno sagledati regionalnu konkurentnost te da je u kreiranju mjera za jačanje konkurentnosti nužno uključiti regionalne specifičnosti unutar pojedinih država članica EU.

**Ključne riječi:** regionalna konkurentnost, NUTS, produktivnost rada, ljudski kapital, jedinični troškovi rada

### 1. Introduction

Frequently used (sometimes abused) and controversial term of competitiveness entered the public debate when the rise of Japan challenged the economic dominance of USA in the 1990s. Firstly, the term had been focused on nations, but it was also applied to regions (Ketels, 2013). Looking from the European perspective, the European Union (EU) wants to become the most competitive economy in the world. Regional competitiveness and employment is one of the goals of the EU cohesion policy, while competitiveness is emphasized as one of the priorities in Lisbon strategy and strategy Europe 2020.

Even though there are numerous works about defining, measuring and enhancing competitiveness (e.g. Porter, 1990, Aristovnik, 2012, Annoni and Dijkstra, 2013, Ketels, 2013, Aristovnik and Obadić, 2014, International Institute for Management Development (IMD), 2014, Obadić and Tijanić, 2014, World Economic Forum (WEF), 2014), there are still discussions and lack of empirical research considering the influence of the specific determinants of regional competitiveness. One of the most important determinants of regional competitiveness is labor productivity (European Commission - Regional Policy, 1999, Cambridge Econometrics et al., 2003). Our study tries to investigate the influence of labor productivity on EU regional competitiveness, regarding also the determinants of labor productivity that can be important for future regional investments directed towards the strengthening of the EU regional competitiveness.

The paper is structured as follows. The main research questions of our paper are grounded in theoretical framework presented in the next section which synthesizes and critically evaluates the insights on defining and measuring the regional competitiveness. The empirical part of this paper

will estimate the influence of the mentioned determinants and regional differences on the competitiveness of the EU NUTS 2 regions (to the authors' knowledge for the first time on the sample of the EU 28 countries) by using dynamic panel data analysis. The final section concludes and gives implications for future studies.

## 2. Literature Review – Theoretical Framework for Measuring Regional Competitiveness

There are different approaches that deal with competitiveness. After the work of Porter (1990), discussions about the mentioned concept and critics of competitiveness can be seen in Krugman (1994), Bristow (2005) and other papers, which lead us to the question: *is it possible to define and measure competitiveness?* We agree with Snieška and Bruneckienė (2009) that it is hard to sum up the theory of competitiveness because of the complexity of the concept and many different determinants it includes. There is no generally accepted theory of regional competitiveness (Kitson et al., 2004), but the key issues in regional competitiveness analysis are those that economic theorists have been trying to address in theories of economic growth and development. The comparison of studies implies that national competitiveness can be analyzed on several levels (micro, mezzo and macro-economic), in regards to different areas of observing (technological, economic, political, social, ecological aspect) and time perspectives (short, middle and long term) (Zaharieva and Čiburniene, 2008). Nowadays the role of regions as policy actors or territorial units for policy interventions should not be excluded in competitiveness analysis due to the fact that regions represent a unique economic system, aggregations of internal development capability that influence the regional and national competitiveness performance. In the EU regional competitiveness has been adopted as a policy goal, so regions must become active participants in creation of regional policy, able to fulfill the needs and generate rising standards for people living and working there better than other areas, which can be seen through utilization of its development preconditions in terms of competitiveness determinants. This leads to the definition of (regional) competitiveness by Meyer and Stamer (2008, 7), given in Annoni and Kozovska (2010), who define “competitiveness of a territory as the ability of a locality or a region to generate high and rising incomes and improve livelihoods of the people living there”.

In this paper region is defined as a homogeneous unit, region-subject that has the possibility to participate in allocation and utilization of regional resources (looking from the perspective of economic theory and policy makers) and in more detail according to NUTS (*The Nomenclature of Territorial Units for Statistics*) categorization of Eurostat (due to statistical categorization that is based on analytical purposes and is important for EU regional policy implementation). NUTS 2 regions are eligible for aid from the EU Structural Funds (convergence regions<sup>1</sup> from the objective in which the most of the total resources are allocated). But to successfully absorb the EU funds and use the funds for strengthening the competitiveness in an effective way, each of NUTS 2 regions must have a suitable regional internal endowment. Furthermore, utilization of the determinants of competitiveness has an impact on the outcomes of competitiveness, so it can be assumed that there will be differences in competitiveness of NUTS 2 regions in regards to differences in internal endowment and its competitiveness determinants. This heterogeneity between the EU NUTS 2 regions can also be observed as the homogeneity of the groups of NUTS 2 regions based on their similarity regarding the development level and the similarity between two groups of old (EU 15) and new EU member states (EU 13<sup>2</sup>), in the field of competitiveness. The same strategies can not be directed toward competitiveness strengthening in distinctive types of regions so it is important to analyze and highlight the differences before making policy implications.

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<sup>1</sup> Those having the GDP (gross domestic product) per capita less than 75% of the EU average, called less developed regions in 2014-2020 programming period (more in: European Commission - Regional Policy, 2013).

<sup>2</sup> EU member countries that have become members in 2004, 2007 and 2013.

Complexity in defining regional competitiveness implies that special concern must be directed to choosing the appropriate information system and creating indicators but also to applying reliable models in measuring the mentioned concept. There is no “unique” regional competitiveness model that can be applied in measuring. Depending on the subject and aim of the analysis, *different indicators* (Porter, 1990, Gardiner, 2003, Kitson et al., 2004, Annoni and Kozovska, 2010, Annoni and Dijkstra, 2013, IMD, 2014, WEF, 2014), *models* (Cambridge Econometrics et al., 2003, Lengyel, 2004) and *methods of measuring competitiveness* (Melecký and Nevima, 2011, Lengyel and Szakálné Kanó, 2012) are used but with constraints regarding each of the mentioned concepts.

After examining advantages and disadvantages in measuring, and also considering the theoretical review, we have chosen to use the *regional competitiveness function* (according to Lengyel and Szakálné Kanó, 2012) as the best solution to derive econometric specification in our paper. As this study relies on a higher number of observed units and longer time period, appropriate method for estimation can be found in the framework of the econometric panel data analysis.

### 3. Econometric Specification and Empirical Results

In our study the modeling relies on extended regional competitiveness function based on labor where the determinants of regional competitiveness are independent variables and the dependent variable represents the proxy measure of competitiveness. We have estimated the function of regional competitiveness as the relation *between regional competitiveness* (output), *labor productivity*, *employment*, *human capital* (determinants of the labor productivity) and *unit labor costs*. In the empirical part of the analysis we also wanted to test if *regional differences* (between convergence regions and other regions, as well as between EU 15 and EU 13 regions) are significant and whether they have significant influence on regional competitiveness so it was necessary to assign dummy variables in modeling (dummy 1 to differ between convergence regions and the rest of the regions, dummy (2) to differ between EU 15 and EU 13 regions). Regional competitiveness functions that will be estimated in models (1), (2), (3) and (4) are given hereinafter (see *Table 1* for a detailed explanation of the variables):

*MODEL (1):*

$$\text{COMP}_{it} = f(\text{LP}_{it}, \text{EMP}_{it}, \text{HCII}_{it}, \text{RULC}_{it}, \text{D}_{ij})$$

$i = 1, \dots, 272$ , refers to one of the NUTS 2 regions;  $T = 1, \dots, 11$ , refers to years 2000 to 2010 (because the last available data (at the time of performing analysis) for GDP per capita refer to 2010).  $j = 1, \dots, 2$ , represents the dummy variables.

*MODEL (2):*

$$\text{COMP}_{it} = f(\text{LP}_{it}, \text{EMP}_{it}, \text{HCII}_{it}, \text{RULC}_{it}, \text{D}_{ij})$$

$i = 1, \dots, 85$ , refers to one of the NUTS 2 convergence regions in model (2);  $T = 1, \dots, 11$ , refers to years 2000 to 2010;  $j = 2$ , represents the dummy variable (2) to differ between EU 15 and EU 13 regions in the model (2).

*MODEL (3) and MODEL (4):*

$$\text{COMP}_{it} = f(\text{LP}_{it}, \text{EMP}_{it}, \text{HCII}_{it}, \text{RULC}_{it})$$

$i = 1, \dots, 215$ , one of the EU 15 regions in the model (3);

$i = 1, \dots, 57$ , one of the EU 13 NUTS 2 regions in the model (4);  $T = 1, \dots, 11$ , refers to years 2000 to 2010.

Variables that will be used in this empirical analysis are presented in *Table 1*, according to given regional competitiveness function and the described models.

**Table 1** Description of variables and data sources

Code	Variable	Description of variable	Source of data
<i>Dependent variable</i>			
<b>COMP</b>	Competitiveness, proxy variable that is used as the measure of competitiveness: GDP per capita, as it is shown in European Commission - Regional Policy (1999), Gardiner (2003) and others.	GDP per capita (PPS)	European Commission - Eurostat (2013a) and European Commission - Eurostat (2013b)
<i>Independent variables</i>			
<b>LP</b>	Labor productivity	GDP in mil. PPS / (total) employment	European Commission - Eurostat (2013a) and European Commission - Eurostat (2013b)
<b>EMP</b>	Employment	Number of employed / working age population	European Commission - Eurostat (2013a)
<b>HCI</b>	Human Capital Intensity Index	Index is customized according to Dijkstra (2009)	European Commission - Eurostat (2013a)
<b>RULC</b>	Real unit labor costs	(Compensation of employees in mil. EUR / number of employees) / (gross domestic product in mil. EUR / total employment) Calculation: according to the methodology of European Commission - Economic and Financial Affairs (2013)	European Commission - Eurostat (2013a)
<b>D<sub>1</sub></b>	Dummy variable, convergence regions	The variable has the value 1 if it takes data of the convergence regions (those regions having GDP per capita < 75% of the EU average), otherwise variable has the value 0.	European Commission - Regional Policy (2013)
<b>D<sub>2</sub></b>	Dummy variable, region in EU 15	The variable takes the value 1 for regions that are one of the EU 15, otherwise variable has the value 0.	EU 15 are member countries before the enlargement in 2004, 2007 and 2013.

Source: created by authors

Considering the theoretical approach that observes regional competitiveness in the dynamic context, the *dynamic panel data models* are used as reliable methodology in order to estimate regional competitiveness function in this analysis. The relationship between the variables in dynamic panel models can be described in the following way (customized according to Verbeek (2004)):

$$\ln y_{it} = \phi \ln y_{i,t-1} + \ln X_{it}' \beta + \delta_i + \varepsilon_{it}$$

As can be seen from the presented relation, the model includes a dependent variable ( $y_{it}$ , in our case COMP) with one or more time lags ( $y_{i,t-1}$ ). Economic interpretation is that past values of competitiveness of regions have the influence on current values of the region  $i$  in time  $t$ .  $X_{it}'$  is vector of independent variables (labor productivity, employment, human capital, real unit labor cost, dummy variables in model (1) and (2)) for the observed regions  $i$  ( $i = 1, \dots, 272$  in model (1);  $i = 1, \dots, 85$  in model (2);  $i = 1, \dots, 215$  in model (3) and  $i = 1, \dots, 57$  in model (4)); in period  $t$  ( $t = 1, 2, \dots, 10$ )), while  $\delta_i$  is fixed effect or individual heterogeneity.  $\varepsilon_{it}$  represents idiosyncratic error term for region  $i$ , in period  $t$ . It is assumed that the error term is independent and identically distributed over individuals and time, with mean zero and variance  $\sigma_\varepsilon^2$ .

System dynamic panel data estimator is used in the empirical analysis conducted in this paper and is estimated in two-step procedure because the mentioned procedure solves the problem of endogeneity, it is robust to heteroscedasticity and cross-correlation according to Roodman (2009), which were also the problems confirmed in the estimation in this analysis. More about this estimator and econometric diagnostics can be found in Arellano and Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998) and Sarafidis et al. (2009). Model diagnostics confirms that the assumptions and the tests are satisfied. The results of the estimation are shown in Table 2.

**Table 2** Results of the estimation of regional competitiveness function by using dynamic panel system GMM estimator in two-step

Dependent variable: <b>COMP</b>				
	<b>Model 1 (total)</b>	<b>Model 2 (convergence regions)</b>	<b>Model 3 (EU 15)</b>	<b>Model 4 (EU 13)</b>
	Coefficients	Coefficients	Coefficients	Coefficients
Constant	0.8611 (0.000)*	0.7903 (0.006)*	0.4119 (0.035)**	0.2346 (0.562)
<b>Lag COMP</b>	0.5994 (0.000)*	0.2840 (0.000)*	0.8306 (0.000)*	0.3201 (0.000)*
<b>LP</b>	0.2902 (0.000)*	0.6004 (0.000)*	0.1200 (0.000)*	0.6266 (0.000)*
<b>EMP</b>	0.3072 (0.000)*	0.6749 (0.000)*	0.1493 (0.000)*	0.6184 (0.000)*
<b>HCH</b>	0.0006 (0.056)***	0.0005 (0.458)	0.0006 (0.000)*	0.0120 (0.249)
<b>RULC</b>	-0.0322 (0.015)**	-0.2763 (0.002)*	-0.0644 (0.007)*	-0.0321 (0.604)
<b>D<sub>1</sub></b>	-0.0728 (0.003)*			
<b>D<sub>2</sub></b>	0.0041 (0.051)***	0.1095 (0.000)*		
Model diagnostics				
Number of observations	2485	788	1986	540
Number of groups	272	85	215	57
Number of instruments	237	79	207	51
Wald test	16999.47	4574.42	14619	654.35
Prob > chi <sup>2</sup>	0.000	0.000	0.000	0.000
Sargan/Hansen J statistics	268.91	77.39	210.61	53.01
Prob > chi <sup>2</sup>	0.196	0.105	0.170	0.165
Arellano-Bond test for AR (1) in first differences	-4.22	-3.09	-5.14	-2.73
Prob > chi <sup>2</sup>	0.000	0.002	0.000	0.006
Arellano-Bond test for AR (2) in first differences	-1.56	-1.34	-1.62	-1.36
Prob > chi <sup>2</sup>	0.118	0.180	0.105	0.174

Notes: Standard errors are corrected using the approach by Windmeijer (2005), p values are shown in parentheses. In modeling are included time-dummies but are not significant (at the significance level 5%).

Full name and description of variables are shown in Table 1. Number of groups refers to number of cross-section units.

\* Significant at 1%, \*\* Significant at 5%, \*\*\* Significant at 10%

Estimations are done with order xtabond2 (Roodman, 2009)

Source: authors' calculation

All of the chosen regional competitiveness determinants are statistically significant (even though at different significance levels) in model estimated on total sample (model (1)) where the differences between the convergence and other regions and between EU 15 and EU 13 regions are statistically significant too. Employment has the highest (positive) influence on regional competitiveness in model (1); followed by the labor productivity that also has positive influence, as well as the human capital, while real unit labor costs have shown negative and statistically significant influence. Convergence regions and regions of the EU 13 regions have lower competitiveness in comparison with the rest of the EU regions. Statistically significant differences between these regions imply that it is necessary to conduct analysis on separate samples which is done in models (2), (3) and (4).

The highest influence of employment is also confirmed in model (2), which estimates the regional competitiveness function of the convergence regions, and in model (3) which estimates the regional competitiveness function of the EU 15 regions. Other variables have the same (positive or negative) influence on regional competitiveness as it was shown in model (1). Labor productivity has the highest influence on regional competitiveness of the EU 13 regions (which can be explained with high unemployment in most of the EU 13 countries), so it can be concluded that labor productivity is significant driver force of competitiveness in all observed regions but it should be observed with its other determinants. It is interesting to highlight that human capital is not statistically significant determinant of regional competitiveness in convergence regions and in regions of the EU 13, which is important to observe in future regional strategic planning and programming. Unit labor cost is not significant determinant of regional competitiveness of the EU 13 regions. This confirms the need to define and measure competitiveness based on different determinants and not only from the side of the unit labor costs. The importance of less developed regions should not be disregarded. This may result in a re-allocation of resources from the less developed to (“better places”) the more developed regions which will contribute to widening inequalities and possibly lower the competitiveness of less developed areas or even problems in more developed regions regarding its capacity and problems of congestion.

Comparison between different economic theories that deal with factors of growth and connected competitiveness determinants implies that (qualitative and quantitative aspect of) labor as one of the main competitiveness determinants maintained its important position from the works under classical theories until modern regional economic studies, which is again confirmed in empirical analysis presented in this paper.

#### **4. Conclusions**

Regions, as homogeneous units, characterized with their internal endowment, represent important actors in competitiveness analysis. We outline the determinants that can contribute to higher or lower regional competitiveness of the EU. This can help in setting the right priorities of EU regions and in debates about the future of regional competitiveness policy.

It is underlined that strengthening of competitiveness of the labor force must begin on regional level of the EU member countries. Furthermore, the modeling has shown that competitiveness is not homogeneous between the regions. Homogeneity within and heterogeneity between groups of regions is important for developing regional and competitiveness policies. It can be concluded that in the competitiveness analysis we should look at the regional specificities and compare the regions in order to create more complete regional competitiveness measures directed towards homogeneous regional needs. Here is the task and the open possibility of regional policy (as well as of other policies that deal with competitiveness analysis) to discover the potentials for future competitiveness enhancing, to create adequate measures and directives in order to achieve higher level of competitiveness that will in the first place be based on the labor force potentials (considering the results of this study that observes regional competitiveness as the function of labor). Negative influence of real unit labor costs on regional competitiveness implies the need to direct potentials to other determinants but also to observe the relation between labor costs and labor productivity. Further directives in strengthening competitiveness of the convergence and EU 13 regions have to be directed to human capital which can also be observed from the aspect of EU funds allocation.

In following investigations it is necessary to include some other determinants of labor productivity (like demographic characteristics, sectoral structure of the employment and/or gross value added), or other indicators to describe the chosen determinants. The relation between Structural and Cohesion Funds allocation/absorption and utilization of regional competitiveness determinants can

provoke further research. Beside other variables, different models of regional competitiveness or growth and convergence models, as well as other measures of regional competitiveness (e.g. composite indices that highly depend on data availability), can be used in measuring regional competitiveness. One of the main constraints of this study which is another implication for future works is the need to use other methods in estimating regional competitiveness function as data envelopment analysis or spatial econometrics estimators.

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**Prometni koridori  
u funkciji razvoja  
regije**

**Transport corridors  
in the function of  
the development  
of the region**

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## ASPECTS OF TRAFFIC SAFETY OF TWO-LANE ROUNDABOUT

## ASPEKTI PROMETNE SIGURNOSTI DVOTRAČNOG KRUŽNOG RASKRIŽJA

### ABSTRACT

*Significant improvement of functional characteristics of roundabout in relation to the classic intersections is unquestionable, but the goal of this research is to analyse the safety features of the two-lane roundabout. Traffic safety is a significant issue for the economy of a region, so application of traffic solutions that deliver greater safety of transportation is the objective. Analysis of traffic safety includes absolute indicators, but safety comparison of different solutions or different locations is only possible by analyzing the relative indicators of traffic safety. Two-lane roundabout is a complex traffic solution, because interweaving of traffic flows within the intersection has a direct impact on frequency of traffic accidents. Both direct and indirect costs of accidents are positively correlated with the severity of traffic accidents which are influenced by the traffic flow speed and the angle of conflict. A significant impact on traffic safety has users subjective perception of safety of certain solutions. Subjective perceptions of safety have been studied by surveying more than 330 drivers. Roundabout that was the subject of analysis is a two lane roundabout "Đakovština" in the urban transport network of the city of Osijek.*

**Key words:** traffic safety indicators, two lane roundabout, subjective perception of safety

### SAŽETAK

*Neupitno je značajno poboljšanje funkcionalnih karakteristika kružnog u odnosu na klasično raskrižje, ali cilj ovog istraživanja je analizirati sigurnosne karakteristike dvotračnog kružnog raskrižja. Sigurnost prometa je pitanje značajno za gospodarstvo regije, pa je cilj primjenjivati prometna rješenja koja donose veću sigurnosti prometnim korisnicima. Analiza sigurnosti prometa obuhvaća apsolutne pokazatelje, ali usporedbu sigurnosti različitih rješenja ili različitih lokacija moguće je samo analizom relativnih pokazatelja sigurnosti prometa. Dvotračno kružno raskrižje je kompleksno prometno rješenje, jer preplitanje prometnih tokova unutar raskrižja ima direktan utjecaj na učestalost prometnih nezgoda. Direktni i indirektni troškovi nezgoda u pozitivnoj su korelaciji sa težinom prometnih nezgoda na koju utječu brzina prometnog toka i kut pod kojim vozila dolaze u konflikt. Značajan utjecaj na sigurnost prometa ima i subjektivna percepcija sigurnosti određenog rješenja samih prometnih korisnika, koja je ispitana anketiranjem više od 330 vozača. Kružno*

*raskrižje koje je bilo predmet analize je dvotračno kružno raskrižje „Đakovština“ u urbanoj prometnoj mreži grada Osijeka.*

**Ključne riječi:** *pokazatelji sigurnosti prometa, dvotračnokružno raskrižje, subjektivna percepcija sigurnosti*

## **1. Introduction**

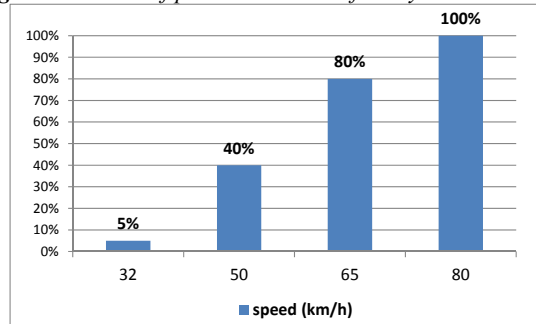
According to a report of the World Health Organization, road traffic injuries account for almost 1.2 million deaths a year around the world and for 20–50 million injuries or disabilities (WHO, 2013). Developing countries accounted for more than 85% of all deaths due to road traffic crashes globally and for 96% of all children killed (Nantulya, Reich 2002). In addition to the human aspect, the economic consequences of road traffic accidents are also very important, in terms of both lost productivity and all healthcare resources needed. Assessments of the costs of road accidents included estimations of direct (property damage costs, insurance administration costs, hospital costs) and indirect (lost productivity due to hospitalization and mortality) costs. According to research conducted in 12 different countries (Elvik, 2000), on the average the total costs of road accidents, including an economic valuation of lost quality of life, were estimated to be about 2.5% of the gross national product.

More than 50% of road traffic crashes occur in the urban space and the importance of the problem imposes a task for planners and transport analysts to find solutions to reduce them. From the above it is clear that any traffic solution must be analyzed according to the functional characteristics as well as the characteristics of the traffic safety. Single-lane roundabouts show, according to a large number of studies, the improvement of functional characteristics (Ištoka Otković, 2008) and increase traffic safety. According to the subjective evaluation of transport users a two-lane roundabout is perceived as less safe than a single-lane roundabout.

## **2. Indicators of safety of observed two-line roundabout**

Traffic safety can be analyzed through a series of direct and indirect mutually comparable indicators (Archer, 2004). Indirect indicators of traffic safety such as the number of conflict points show a significant increase in safety at the roundabout in comparison with the classic intersection (Tollazzi, 2007). The principle of preventing high speeds at an intersection by the geometry of the intersection (roundabout) showed better results than the principle of sanctioning (classic intersection with the main and the side direction). Lower speed and angle of conflict between vehicles from opposing traffic streams have a significant influence on the severity of traffic accidents (Archer, 2004). For pedestrians, speed plays a significant role in the severity of the consequences of an accident in vehicle-pedestrian interaction. Figure 1 shows that a pedestrian is about 8 times more likely to die when struck at 50 km/h than 32 km/h (TRB, 2010). Therefore, the difference in design speed is a critical issue for pedestrians and cyclists and an important parameter for all transport users. The minor additional delay or inconvenience to drivers of lower-speed roundabout designs is a trade-off for the substantial safety benefit to pedestrians and bicyclists. Drivers may benefit from the additional time to perceive, think, react, and correct their errors which is particularly important for older drivers and beginners.

**Figure 1** Chance of pedestrian death if hit by a motor vehicle



Source: authors

Roundabout that was the subject of analysis is a two lane roundabout "Đakovština" in the urban transport network of the city of Osijek (Figure 2). Roundabout has five access roads, two with two-lane entrance and three with one-lane.

**Figure 2** Two-lane roundabout „Đakovština“



Source: CopyrightGoogle Maps

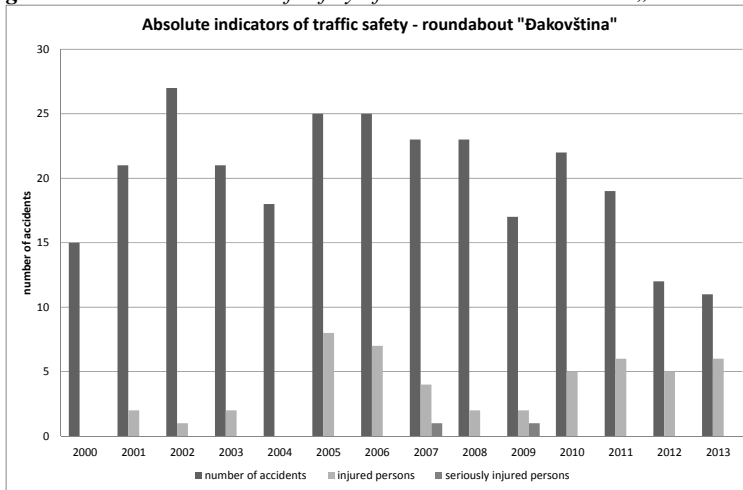
Analysis of the functional characteristics of the intersection shows that at intersections of the same operational level and of nearly the same traffic volume, roundabouts offer delay savings, if compared with any other alternative. Time saving depends on the traffic volume and percentage of left turns at an intersection. Higher percentages of left turns reduce the operability of any classic type of intersection, with relatively insignificant effect on a roundabout. The measurements taken for the travelling time between the parallel reference points at the observed roundabout ("Đakovština") and the signal-controlled intersection (Gundulićeva-Županijska) in the city of Osijek have revealed the following:

- delay savings of roundabout versus signal-controlled intersection are notable;
- according to the statistical parameters, the dispersion of data from the mean value of the travelling time between the reference points is smaller at roundabout (Ištoka Otković, Dadić, 2009).

Field measurements have shown improvement of functional characteristics of observed roundabout in relation to the signal-controlled intersections, but the goal of this research is to analyze the safety features of the observed roundabout. Objective insight into the safety of the

intersection is provided by absolute indicators such as statistics on the number and severity of traffic accidents, but the real picture takes longer period of monitoring. The Figure3.shows the total number of accidents, number of severe traffic accidents and the number of minor traffic accidents causing only material damage at the observed two-lane roundabout during the 13 years period of monitoring. During that monitoring time, there were no traffic accidents with fatalities.

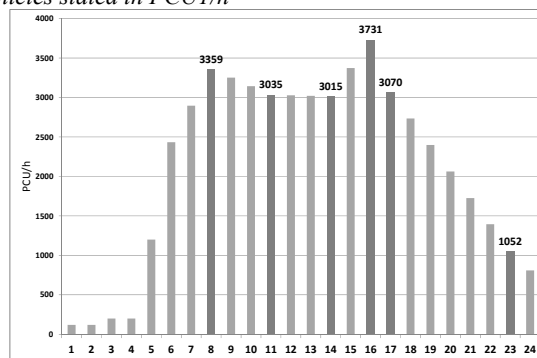
**Figure 3** Absolute indicators of safety of the two-lane roundabout „Đakovština“



Source: authors

In order to be able to compare several intersections, and, for example, an intersection before and after a reconstruction, it is necessary to observe the number of accidents per year in relation to the traffic load. Measured total traffic load (November 2013) of the observed two-lane roundabout and the approximation of the daily load are given in the Figure4.

**Figure 4** Daily load curve approximation for the observed roundabout and the data on the total number of vehicles stated in PCU/h



Source: authors

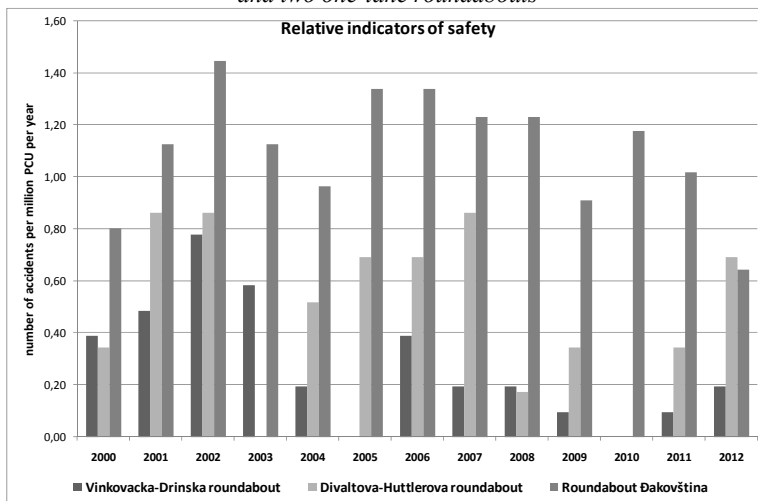
The Figure 4 shows the total number of accidents per million vehicles annually for two one-lane roundabouts, Divaltova-Huttlerova St. and Vinkovačka-Drinska St. roundabouts (Ištoka

<sup>1</sup>Passenger Car Unit (PCU) used for homogenizationmixed traffic flow



Otković et al.,2013)and observed two-lane roundabout “Đakovština”.Comparison of the number of traffic accident shows that the single-lane roundabouts are safer than two-lane roundabout.

**Figure 5** Relative indicators of the safety of the observed two-lane roundabout Đakovština and two one-lane roundabouts



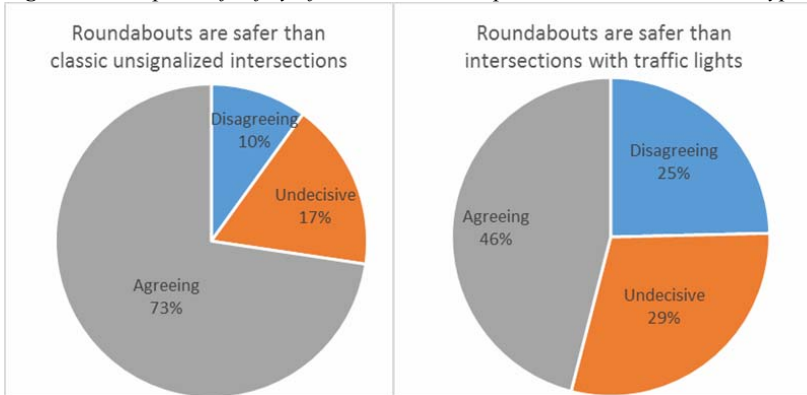
Source: authors

### 3. The subjective perception of safety

Subjective perception of safety in a given traffic situation is considered as possible indicator of traffic safety. Subjective perception of risk could give faster feedback to safety evaluation of certain traffic solution. Whether subjective perception follows the same trend as objective indicators and how is traffic safety of two-lane roundabout “Đakovština” evaluated by users has been examined by means of questionnaire survey. Survey was comprised of questions regarding subjective perception of risk in the urban network of Osijek with emphasis on roundabouts. Perception of risk was graded as emotionally based risk (feeling of insecurity), concern about personal safety and safety of others (worry) and cognitive assessment of possibility of traffic accident.

Subjective risk perception was tested on more than 330 participants involved in local transportation network. 53 % of respondents were males and 47% were females, with 10% of all respondents being professional drivers. More than half of all respondents (56%) has participated in at least one traffic accident.

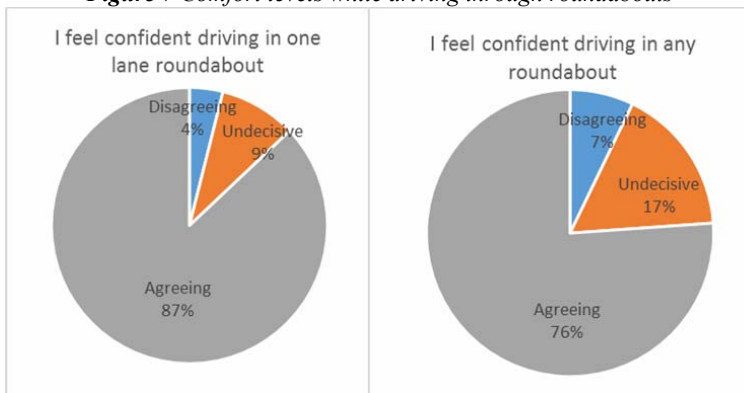
**Figure 6** Perception of safety of roundabouts compared to other intersection types



Source: authors

Figure 6. shows subjective risk perception of roundabouts in urban network of Osijek. It is shown that in the most part participants of survey find roundabouts as safer than classic unsignalized intersection, unlike safety of roundabouts compared to intersections with traffic lights where opinions are divided. Fact that one-lane roundabouts are safer traffic solutions can be seen in responses to the survey in which majority of participants (87%) stated that they feel confident while driving through one-lane roundabouts. When all types of roundabouts are concerned, 76% of respondents will claim the same (fig. 7).

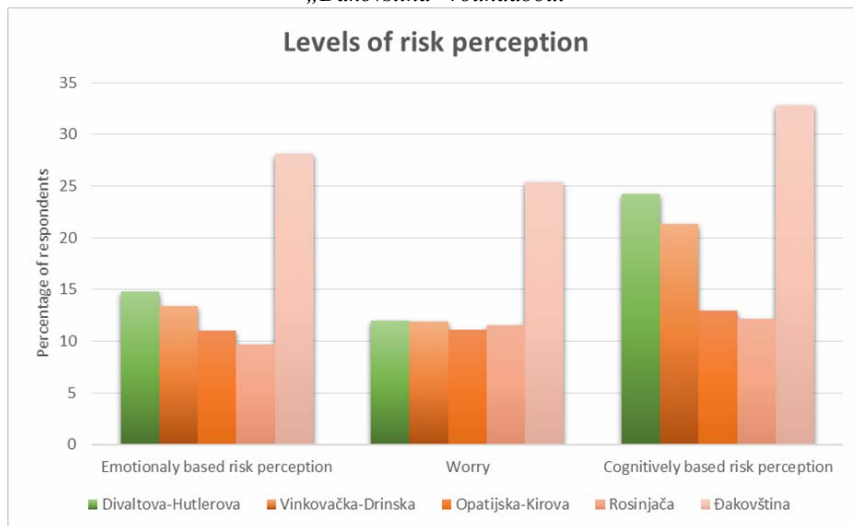
**Figure 7** Comfort levels while driving through roundabouts



Source: authors

Greatest issue for drivers in two-lane roundabouts are interweaving operations that should be done in circulatory roadway. For some drives problem is presented in their own insecurities while performing such operations, while for others problematic are drivers that do not know or do not follow traffic rules for two lane roundabouts. Respondents also highlighted greater speed of vehicles as a reason for discomfort in “Đakovština” roundabout as well as the way surfaces for other traffic participants are designed (pedestrian and cyclist paths and crossings, tram going through roundabout).

**Figure 8** Subjective risk perception of 4 one-lane roundabouts compared to two-lane „Đakovština“ roundabout



Source: authors

All these elements have contributed to greater subjective risk perception of two-lane roundabouts compared to one-lane roundabouts. Figure 8 shows that both emotionally based risk perception and feeling of worry are perceived in double as many respondents as when single lane roundabout are concerned. Only cognitively based risk perception differs less when compared to Divaltova-Hutlerova and Vinkovačka-Drinska roundabouts because those are as well complicated traffic solutions with tram going through them.

#### 4. Discussion and conclusion

Many studies have found (TRB, 2010) that one of the benefits of the installation of a roundabout is the improvement in overall safety performance. Single-lane roundabouts achieved greater improvement of traffic safety than multilane. Comparison of the number of traffic accidents in local traffic network clearly shows that the one-lane roundabouts are safer than observed two-lane roundabout (fig. 5).

Three basic types of conflicts occur at multilane roundabouts that do not happen at single-lane roundabouts: fail to maintain lane position, enter next to an existing vehicle and turn out from the inner lane. While these conflicts may also be present at conventional multilane intersections, they can be more prevalent with drivers who are unfamiliar with roundabout operation. Proper roundabout geometry, traffic control devices and driver education and experience may also help to reduce these types of crashes.

According to the monitoring of traffic accidents for a period of 13 years at roundabouts in Osijek, there has been no traffic accident with fatalities on single-lane roundabouts as well as on observed two-lane roundabout. The use of roundabouts is a proven safety strategy for improving intersection safety by reducing accident severity, and causing drivers to reduce speeds as they proceed into and through intersections. Decreased vehicle speeds will also contribute to the homogenization of the speed of traffic flow, which means decrease of the vehicle speed differentials with other road users.

Numerous studies around the world also show the connection between perception of risk and insecurity (Loewenstein, Mather 1990, Sjöberg 1999 and Kobbeltvedt et al 2005). Subjective emotionally and cognitively based estimation of safety at the roundabout in Osijek was

examined by means of a survey. Surveyed driversexperience two-lane roundabout less safe than single-laneaccording to both emotionally-based and cognitive-based criteria of insecurity.

The survey tested emotionally and cognitively based perceptions of risk and the results (fig. 8) show very good agreement with the statistical indicators of intersection safety (fig. 5), especially in case of cognitive-based risk perception.

Survey results for the roundabouts in Osijek show that a significant number of respondents (81%) believe that roundabouts are safer than classic intersections, the type of intersection examined roundabout was before intersection. Respondents also evaluate roundabouts as positive according to other traffic safety indicators, such as indicators showing that 70% do not experience roundabouts less safe than other solutions for pedestrians, 54% for cyclists and 62% for children as traffic participants.

The surveyed population of drivers in Osijek expresses generally positive attitude towards reconstruction of classic intersections into roundabouts according to traffic safety criteria. Respondents perceive them as safer for all traffic participants, not just drivers.

Observed two-lane roundabout is less safe than single-lane roundabouts in local traffic network because of problem of interweaving traffic flows within the circular lanes at a relatively small length.Reduced speed of traffic flow in a circular intersection, reduces the severity of accidents, which is a significant advantage compared to other types of intersections.

Although most drivers learned the rules of driving in a two-lane roundabout, alternative solutions should be taken into consideration, such as turbo roundabout and the "flower" type of the roundabout (Tollazzi, Renčelj, Turnšek, 2011). It is possible to make a realistic analysis and comparison of alternative solutions in the planning stage by using traffic microsimulation tools.

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## THE SIGNIFICANCE OF ROADS FOR THE DEVELOPMENT OF REGION

### ZNAČAJ PROMETNICA U RAZVOJU REGIJE

#### ABSTRACT

*This paper will focus on the importance of roads in the development of a region, particularly Eastern Croatia with the special emphasis on Požega-Slavonia County. The main characteristic of the construction of roads is connecting people from different parts of the county in order to ensure their participation in all aspects of life together with free movement of goods and passengers.*

*County and local roads are of great importance as a part of the road network in the distribution of traffic at a lower level. Modernization in all aspects of life requires modernization and development of transport infrastructure, which leads to faster and better flow of transport services.*

*Based on the provisions of the Road Act public roads are divided into: motorways, state roads, county roads and local roads. County roads are public roads connecting county seat with towns and municipalities. Local roads are public roads connecting the towns or a municipality with settlements of more than 50 residents within the town or municipality.*

*County Roads Administration is an institution for management, construction, reconstruction and maintenance of county and local roads. One of the main activities of County Roads Administration is the construction of roads. In the process of performing its basic activity the County Roads Administration faces issues with the ongoing implementation of the actions required for the settlement of property rights relations. Settlement of property rights relations is the key part in the procedure of road construction. The issue of resolving property rights relations arises from complex property relations of real estate that are necessary for the construction of a particular road.*

*The aim of this paper is to show the way and phases in the process of resolving property relations concerning real estates planned to become an integral part of the road, the conclusion of contracts with property owners as well as the expropriation procedure that occurs if the owners disagree with the donation or sale of their property.*

**Keywords:** *county and local roads, County Roads Administration, property rights relations, compensation for purchase and sale of real estate, donate, expropriate*

#### SAŽETAK

*Rad obrađuje značaj prometnica u razvoju regije i to Istočne Hrvatske, točnije Požeško-slavonske županije.*

Osnovna značajka izgradnje prometnica je povezivanje stanovništva jednog dijela županije s njenim ostalim dijelovima. Tako se ujedno omogućuje ravnomjerno sudjelovanje stanovnika županije u svim aspektima života te dolazi do slobodnog kretanja robe i putnika.

Županijske i lokalne prometnice od izuzetne su važnosti kao dio cestovne mreže u raspodjeli prometa na nižoj razini. Modernizacija u svim životnim aspektima iziskuje modernizaciju i razvoj prometne infrastrukture, što vodi prema bržem i kvalitetnijem protoku prometnih usluga.

Temeljem odredaba Zakona o cestama javne ceste se dijele na: autoceste, državne ceste, županijske ceste i lokalne ceste. Županijske ceste su javne ceste koje povezuju sjedišta županija s gradovima i općinskim sjedištima. Lokalne ceste su javne ceste koje povezuju sjedište grada, odnosno općine s naseljima s više od 50 stanovnika unutar grada ili općine.

Županijska uprava za ceste (ŽUC) je ustanova za upravljanje, građenje, rekonstrukciju i održavanje županijskih i lokalnih cesta. Upravo je izgradnja prometnica jedna od osnovnih djelatnosti županijske uprave za ceste. U procesu obavljanja osnovne djelatnosti županijska uprava za ceste nailazi na problematiku u tijeku provođenja radnji potrebnih za rješavanje imovinskopravnih odnosa. Rješavanje imovinskopravnih odnosa je ključni dio faze u postupku izgradnje prometnica i nužno je kako bi uopće došlo do realizacije projekta predviđene prometnice. Problematika rješavanja imovinskopravnih odnosa proizlazi iz kompleksnih vlasničkih odnosa na nekretninama koje su potrebne za trasu prometnice.

Cilj rada je prikazati način i faze u postupku rješavanja imovinskopravnih odnosa koji se tiču nekretnina predviđenih da budu sastavnim dijelom prometnice, sklapanje ugovora s vlasnicima nekretnina te postupak izvlaštenja do kojega dolazi ukoliko vlasnici nisu suglasni s darovanjem ili prodajom svoje nekretnine.

**Ključne riječi:** županijske i lokalne ceste, županijska uprava za ceste (ŽUC), imovinskopravni odnosi, naknada u svrhu kupoprodaje nekretnina, darovati, izvlastiti

## 1. Introduction

In accordance with the provisions of Article 2 of the Road Act: "Public roads are roads that anyone can use in the manner prescribed by the Road Act and other regulations. Public roads are public property in general use owned by the Republic of Croatia". "The public road will be registered in the Land Register on the basis of a final occupancy permit as public good in general use and as inalienable property of the Republic of Croatia with the entry of the County Roads Department as a person authorized to manage the county and local roads." (Road Act, Official Gazette, No. 84/11).

The overall objective of the development of public roads in Pozega-Slavonia County is the effective connecting of the main county centres and linking the same with neighbouring counties. It is also necessary to ensure that the newly renovated and newly built traffic systems respect the criteria of environmental protection, all in accordance with the provisions of the European Union. For that reason the vision of the County Roads Administration of Pozega -Slavonia County is to ensure high quality of traffic connections for Pozega-Slavonia County.

*Map 1 Classified public roads in the Republic of Croatia*



Source: website of the Ministry of Maritime Affairs, Transport and Infrastructure [www.mppi.hr](http://www.mppi.hr)

Roads: 26,958.5 kilometers in total length

- Administratively divided into:
- Motorways and half-motorways: 1,416.5 kilometers
- State roads: 6,858.9 kilometers
- County roads: 9,703.4 kilometers
- Local roads: 8,979.7 kilometers

## **2. Phases in the process of constructing the roads**

Upon completing the procedures which precede the process of settlement of property relations (geodetic survey, preliminary design, obtaining the location permit and making of parcelling study), next step is to make contact with property owners whose real estates are on the road route and prepare the price calculation for the same or donation for the purpose of solving property-rights relations.

Owners with their free declaration of will sign a contract on the donation or purchase and sale of real estate and notarization allows the registration of ownership of part of their property in the Land Register in the name of the Republic of Croatia. Only after obtaining the final occupancy permit, the County Roads Administration can be enrolled in the Land Register as a legal person authorized to manage the county and local roads. A large number of problems arise in the first steps of the process of realization of the project in order to build roads



### 3. Problems in resolving property-rights relations

As an example we will take a possible future investment of the County Roads Administration of Pozega-Slavonia County in the area of the town Pleternica in terms of extension of the existing local road with the purpose of enabling better traffic connection for the population of that part of the county.

Upon examination of the list of particles which are according to the project supposed to become an integral part of the alignment road we find different data in deeds of title from the cadastre (which is in charge for the description of property) from the data in the Land Registry of the Municipal Court (where the rights to the property are registered). The particular properties are the integral part of the contract that the County Roads Administration must conclude with its owners in order to resolve property relations and in the name and for the account of the Republic of Croatia acquire the ownership of the property. In preparing the contract the County Roads Administration of Pozega-Slavonia County is led by the records in the Land Registry of the Municipal Court (registered land certificates) which establish the right of ownership.

Properties are frequently under some sort of burden. Burdens can be record of personal easement or rights of lien in favor of banks. In addition, there are records of disputes over real estate. In order to accomplish the possibility of implementation of previously signed contracts into the Land Registry recorded rights must be systematically dealt with by sending an application to the holder of the lien-bank for granting an approval for the conclusion of the donation contract or purchase and sale contract with the owner of the property where there is a record on the grounds that the realization and implementation of a road construction project will increase the market value of the property, which is of a great significance for the registered holder of the lien-bank. Upon conclusion of a contract with a potential donor or seller for a particle entering the route of the road, the user of the lien is requested a cancellation clause, a statement to delete the lien on the separation of the particle, which is now designated as: road, while maintaining a lien on the rest of the particle.

Furthermore, common are the cases of registration of the right of servitude, for example, Croatian Electrical Power Industry d. d. (Hrvatska elektroprivreda d. d.), in the registration of the right of servitude for the installation of transmission lines for which a cancellation declaration and the right of personal servitude also has to be obtained.

All mentioned above is a very complex process that requires cooperation between the investor and the property owner with the purpose to achieve a larger goal which is the construction of a road which means better connection and modernization of the road network, as well as the increase in the market value of the property which is located on the road route.

In the process of solving the property-rights relations property owners are very frequently dissatisfied with the offered price for the purchase of their property, or are not willing to donate the same and then it is necessary to access the procedure of complete expropriation. The basis for expropriation is to determine the interests of the Republic of Croatia which is derived from the Provisions of the Road Act.

In accordance with the provisions of Article 5 of the Law on Expropriation and Compensation: "the complete expropriation terminates the right of the former owner and other rights to the property."

"The property in terms of paragraph 1 of this Article may be expropriated in order to construct building or facilities of economic infrastructure, cemeteries and other objects of municipal infrastructure, health, educational, cultural and sports buildings, industrial, energy, water management, transport and electronic communication facilities, buildings for the needs of the Croatian judiciary, army and police, as well as exploration and exploitation of minerals and other resources." (Law on Expropriation and Compensation, Official Gazette No.74/14).

The new Law on Expropriation and Compensation brings novelty related to the expropriation of more than ten real estates and more than ten property owners in terms of public offering to the owners. Public offering must be published in the media or through the press for becoming known to a wider range of people, in order to agree to sign a contract and the offered price. In cases when owners still do not agree on the price offered follows the procedure in front of the State

Administration Office. The final outcome of the procedure for property owners and holders of personal rights is a fair compensation in the market value of the property, while for the County Roads Administration as an investor it means obtaining the expropriation order by the competent body. Additionally, the investor and the user of expropriation bear various costs of the procedure. Although the previously described process is shortened and may not seem complicated, in practice it requires the loss of valuable time throughout the course of the proceedings until the final stages of implementation of the project. The investor or contractor in the construction of a road depends on weather conditions to a large degree and often due to all the above-described phases of the process loses a lot of time before the construction of the road starts.

#### **4. Conclusion**

Region of Eastern Croatia, as a region in which the main economic activity is agriculture is not as competitive as other regions and that is why the investments are necessary.

Investments in road infrastructure are extremely significant because they enable faster connectivity within the transport network, which greatly affects the development of tourism and winemaking in the area of Pozege-Slavonia County.

In order to improve transport links and for the purpose of construction of planned road in the realization of property relations the investor of construction of a particular road is faced with many problems, from obtaining the required documentation for the purpose of preparation of the contract to the loss of time in the process of collecting of the necessary approvals, cancelling clauses and expertise.

Furthermore, if we look at the financial part, namely the costs that County Roads Administration of Pozege-Slavonia County has for the payment of compensation for the value of the property that will be the part of the future road it is important to mention that the costs can be very high. The financial service includes the planning investment into the financial plan.

The legal and economic professionals who participate in the process of settlement of property relations connected with construction of roads must familiarize real estate owners with the final outcome of the project realization. Each construction or reconstruction of a road with the aim to improve the existing conditions is important and valuable public property owned by the Republic of Croatia and as such available to use for all of us and the future generations.

Investment in road infrastructure is therefore an investment in future through the modernization of roads that affect the economy of the entire region.

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**Umjesto  
zaključka**

**Instead  
of a conclusion**

## Umjesto zaključka

Četvrti međunarodni znanstveni simpozij „GOSPODARSTVO ISTOČNE HRVATSKE - VIZIJA I RAZVOJ“ organiziran je na osnovu iskazanog interesa svih sudionika Simpozija održanog prošle godine. Posebno je iskazan interes mladih znanstvenika i istraživača, koji žele predstaviti svoje analize i istraživanja kako o mogućnostima suvremenog pristupa razvoja regije, tako i cijele RH.

U radovima, bilo da se radi o povijesnom pregledu, analizama postojećeg stanja gospodarstva, ljudskim resursima i prirodnim potencijalima uz primjenu suvremene tehnologije u proces razvoja, naglasak je dan na optimistički pogled s mogućnostima izlaska iz recesije i pokretanje gospodarstva.

Zastupljene su sve grane djelatnosti, s posebnom naglaskom, i ovog puta, na suvremeni pristup razvoju kontinentalnog turizma uz korištenje povijesnog nasljeđa, efikasno korištenje prirodnih resursa i zaboravljenih poljoprivrednih kultura, suvremeni pristup organizacije kroz „Slavonsku mrežu“, primjenu energetske učinkovitosti i IT tehnologije.

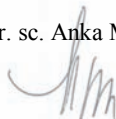
U pojedinim radovima stranih autora dani su primjeri kako i na koji način održati tvrtku u procesu globalizacije, te koliki je značaj ugled tvrtke za njenu opstojnost, a isto tako dan je i prijedlog kako koristiti dijasporu za ubrzani razvoj kroz sistem Triple, Quadro i Penta Helixa.

U radu „Ako izgradite mi ćemo doći“ ukazano je na problem započetih, a ne dovršenih kapitalnih investicija. Ako ne izgradimo pristup gospodarskim zonama, ne omogućimo brži protok roba i kapitala ne mogu se očekivati niti značajnija ulaganja u proizvodne pogone, a kroz to i zapošljavanje stanovništva i zaustaviti odlazak mladih i školovanih stručnjaka u zemlje gdje mogu naći posao i život dostojan čovjeka za sebe i svoju obitelj.

I ovaj puta nam je želja da neki od radova i prijedloga budu primijećeni od strane investitora i zažive u gospodarskoj stvarnosti.

S obzirom kako u istočnoj Hrvatskoj postoje jaki ljudski potencijali, kultura življenja i rada, koja se stjecala u ne tako davnoj prošlosti, a sada suvremenim pristupom edukaciji s primjenom IT tehnologije u cijeloživotnom obrazovanju, postoje realne nade i optimističan pogled u svim radovima na gospodarski razvoj i rast kako istočne Hrvatske tako i cijele RH.

Prof. dr. sc. Anka Mašek Tonković



## **Instead of a conclusion**

The 4th International Scientific Symposium “ECONOMY OF EASTERN CROATIA. VISION AND DEVELOPMENT” has been organized based on interest shown by all participants of the Symposium that was held last year. We should especially point out the interest of young scientists and researchers, who wish to present their analyses and researches on possibilities for modern approach to the development of the region, as well as the whole Republic of Croatia.

The papers, whether they give a historic overview, analyze the existing state of economy, human resources and natural potentials with application of modern technology in development process, all emphasize the optimistic outlook with possibilities to exit the recession and initiate the economy.

All branches of business activity are represented, with special emphasis once again on a modern approach to development of continental tourism using the historical heritage, efficient usage of natural resources and forgotten farming cultures, modern approach to organization through “Slavonian Network”, application of energy efficiency and IT technologies.

In certain papers of foreign authors, examples are given on how and in what way to maintain a company in the process of globalization, and how important company’s reputation is for its viability, and also a proposition has been given how to use the diaspora to accelerate development through triple, quadro and penta helix systems.

The paper named “If You Build It, We Will Come!” points out the problem of initiated but incomplete capital investments. For, if we don’t construct an approach to entrepreneurial zones, and don’t allow faster flow of goods and capital, we cannot expect any significant investments into production facilities, which would allow us to give people jobs and stop the exodus of young and educated experts abroad where they can find a job and decent life for them and their families.

Once again we wish that some of the papers and suggestions are noticed by the investors and that they come to life in economic reality.

Considering the fact that Eastern Croatia has strong human potentials, living and working culture which has been acquired in not so distant past, and now with a modern approach to education with application of IT technology in lifelong education, there exist realistic hopes and an optimistic outlook in all papers regarding the economic development and growth both for Eastern Croatia and the whole Republic of Croatia as well.

Anka Mašek Tonković, PhD



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