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REGION, ENTREPRENEURSHIP, DEVELOPMENT

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FOREWORD

Dear researchers,

With the great pleasure we are presenting you the proceedings of the XIII Region, Entrepreneurship & Development (RED) conference. The RED conference was born out of a desire to show the relationship between research results and solutions to the problems and challenges in our environment. Over time, the RED conference's research results have contributed to the creation of better policies and to further research and a deeper understanding of the different challenges in our society.

In the Proceedings of the RED XIII Scientific Symposium, you will find 35 papers written by 96 researchers from Bosnia and Herzegovina, Bulgaria, Croatia, Germany, Poland, North Macedonia, USA, Slovenia and Portugal. We are pleased that the circle of our international friends is growing every year.

The researchers presented various topics - from quality assurance and organizational culture to the impact of new technologies (especially artificial intelligence) on education, business and economy in general. This year, special attention was paid to the development of entrepreneurial individuals who play an active role in building an entrepreneurial society. Interesting conclusions and recommendations on entrepreneurial education were given.

All papers were subjected to a double-blind rigorous peer review process, and we are particularly proud that our reviewers were carefully selected from around the world. We are very grateful for their valuable contributions.

In today's difficult times, characterized by recession, inflation, unstable geopolitical situation, market and customer losses, close cooperation between science and business is more necessary than ever. We hope you recognize our desire to emphasize this.

Although the Proceedings are generally aimed at the academic community, the research findings could be of interest to policy decision makers dealing with regional, entrepreneurship (in the broadest sense) or development issues.

Anamarija Delić, PhD
Chair of the Organizing committee

Sunčica Oberman Peterka, PhD
Chair of the Program Committee

RED 2024

REGION

A scientific paper

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EQUALITY, DIVERSITY, AND INCLUSION: UNIVERSITY SUPPORT FOR STUDENTS WITH DISABILITIES AND ITS POTENTIAL IMPACT ON REGIONAL DEVELOPMENT

ABSTRACT

The aim of this paper is to discuss and analyse the concepts of equality, diversity, and inclusion (EDI) in the context of university support provided to students with disabilities (SWD) as well as the reasons and arguments found in literature that advocate this support from the perspective of desired impact of EDI on regional development. This research aims to contribute to the initial goals in the work package 5 of the recently established network of nine universities within the project COLOURS. The main research questions in this paper are: how are the concepts of EDI defined in relevant documents at the university and relevant national and EU documents? How are the concepts of EDI translated into providing university support to SWD at the University of Osijek? What is this support comprised of? How can university support policies for SWD help realize the active role of the university in boosting regional development? The first mixed method used in this research is informant interviews and critical document analysis in which documents are seen as 'social facts' produced, shared, and used in socially organised ways. Secondly, a critical purposive overview of the main arguments given in literature that connect supporting the right to higher education of SWD and the regional development potential is given. Our results bring the overview of the existing services provided to SWD at the University of Osijek and show that university support for SWD is interconnected with regional development through its potential impact on workforce diversity, innovation, entrepreneurship, community engagement, skill development, infrastructure, and most noticeably on policy influence and cultural change. By fostering an environment based in values of EDI, universities can contribute significantly to the overall growth and development of a region.

Key words: *equality, diversity, inclusion, university students with disabilities, regional development potential.*

1. Introduction

The intended spirit in which this paper wishes to address the topic of equality, diversity, and inclusion when it comes to students with disabilities is aligned with Mahatma Gandhi's well-known statement that the true measure of any society can be found in how it treats its most vulnerable members. Using the terminology established for the concept of human rights, the phrase "equality for all" has been around since the very beginning of the adoption of documents

that include the need to prescribe equality and other documents guaranteeing equality. Nevertheless, the term equality has remained the subject of discussion by scientists, civil society, and the very people for whom equality as such should enable inclusive participation in society, because we are not equal, nor are those for whom such documents and inclusion are not intended. Therefore, perhaps quite justifiably, one could question the need to apply the term "equality". Equal participation and equality as such are favoured by many inconsistent terms and definitions that aim to prevent any diversity and discrimination resulting from it. This is a part of the reason why this paper aims to discuss definitions of key terms and to provide a critical overview of available tools based on informant interviews and analysis of documents on SWD at the Josip Juraj Strossmayer University of Osijek.
There are several methods applied in the research that this paper reports on. Firstly, we have conducted a critical review of relevant literature, then document analysis was performed together with key informant interviews to map the existing situation in terms of tools and measures aimed at students with disabilities. The analysed documents are international, national, university and faculty-level regulations on the rights of persons with disabilities. Key informant interviews have been conducted with representatives, mostly from quality assurance offices, from respective faculties. They are here treated as experts and leaders of institutional support in this matter and are therefore seen as relevant interlocutors. They are not subjects of research, so their statements are not for analysis and quotation here, but they supplement document analysis and help the researchers check if anything is missed from document overviews or web searches.

The main research questions in this paper are: how are the concepts of equality, diversity, and inclusion (EDI) defined in relevant documents at the university and relevant national and EU documents? How are the concepts of EDI translated into providing university support to SWD at the University of Osijek? What is this support comprised of? How can university support policies for SWD help realize the active role of the university in boosting regional development?

Theoretical background and fundamental epistemological assumptions taken by the authors of this paper are based in the so-called disability studies, an interdisciplinary academic field that insists that disability is a social construct rather than a medical deficiency. In the context of higher education, disability discourse has evolved from special education and rehabilitation with strong emphases on the medical model of disability in the 1960s to the incorporation of the topic of disability in diversity classes modelling a minority group model of disability in the 1990s (Jones, 1996). In the 21st century, interdisciplinary degrees in disability studies emerged focusing on the social construction of disability, intending to epistemologically and practically move away from onus on the person with the disability to onus on society and the barriers (Linton, 1998, 2007). Despite the growth and development of disability education, antiquated thoughts and practices still exist within society. For example, people using expressions like *handicapped* or *disabled* people testify to this. This strengthens the "us" and "them" mentality—the "us" who use *normal* facilities - and the "them" who are different and need our help. University students arrive at their educational journeys with a blend of attributes encompassing physical health, mental state, emotional preparedness, cultural and familial heritage, and various facets of self-identity (Jones & McEwen, 2000). Individuals with disabilities constitute a significant component of the higher education community, and addressing their requirements is crucial for both the advancement and progress of these students and the institutions they attend. A relevant background for this study is also found in monograph Allies for Inclusion: Disability and Equity in Higher Education (Myers, Lindburg, and Nied, 2013), where the topic of students with disability is discussed in the larger milieu of student

development and diversity including discussions of power, privilege, and difference. A perspective of thinking through the lens of allies is offered here, where allies are all who see worth in eradicating discrimination and oppressive behaviours (Casey-Powell & Souma, 2009). The paper also relies on approaches offering a deeper comprehension of the societal influences shaping perceptions of disability including disability identity development (Gibson, 2006; 2011), and universal instructional design (Higbee, 2003), and calls for the experiences of individuals with disabilities. By examining present-day issues of inequality and inclusivity, this paper aims to contribute towards fostering the integration of individuals with disabilities and cross the borders in politics of education (Giroux, 2005).

The main results show that there is a series of tools developed for helping students with disabilities, but that there is still a long way ahead of us as a society to overcome patronising and essentially exclusive approaches. This requires a wider and meaningful social change, not the one that only stays formally on the paper and is consequential for regional social development as well. This research is part of the activities conducted within work package 5 dedicated to Equality, Diversity and Inclusion (EDI) in the network of nine European universities called COLOURS. The final goal is to devise harmonised and meaningful university EDI policy and the role of the EDI officer at each university.

2. Legal framework of EDI and some conceptual conundrums

After severe violations of human rights during the Second World War, perhaps the most significant foundation for the protection of equality was adopted, which later served as a platform for the adoption of new documents and the expansion of the process of the need for an inclusive understanding of equality in the development of the understanding and acceptance of diversity, i.e. the adoption of the General Declaration on Human Rights (Official Gazette - International Treaties, No. 12/2009). Although this Declaration itself by its legal expression is not legally binding, over the years it has come to be considered part of customary international law.

This Declaration is a relevant basis for the development of a further understanding of equality. In addition to already mentioning in the preamble that "...recognition of the innate dignity and equal and inalienable rights of all members of humanity is the foundation of freedom, justice and peace in the world", it states in Article 1: "All human beings are born free and equal in dignity and rights". Therefore, this article assumes equality from birth, and dignity and equal rights are set as an assumption of what has developed over time into a fundamental requirement of inclusion. What this Declaration, like many subsequent documents, did not define is the status of persons with disabilities as a particularly vulnerable category. However, if we interpret its provisions broadly enough, we can say that the provision of Article 2 guarantees that "everyone is entitled to all the rights and freedoms established in this Declaration without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status". The term "other status" can also be understood as the status of a person with disability. The foundations of today's legal documents guaranteeing an equal right to education can also be found in Article 26 of the Declaration, which stipulates that everyone has the right to education, which "should be aimed at the full development of the human personality and the strengthening of respect for human rights and fundamental freedoms".

Another, important fact that marked this Declaration is the role of two women who brought a turning point in the understanding of equality and the need to adopt a document that would base all further provisions of equality, Eleanor Roosevelt and Hansa Meta. In 1946, the United

Nations appointed Eleanor Roosevelt as president of the Human Rights Commission (Jurišić, 1999). After almost 1,400 rounds of voting on almost every word of the Declaration in 1948, she presided over the historic moment of the adoption of the first document in which all the rights that we call human rights are guaranteed for the first time and which in their interpretation have a common denominator for the concepts of equality, diversity and inclusion. Part of her speech from 1958 in the United Nations quoted below brings an undeniable link with today's world of human rights, which through equality, diversity and inclusion affect all current and future documents that guarantee these rights, and especially those groups to which this paper refers, the students with disabilities (Amnesty International UK, 2023):

> Where do human rights begin? In small places close to home, so small that you can't see them on world maps. Nevertheless, these places make up the world of the individual - the neighborhood where he lives, the school or college he attends, the factory, farm, or office where he works. These are places where every man, woman and child seek equal justice, equal chance, equal dignity without discrimination. If those rights mean nothing there, they mean little anywhere else. Without the action of citizens who care about realizing them close to their homes, we will look for progress in the wider world in vain.

Another woman who made this Declaration matter for all people is Hansa Meta, the Indian delegate to the UN Human Rights Commission, who replaced the phrase from Article 1 of the Declaration “all men are born free and equal” with the one still valid today “all beings are born free and equal” (RFK Human Rights, 2023). The role of these two extremely important women in passing a correctly legally and terminologically defined document that will become the protection of equality in diversity is immeasurable even in today's understanding of attempts to comprehensively define equal rights that guarantee inclusiveness in the broadest form.
Even though this Declaration became and remains to this day with its 30 articles the basis for the expansion of human rights through the years that brought legally binding documents that protect human rights in general and then also the human rights of persons with disabilities, there was no specific protection of persons with disabilities until the adoption of the Convention on the Rights of Persons with Disabilities in 2006 (Official Gazette - International Treaties, No. 6/2007 and 5/2008). Only by interpreting the application of certain terms and provisions could it be concluded that a certain legal document applies to persons with disabilities. According to UN data, the Convention has been signed by 164 and ratified by 190 countries (UN Treaty Collection, 2006). According to the data available on the UN website, we can see that Croatia is one of the first countries to sign and ratify this Convention, making it part of the legal system of Croatia and thus binding as an umbrella document for the adoption of all subsequent documents at the national level. In addition to the General Obligations chapter, this Convention also contains 26 chapters that describe all the rights that guarantee equality in actions, contents, access or consumption of certain life rights and needs. One of them is the Right to Education in Article 24 of the Convention, which guaranteed persons with disabilities full and equal participation in education and life. Thus, in addition to the guaranteed free inclusion in primary and secondary education, this article of the Convention also guarantees “the provision of effective individualized support measures in environments that contribute the most to academic and social development, in accordance with the goal of full inclusion”.

Equality, diversity, and inclusion are protected and defined at the European level by the European Convention for the Protection of Human Rights and Fundamental Freedoms (Official Gazette - International Treaties, No. 18/1997, 6/1999, 14 /2002, 13/2003, 9/2005, 1/2006 and 2/2010). In Article 14 of the Convention, which states the prohibition of discrimination, we can

establish that the same applies to appeal to equality. Therefore, the rights and freedoms listed in this Convention are guaranteed without discrimination on any basis "such as sex, race, colour, language, religion, political or other opinion, national or social origin, belonging to a national minority, property, birth or other circumstance", and we can only interpret the "other circumstance" as a difference, due to which it is necessary to emphasize the need for equality in the rights proclaimed by the Convention.

In the Republic of Croatia, the Constitution of the Republic of Croatia contains the highest values for the protection of human rights and equality (Official Gazette", No. 76/2010) in which almost a third is dedicated precisely to the protection and guarantee of equality. Article 3 of the Constitution of the Republic of Croatia includes guidelines for all documents at the national level and determines the direction of development of new protections of equality. Freedom, equality, national and gender equality, peacemaking, social justice, respect for human rights, inviolability of property, preservation of nature and human environment, government rights and a democratic multi-party system are the highest values of the constitutional order of the Republic of Croatia and the basis for interpreting the Constitution. Furthermore, in Article 64, it states that persons with disabilities have the right to special protection at work. Therefore, it can be concluded that it is not necessary even in the highest legal text, i.e. the Constitution, to state exact definitions to conclude that its provisions guarantee respect for diversity in addition to the state's obligations to guarantee and enable equality and inclusion.

However, there is a social dimension of power and justice that cannot be subsumed under the legal text. Social forces run deeper and comprise structures of long duration that inform our interpretations and interactions. The notions of equality, diversity and inclusion should in that sense be understood as desirable when and if they contribute to justice, be it legal, social or epistemic justice as a condition of political freedom (Fricker, 2013). This means that there can be diversity and equality that do not necessarily contribute to justice. Legal regulations and stipulations can thus be effective and at least potentially and hopefully contribute to justice if they take into account wider social context, and the experiences and perspective of persons with disabilities. Some authors (e.g. Gilson, 2000) see disability as a systemic phenomenon that does not refer only to a person's body and take into account the full lived experience in terms of the functional limitations and the social, cultural, and political consequences. Within the context of students with disabilitites, access is important and it refers to an individual's ability to come into the higher education arena. According to Myers, Lindburg, and Nied (2013, 6-7). the term equity is suggested over equality here and refers to fairness, impartiality, and justness. When considering equity within the context of higher education, it includes references of social justice and an equal opportunity for all people to enter higher education, regardless of their socioeconomic status, ability or disability, race, gender, culture, or background. Discrimination there refers to the unfair or prejudicial treatment of an individual based on perceived or actual characteristics. It is the act of unjustly or unfairly making a distinction or consideration about a person based on the larger group, class, or category to which they belong rather than evaluating an individual on their own personal traits, qualities, and merits. Within the scope of higher education, discrimination can take many forms, including, but not limited to, discrimination based on one's race, socioeconomic status, gender, age, culture, religion, disability, or even peer group. The term inclusion finally, in the source, refers to all-encompassing access to admission, programs, events, classes, and physical spaces within the university environment. An inclusive program could easily be attended by anyone, regardless of his or her physical, mental, or psychological characteristics. An example of an inclusive practice used in the higher education sector is universal design (Burgstahler & Cory, 2008), making products and environments to be usable by all people, to the greatest extent possible, without the need for

adaptation or specialized design. Being inclusive requires proactive and thoughtful consideration of the needs of all individuals. True inclusion involves proactive measures taken in advance, rather than merely reacting to situations as they arise. In contrast, accommodations or modifications refer to adjustments made to courses, programs, events, services, jobs, activities, or physical spaces to facilitate equal participation for individuals with disabilities. These accommodations or modifications are implemented after individuals with disabilities encounter barriers to their full participation in the current environment. The concept of fairness, as discussed by McCarthy (2011), is particularly relevant here, especially in the context of affirmative action or adaptations for individuals with disabilities. For instance, is it fair to offer extended time or assess essays using different criteria? The binary notion of equality (fair or unfair) often fails to account for individualized and contextual adaptations and modifications, sometimes leading to resentment and perceptions of unfairness among the broader student population. This is why the discourse of equity, rather than equality, is preferred. The notion of what is equitable for a student entails taking an individualized approach to the education of students with disabilities. Understanding the unique needs of each student can shift attitudes away from notions of fairness and towards recognizing value, thus helping to avoid microaggressions and negative self-perceptions among individuals with disabilities (Solorzano, Ceja & Yosso, 2000; Sue & Capodilupo, 2008).

3. University students with disabilities

There are numerous varying perspectives in society about people with disabilities and a wide range of underlying beliefs about disability itself. Throughout history, disability has been variously viewed: as a sign of spiritual depravity, a cause for ridicule, a genetic weakness to be exterminated, something to be hidden away, a source of pity, a community health problem, and a problem to be fixed (Griffin and McClintock, 1997). In the 19th century people with disabilities started to be institutionalized in hospitals or asylums in order to remain out of the focus of mainstream society and were often even considered unsightly or disgusting (Griffin & McClintock, 1997). These examples are powerful indicators of the so-called “ableism” (Linton, 1998) as a form of discrimination in favour of the able-bodied that includes the idea that people with disabilities are inferior. In this sense it is similar to racism or sexism, but it is far less widely understood or observed. This is the way in which the meaning of disability as a social construct (cf. Jones, 1996) should be interpreted, and never as a gesture that diminishes materiality or corporeality or the suffering (Higbee & Mitchell, 2009). Many authors insist on viewing disability from the social justice perspective (Castaneda & Peters, 2000), where disability is seen as oppressive, pervasive, and systematic discrimination toward people with disabilities. This paradigm advocates for the elimination of “ableism” and for the dignity and right of every individual to a fulfilling educational experience (Evans & Herriott, 2009). Research conducted along these lines urges educators to move beyond the limitation model of disability education and design curricula, programs, and services to be accessible to all people (Myers, 2009), stressing that it is the stigmatizing attitudes toward persons with different disabilities that actively cause their disablement (Conner & Baglieri, 2009).

Discrimination against students with disabilities, viewing them as deficient or incapable of meeting standards, may stem from various factors such as ignorance, negative societal attitudes towards individuals with disabilities, absence of supportive allies, outdated policies, and practices, among others. Consequently, students - especially those with invisible or “hidden” disabilities - often choose not to disclose their disabilities due to concerns about facing embarrassment, retaliation, marginalization, and academic setbacks (Olney & Brockelman, 2003).

A desirable framework for disability education focuses on awareness, knowledge, and skills. The first step typically includes the development of documents and development of action plans. We shall therefore look into available documents, services and tools at the post-secondary education level in Croatia and specifically at the Josip Juraj Strossmayer University of Osijek.

Today's system of higher education in Croatia is based on the Bologna principles of higher education, which Croatia acceded to in 2001 (Bologna Declaration, 1999). The Bologna Declaration itself arose from the expressed need for the initiative for a uniform and comparable educational space. In 1998, the initiative resulted in the Sorbonne Declaration, when the Ministers of Education of Germany, France, Italy, and Great Britain came to an agreement on the declaration known today as the Bologna Declaration (Barković, 2007). By acceding to this Declaration and process, Croatia became part of the European area of higher education.

The Act on Higher Education and Scientific Activity from 2022 (Official Gazette, No. 119/2022) was adopted after several years in which the old text of the Act, which underwent numerous amendments, could not keep up with the requirements of documents at international, European, and even national level in which the right to equal opportunities became a priority over formal requirements and conditions. According to the above-mentioned foundations, this Act established from the very beginning that it is based, among other things, on the European humanistic and democratic tradition and the European system of higher education and the openness of higher education institutions to the public, citizens, and the local community (Article 2 of the Act). It is extremely important that in the same article the Act recognized the need for targeted work and a planned strategy so that students have opportunities and training for specific professional knowledge and skills, recognized the importance of the concept of lifelong education and, as particularly important, interaction with the social community. For the first time, Article 77 defined the right of students with disabilities in such a way that "A student with a disability, in accordance with the general act of a higher education institution, can study according to the adjusted conditions of attending studies". The statutes of higher education institutions are the general act of a higher education institution, but they are first, in addition to this Act, harmonized with the statutes of the universities to which certain faculties, academies or departments belong as constituents. Further, in article 78, which talks about the student standard, it is stated that a student with a determined degree of disability who studies full time exercises special rights in accordance with the general act of the higher education institution, and that a student with a determined type and degree of disability exercises the right to transport. By refocusing on the general acts of higher education institutions, the Act in a certain way leaves the implementation of inclusive studies to lower-level documents, giving them autonomy in deciding on the quantity, quality, and level of equally guaranteed rights.

To follow the provisions of the Act in the context of the status of students with disabilities at Josip Juraj Strossmayer University in Osijek, we should start from the umbrella document of the University, that is, from the Statute, and then from the lower-ranking documents that cover this issue. The Statute of the University (2023) contains a total of 204 articles, and at the very beginning in the section "Mission of the University" states in article 4 that the University carries out its mission through respect and affirmation of human rights in interaction with the social community, promoting the social impact of its own educational, scientific and artistic activities. In this article, we clearly see the impact of human rights through international, European, and national documents that have become part of the University's umbrella document, which directly applies to students, as well as the expressed desire to cooperate with the social community.

The constituent parts of the University are faculties, the Academy, and departments as teaching units, and in accordance with Article 15 of the University Statute, there are a total of eighteen of them. The legal structure of the general acts of the constituents, as determined by The Act on Higher Education and Scientific Activity (Official Gazette, No. 119/2022), is the responsibility of the higher education institution, but Article 81 of the University Statute stipulates that the Senate of the University gives consent to the basic general acts of the constituents, and that all other general acts must be harmonized with the Statute and other general acts of the University. In accordance with the above, this legal hierarchy reflects the autonomy and integrative function of the University, which in its acts directly and indirectly refers to the status of students, especially students with disabilities. The status of students with disabilities is regulated by Article 177 in the section "Special study opportunities", which states that "A student with a disability, in accordance with the general act of the University or university component, can study according to the adjusted conditions of study attendance". This article is also the only one in which students with disabilities are mentioned and equality and inclusion can be interpreted through "studying according to adapted conditions". Therefore, it is evident that more detailed rights of students with disabilities are left for other documents and acts of the University and constituents. From the above, it can be concluded that all components of the University are obliged to have in their acts at least provisions whereby the Statute of the University guarantees equality for students with disabilities, and that other acts passed by the components are harmonized at least with the Mission of the University in promoting human rights.

In addition to the University Statute, the Regulations on studies and studying at Josip Juraj Strossmayer University of Osijek (2023) are of particular importance for regulating the rights of students with disabilities and the Rulebook on the conditions and method of exercising the right to award student scholarships and grants of the University of Josip Juraj Strossmayer in Osijek (2018) (https://www.unios.hr/wp-content/uploads/2018/01/Pravilnik-18-01-2018.pdf, accessed 28/02/2024).

In the section of the Rulebook on studies and studying at the University, in article 23, paragraph 3, it is stated: "A student with a determined degree of disability who is studying full time exercises special rights in accordance with the general act University or university component where he is studying. A student with an established type and degree of disability has the right to transport". This article reflects a provision that refers to the general acts of the University or constituents, but in them the rights of students with disabilities are mentioned only as rights that exist without a special description. Therefore, it is extremely important that this Ordinance on Studies and Studying, as a recent document (2023), respected fundamental human rights and paid special attention to students with disabilities in one whole section "Special study opportunities" in which Article 35 refers to its seven items only for students with disabilities. This article gives a definition of a student with a disability, trying to list all the criteria that make a student with a disability a person who encounters certain obstacles in equal opportunity to study. In Article 35, we can see the extremely well-understood need to respect diversity in the part that says that the status of a student with a disability, in addition to the listed health, physical or other impairments, of a permanent or temporary nature, also includes those students with "other health conditions and difficulties which can affect the course of study". Broad understanding of the possible conditions of students with disabilities has given the opportunity to apply complete equality in rights for those students with disabilities whose disability is invisible or not well or even mentioned in the definition. This part of Article 35 is perhaps the biggest contribution to inclusion in its broadest scope. Furthermore, this Ordinance foresees in Article 51 the need to adjust the provision of adapted access to exams for students with

disabilities and in this way tried to reduce the diversity of needs for the same opportunity to take the exam.
Article 12 of the Rulebook on the Conditions and Ways of Exercising the Right to Award Student Scholarships and Grants of the Josip Juraj Strossmayer University of Osijek stipulates the possibility of awarding a scholarship to students with disabilities who, according to the decision of the Croatian Pension Insurance Institute, have a determined percentage of physical impairment of 60% or more. The special feature of this article is the fact that it also provides for special scoring for other achievements, awards, and recognitions for students with disabilities, properly establishing inclusion and equality, i.e. equality with other students who are also scored for such achievements. This gave students with disabilities an equal opportunity to be placed in an equal position not only regarding rights but also expectations in terms of achievements during their studies. Accomplishments according to this article also include the evidence of the Croatian Paralympic Committee for categorized athletes (paragraph 7).

University of Osijek has established the Office for students with disabilities, which ensures assistance to each home and exchange student with disability. On its web site, the Office states that students with physical disabilities are provided access to most of university facilities by means of elevators and ramps, and that other forms of assistance and support according to personal needs of each student with disability are considered. The Office cooperates also with other relevant organisation at local, regional and national level. There is also e-mail address of the coordinating person that students with disabilities can contact for support.

Having presented the results of document analysis, here is a brief overview of available services at respective faculties at the Josip Juraj Strossmayer University of Osijek (UNIOS) (Table 1).

Table 1: Overview of documents and bodies on SWD at UNIOS

No.	Faculty	Body in charge of SWD	Documents on SWD
1.	Faculty of Economics	-----	1. SWD Manual (2022) 2. web – "Underrepresented Groups" (about students)
2.	Faculty of Law "	A person SWD coordinator	1. web - SWD coordinator (under "student support", only coordinator tasks' description)
3.	Faculty of Humanities and Social Sciences	SWD Committee	1. web - Students with Disabilities" (detailed links and documents)
4.	Faculty of Applied Mathematics and Computer Science	----	-----
5.	Department of Physics	----------	--------
6.	Department of Biology	-----	1. Web - link to the University Office for SWD
7.	Department of Chemistry	A person SWD coordinator	1. The Information Package for students contains a section on SWD where the SWD coordinator is listed (the info cannot be found by browsing the page, only through a search engine using keywords)
8.	Academy of Arts and Culture	Committee for the Improvement of Support System and Provision of Information to SWD SSI 1	1. Protocol on enrollment and studying of SWD at the Academy (March 2024.) 2. web - info

No.	Faculty	Body in charge of SWD	Documents on SWD
9.	Faculty of Medicine	A person SWD coordinator	1. Web "SWD Coordinator" (under "students", only coordinator tasks' description)
10.	Faculty of Dental Medicine and Health	-----	1. Web - "SWD" - list of available equipment taken from the University SWD Office, link to the Office
11.	Faculty of Agrobiotechnical Sciences	------	----------
12.	Faculty of Civil Engineering and Architecture	A person SWD coordinator	1. Web "SWD Coordinator" (under "students", only coordinator name) 2. Rights and Possibilities - description of the right to adapt exam-taking at Grafos, and of the other rights from university and national documents 3. Useful links
13.	Faculty of Tourism and Rural Development in Požega Person:	A person SWD coordinator and mentor	1. Information package for students (under "students") containing a chapter on SWD 2. Regulation on the studying of vulnerable and underrepresented student groups
14.	Faculty of Kinesiology	-----	1. Web "SWD" (under "students") 2. Web - transferred publication of 8 books on SWD from the university's SWD Office page) 3. Document "Initiative" – Rectorate's letter encouraging inclusion of SWD in sports activities
15.	Faculty of Food Technology and Biotechnology	A person SWD coordinator	1. Information package for students (under "students") containing a chapter on SWD
16.	Faculty of Education	-----	1. Web - (under "students" transferred publication of 8 books on SSI from the university SWD Office page)
17.	Faculty of Electrical Engineering, Computer Science and Information Technology	----------	----------
18.	Catholic Faculty of Theology in Đakovo	----------	1. Web (under "students" - only a link to the university's SWD Office)

Source: Authors

In general, we can conclude from this overview based on key informant interviews and web searches that very little attention is paid to SWD. For most faculties, it is very difficult to obtain data, only through a general search or in the Information Package for students. However, there are those where data for SWD is intuitively and easily accessible. Some faculties however do not even mention SWD. Most faculties do have a coordinator, and only Faculty of Humanities and Social Sciences and Academy of Arts and Culture have a specific body i.e. committee dedicated to SWD. What can be seen as progress and is a way to move forward is passing internal documents at individual faculties, because there are specific needs and approaches and there can be pitfalls in viewing all SWDs as a homogenous group. It is important to point out that an institution's mission should not only be to follow the letter of the law but also to embrace and demonstrate the spirit of the law through how students are treated daily.

Relevant literature states that it is through awareness that a university's culture and climate toward students with disabilities can improve (Myers, 2009), and the recommendation is to move in the direction of universal design of instruction and learning (Burgstahler & Cory, 2008). The mission is to include college services available to all students: forming relationships

with professors and instructors; developing support systems with friends, support groups, and gaining a self-awareness to persevere (Getzel & Thoma, 2008). This approach is vital to the success of SWD at the postsecondary level, and we can see that the results of our analysis show that the general climate at the University of Osijek regarding the rights of SWDs is still based in the attempts to accommodate rather than in universal design.

Johnson and Fox (2003) stipulate the guiding principles of universal design in the following way: creating respectful welcoming environments, determining the essential components of a course or program, communicating class/program expectations, providing constructive feedback, exploring the use of natural supports for learning, including technology, to enhance opportunities for all learners, designing teaching/instructional methods that consider diverse learning styles, abilities, ways of knowing, and previous experience and background knowledge, creating multiple ways for students/employees to demonstrate their knowledge, and promoting interaction among and between faculty and students, and employers and employees. The Josip Juraj Strossmayer University of Osijek has not yet adopted these guiding principles. Raising awareness via language, communication tactics, and universal design foster the integration of individuals with disabilities and equip professionals with the means to alter the disability framework and correct misconceptions. The challenges faced by individuals with disabilities stem not from their disabilities themselves but from the interplay in the social environment (Longmore, 2003).

In the present day, it is fair to say that disability education and advocacy has come a long way. However, exclusion, albeit often unintentional, is still common for people with disabilities, and will remain so until only accommodation and adjustment rather than universal design and proactive accessibility are the norm. All members of the university need to know about issues associated with disabilities. Providing accessible learning environments both inside and outside of the classroom is a shared responsibility (Bryan & Myers, 2006). It is common to assume that students with disabilities are the responsibility of the SWD Office as they verify disability documentation and decide on reasonable accommodations. Best practices, however, encourage us to shift that paradigm.

4. Supporting SWDs in the context of regional development potential

This chapter serves as a general overview, mostly based on literature, of the relevant arguments that connect the reasons for supporting SWDs and the potential for regional development. The title of Getzel and Wehman's (2005) edited book summarizes what studying for people with disabilities does: it expands opportunities. Increased successful participation of SWD in higher education this way may generally contribute to regional development. Let us discuss some of the ways how.

Although some continue to see various accommodations that the university needs to make for SWDs as costly and imposed, there are different discourses now that recognise contributions of persons with disabilities in the workforce (Unger, 2002). According to Kamal Lamichhane (2015), people with disabilities who get a university degree present an investment in human capital. He discusses a move from charity to investment when it comes to higher education of persons with disabilities. A university degree helps people find good jobs, which promotes social inclusion and economic development. Making both education and labour market inclusive improves the general well-being and prospects of people with disabilities' families. In the future, he claims we need to make inclusive education more meaningful, collect data that

includes disability, strengthen the evidence base by conducting rigorous impact evaluations of promising interventions, promote public-private partnerships that give us access to the best technologies for persons with disabilities, remove employment barriers etc. We can generally say that inclusion of persons with disabilities into higher education institutions presents an investment into the reduction of poverty, social exclusion and varied risks. Literature often stresses this significance in numbers, stating for instance that the disability market is equivalent to a market larger than China — where 1.85 billion people, with $1.9 trillion in annual disposable income, live with some form of disability (IFC, 2024).

OECD report (2011, 9) stresses that the quality of provision for the disabled in higher education is not just a question of rights, because access to the labour market depends on it. An older OECD report (1994) highlights that employers prefer graduates owing to the faster pace of technological change, the need to be increasingly resourceful and the growing flexibility of labour relations. If we neglect higher education of persons with disabilities, vulnerability and discrimination rise. Access to higher education means acquiring the knowledge and know-how to live in a society that views itself as a partnership of responsible, co-operative stakeholders with the ability to define and shape their own roles.

Needless to say, this calls for physical accessibility of spaces, inclusive curriculum, preferably universal design, sensitized and inclusive educators, administrators, and support staff etc. Enhancing accessibility in educational institutions and public spaces to accommodate students with disabilities benefits not only individuals with disabilities but also the broader community. Improved infrastructure, such as wheelchair ramps, accessible transportation, and assistive technology, creates a more inclusive environment for everyone and enhances the overall quality of life in the region.

By providing students with disabilities equal access to education and training opportunities, regional communities can tap into a diverse talent pool. This diversity can bring new perspectives, skills, and ideas to the workforce, leading to innovation and creativity in various sectors. When students with disabilities receive quality education and training, they are better equipped to secure employment and contribute to the local economy. Increased employment rates among individuals with disabilities can stimulate economic growth, reduce dependency on social welfare programs, and enhance the overall prosperity of regional communities. Inclusive educational environments promote social cohesion and foster a sense of belonging among students with disabilities. By embracing diversity and creating supportive communities, regional areas can become more inclusive and welcoming to all residents, regardless of their abilities. Some students with disabilities may face barriers to traditional employment but possess entrepreneurial skills and innovative ideas. By providing support for entrepreneurship training, access to funding, and mentorship programs, regional communities can encourage the development of small businesses and startups led by individuals with disabilities, contributing to local economic development. Supporting students with disabilities can raise awareness about disability rights, inclusion, and diversity within regional communities. Educational initiatives and advocacy efforts can promote positive attitudes toward individuals with disabilities, challenge stereotypes, and foster a culture of acceptance and respect for diversity. Engaging students with disabilities in community activities, volunteer work, and civic engagement initiatives strengthens social networks and promotes active participation in regional development efforts. By empowering individuals with disabilities to contribute their skills and talents, communities can harness their potential to address local challenges and drive positive change. Overall, supporting students with disabilities not only benefits individuals but also

contributes to the social, economic, and cultural development of regional communities, creating more inclusive and vibrant societies for everyone.

5. Conclusion

In an answer to our research questions on the definition of the concepts of EDI in relevant documents at the university and in relevant national and EU documents, the results of this mapping study show that there is a need to move away from viewing disability as a deficit or defect and towards lived experiences of people with disabilities. Disability education is for everyone by everyone. It is a shared responsibility, and equity, inclusion and diversity should be individualised. Disability education is not only for service providers and professors of disability studies but is a part of the responsibility of each member of the university – we are all allies for inclusion, invited to challenge the existing boundaries, create spaces to insert differences and contradictory voices, expand the borders inherited and previously framed. Discourse on disability shows how ableist power and ideology is inscribed in schooling, from curricula and organization to relations of teachers to students and language. It is from the point of view of the dominant that definitions and stigmatization of disability are produced, presented as flawed and not as having its own identity.

The results of this research pertaining to our research questions on the translation of EDI policies into providing university support to SWD at the University of Osijek have also shown that there is a need to be careful with conceptualizing equality, diversity and inclusion in the context of disability. Also, there is as we have shown elaborate legislation and documents at the university level in Osijek, but there is little information on the web of respective faculties and institutional infrastructure is not yet well-developed. What is important to point out is that even if tools and services are developed, they are rooted in the paradigm of accommodations for SWD and not in universal design seen as a shared responsibility.

We have also formulated a research question connected to how university support policies for SWD can help realize the active role of the university in boosting regional development. Thus, the reasons for inclusion of persons with disabilities have been discussed from the point of view of investments into regional development through potential effects on workforce variety, creativity, entrepreneurship, community involvement, skill enhancement, infrastructure, and notably, on policy influence and cultural transformation. We can conclude that equity for people with disabilities has yet to be achieved despite decades of activism and legislation. Stigmas and stereotypes of people with disabilities as “less than” and “not equal to” continue to be shown and it seems we still wonder about appropriate communication or expected behaviours.

The limitations of this research primarily rest in the fact that document analysis may lack in contextual understanding, especially without supplementary data sources. It can be challenging to interpret the meaning of documents without considering the broader historical, cultural, or social context in which they were created. Also, the legal and formal language of documents may lead to potential biases in interpretation. Most importantly, analysed documents in principle do not cover all aspects of the research topic, especially the ones related to lived experience of students with disabilities. Here is where suggestions for further research arise – it should rely on multiple sources, involve studying the real experience, trying to develop both comparative and longitudinal studies and triangulate data to compensate for the limitations. The aim of this study has been to initially map thedefinitions, documents and support mechanisms for SWDs at the University of Osijek and to outline relevant arguments from the point of view of regional development.

Eliminating barriers, promoting inclusion, and recognizing and appreciating the lived experience of people with disabilities are the essence of the new model of disability. Inclusion of all people means providing access to all people with as few accommodations as possible. By nurturing an atmosphere rooted in the principles of Equity, Diversity, and Inclusion (EDI), universities can make substantial contributions to the holistic advancement and prosperity of a region.

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A scientific paper

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HOW EFFICIENT ARE UNIVERSITY LIBRARIES IN EASTERN CROATIA? A DATA ENVELOPMENT ANALYSIS APPROACH

ABSTRACT

University libraries are best known for their twofold essential role: first, to support the curriculum of the University they belong to, and second, to support and empower the research work of both the academic staff and the students. Considering their vital role in information and media literacy as well as education and research support, one should expect a lot of empirical work and studies regarding their performance and efficiency. However, the scholarly literature lacks such research. This two-stage study intends to bridge this gap and therefore employs the Data Envelopment Analysis (DEA) with 3 input variables (Number of books held, Number of library staff and Actual allocated budget) and 3 output variables (Circulation, Number of books added and Number of registered members) for the period 2021-2022 for nine university libraries based and actively operating in Croatia. Moreover, in the second stage of the study, a special regional focus on the two university libraries located in Eastern Croatia (i.e. the university libraries in the University JJ Strossmayer in Osijek and the University Slavonski Brod) is given. The findings reveal that the average relative efficiency of all university libraries in Croatia is 88.42%. The university library of the University JJ Strossmayer in Osijek noted an efficiency score of 88.91% in 2021 and 57.64% in 2022, whereas the one of University Slavonski Brod noted a relative efficiency score of 100% in 2021 and a small decrease in efficiency in 2022 to 95.82%. A more detailed exploration of their efficiency results is provided and a parallel to the regional competitiveness of Eastern Croatia is given. Furthermore, the challenges ahead for university libraries in Eastern Croatia are tackled. The scientific and practical contribution of this paper are mirrored in its valuable insights for policymakers, regional government, local community and university management in Eastern Croatia, as well as the Republic of Croatia and the interested public.

Key words: *university library, relative efficiency, data envelopment analysis, DEA, Eastern Croatia, regional efficiency.*

1. Introduction

Libraries are vital institutions that play a multifaceted and crucial role in society and provide free or low-cost access to a wide range of resources, including books, journals, newspapers, magazines, and digital materials, promoting literacy, education, and lifelong learning. Libraries also serve as hubs for literacy programs, reading initiatives, and educational workshops (Abolaji, 2009). Therefore, their role is crucial for both education and society. They support research and innovation by providing access to scholarly literature, research databases, and other resources (Ryynänen, 1999). Libraries also significantly influence environmental education, with librarians playing a key role in facilitating meaningful learning experiences (de Oliveira et al., 2021). Furthermore, libraries contribute to the intellectual, social, and cultural well-being of society by fostering community engagement and supporting lifelong learning (Young, 2012). The significance of libraries in society and education is immeasurable. Despite challenges, libraries remain central places for information and education dissemination.

University libraries, on the other hand, also known as academic libraries, are both scientific and cultural institutions that face numerous "social, financial, and technical challenges" (Rafiq et al., 2021) as well as additional challenges in the digital age, as they try to meet the ever-changing needs for learning space and storage capacity (Li, 2014). Their core business and primary responsibility is supporting "both general research and the specific programs and degrees offered at the host institution" (Welsh & Wright, 2010). Moreover, they are a vital "part of the local campus" and, should be analysed and observed as "potential contributors to the sustainable development of their institution and environment" (Schöpfel, 2013). Therefore, their societal role is immense. They must support teaching, research, and other academic programs with useful resources (Oinam, 2018).

There are six regions in Croatia as follows: Northern Croatia, Central Croatia, Eastern Croatia, Dalmatia, North-Adriatic Croatia and the City of Zagreb, and they consist of counties, which were first introduced in 1993, after the disintegration of SFRY, as an important "institutional transformation of the previous communal system into a modern system of local self-government, organised on the basis of administrative and political decentralisation and the principle of subsidiarity" (Đulabić & Čepo, 2017). The Eastern Croatia region includes five counties: Virovitica-Podravina, Požega-Slavonia, Brod-Posavina, Osijek-Baranja and Vukovar-Srijem county (Ott et al., 2019). This region belongs to the "underdeveloped group of regions" according to the index of development issued by the Ministry of Regional Development, Forestry and Water Management in Croatia and when comparing the Eastern Croatian indicators with those of neighbouring regions (such as northeastern Bosnia and Herzegovina or Vojvodina in Serbia), it seems as though these regions share "similar characteristics, but such an analysis would be very difficult to achieve" (Lončar & Marinković, 2015). The uneven regional development of Croatia is not a novel issue; however, it is evident that Eastern Croatia lags behind significantly, and this is presented through various indicators (e.g. "GDP per capita in counties that belong to Eastern Croatia, huge population drain in the region, development index calculated by the Ministry of regional development" etc) (Marošević, 2020). This is, however, an issue that local and regional government bodies and politicians have been aware of for quite some time. Namely, Brod-Posavina and Vukovar-Srijem counties had been "the poorest counties for years", when considering the GDP per capita, with half of Croatian GDP per capita or only 30% of the EU27 in 2010 (Rácz, 2014).

The main objective of this study is to first, assess and explore the relative efficiency and performance of nine university libraries operating in the Republic of Croatia, and second and

more importantly, to tackle and focus on the regional university library efficiency in Eastern Croatia (i.e. the university library efficiency of the two university libraries located in Eastern Croatia - the University JJ Strossmayer in Osijek and the University Slavonski Brod). The methodology used for this study is the Data Envelopment Analysis method, which is increasingly popular in many industries, but mostly in "agriculture, banking, supply chain, transportation, and public policy" (Emrouznejad & Yang, 2018).
The main purpose of this study is to investigate the regional efficiency of one specific public sector (i.e. the university libraries), which is an interesting issue and research question to tackle from many aspects. Namely, Croatia has experienced some very unique developments in the post-SFRY country establishment. These include the war, the population restructuring as well as the spatial restructuring, historic differences and the entrance into the Euro-Atlantic alliance, all of these impacting deep regional differences throughout Croatia (Rácz, 2014). Thus, the main hypothesis is that the university libraries in Eastern Croatia (i.e. the university library efficiency of the two university libraries located in Eastern Croatia - the University JJ Strossmayer in Osijek and the University Slavonski Brod) are expected to note lower relative efficiencies than the rest of the sample (the rest of Croatia).
The article is divided into five main sections. Following the introduction, Section two offers a literature review of the DEA (Data Envelopment Analysis) applications in the assessment of the efficiency and performance of university libraries. Section three outlines the chosen methodology and reveals the research design, collected data and the chosen DEA model. Section four presents the empirical results and provides a more thorough analysis of the results and findings regarding the relative efficiency of the university libraries at the University JJ Strossmayer in Osijek and the University Slavonski Brod. The last, fifth Section opens up a discussion and concluding remarks regarding the empirical results from the DEA model and concludes the paper, addressing the research contribution, limitations, and plans for future work.

2. Literature review

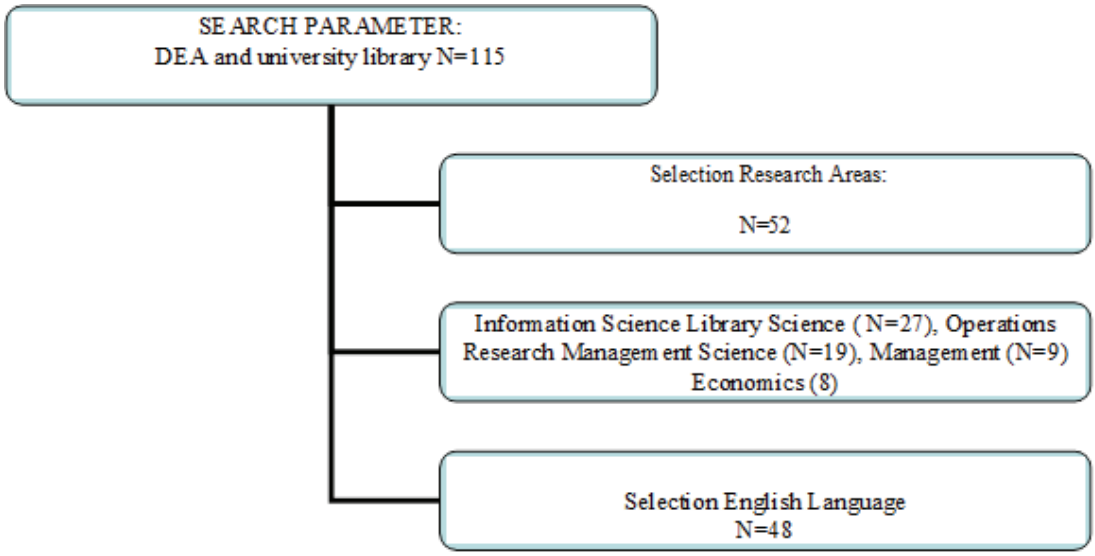
Data Envelopment Analysis (DEA) is widely used in scientific literature across various fields. According to a study by Cvetkovska and Fotova Čiković (2020), DEA is often used in industries such as banking, education, and healthcare. This method allows researchers to evaluate the efficiency of different decision-making units, highlighting areas for improvement and identifying best practices. By using DEA, researchers can gain valuable insights into the performance of organizations and make informed decisions based on data-driven analysis. In recent years, the DEA model has become increasingly popular for valuation in numerous institutions and organizations (Emrouznejad and Yang, 2017). Libraries as central information centres, to keep pace with all the challenges they face, it is necessary to constantly evaluate services and promote the quality of services. (Najafi, 2019). Evaluation of library services is often related to user expectations and the use of available resources to ensure high-quality services. According to Najafi (2019), the amount of research dealing with the efficiency of libraries has increased in recent years. There are various models and frameworks used to measure the effectiveness of libraries. These models include "ratio analysis, Least-Squares Regression, Stochastic Frontier Analysis, and Data Envelopment Analysis" (Najafi, 2019). The studies were focused on university libraries' performance assessment, mainly in Taiwan and the United States. A small number of papers deal with the research on this subject in Europe.

For this literature review, we analyzed both the Web of Science and Scopus scientific databases, as they are currently the most renowned scientific databases globally. The search

strategic and used parameters are displayed in Figure 1. Namely, after conducting a comprehensive analysis and review of sources related to the topic "DEA (i.e. Data Envelopment Analysis) and university library" with no restrictions to language, date of publication or study design of the conducted studies, it has been discovered that there is a total of 115 research papers on this subject matter in the Web of Science and Scopus databases (after removing the duplicate papers that appear in the two databases). Thereafter, stringent criteria were applied and through a manual survey, relevant papers regarding the subject of efficiency in university/academic libraries were selected. After this step, 52 papers were left in the relevant research areas and 48 of them were written in English.

These papers cover a period starting from 1997, with most of the works having been published within the last decade. The research covers a wide range of areas, with Information Science and Library Science having the highest number of papers (27), followed by Operations Research Management Science (19), Management (9), and Economics (8). The number of papers dealing with this topic, belonging to information science, emphasizes the importance of measuring the efficiency and success of libraries to make their roles and missions complete. Figure 2 shows a growing interest in researching the efficiency of university libraries as central information places of the academic community and the use of the DEA method.

Figure 1: The flowchart for data collection



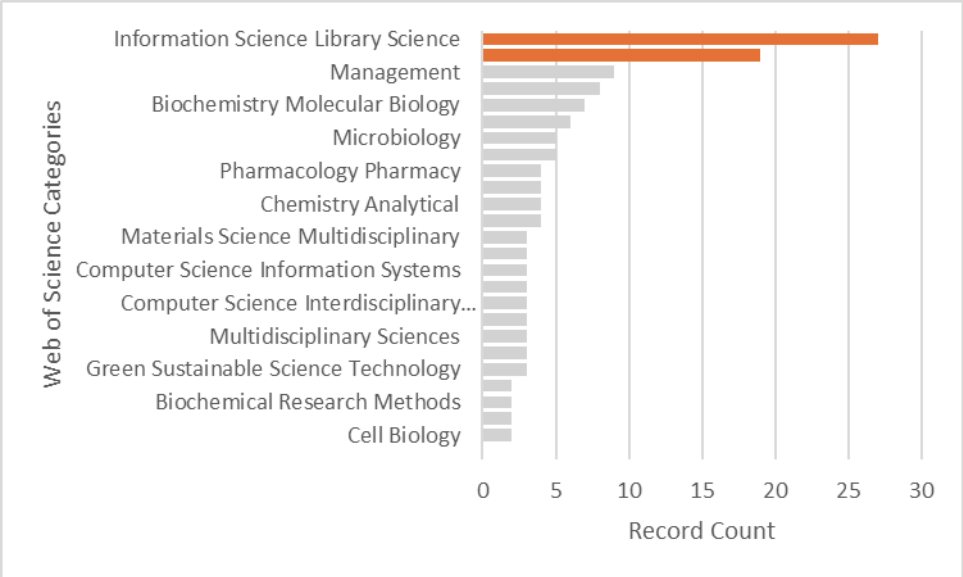
Source: Authors

The analysis showed that the earliest recorded study on the effectiveness of university libraries dates to 1997. Conducted by author Chen (1997), the research involved analyzing the resource utilization efficiency of 23 libraries.

Based on an analysis of available sources using the DEA method, it has been observed that most of the research conducted on libraries primarily focuses on variables that are associated with traditional library parameters. Unfortunately, this overlooks the significance of digital collections and services that are becoming increasingly important in modern libraries (Noh, 2011). A significant contribution was made in the work of 2013. In this study, a data envelopment analysis (DEA) model was used to evaluate the operational efficiency of 25 U.S. private research university libraries that are members of the Association of Research Libraries (ARL) (Lee, Kwak and Garrett Jr, 2013). According to Tavares et al. (2018), the “intense

participation of Asian countries in research related to efficiency assessment in university libraries is significant".

Figure 2: Number of published papers by research areas (1997 – 2023)



Source: Authors

Yuanrui & Jingli (2020) conducted a research paper that surveyed the technical libraries in Taiwan. The study was conducted over six years. This survey can be a valuable resource for individuals who want to evaluate the effectiveness of university libraries. Research that is a valuable source for studying this topic is a paper that evaluated the effectiveness of 118 university libraries across six countries: Australia, Austria, Canada, Germany, Switzerland, and the United States. This research has significantly contributed to the development and study of the DEA method (Reichmann and Sommersguter-Reichmann 2006), The significance of this research lies in its coverage of various countries, which marks a departure from the conventional practice of conducting surveys that solely focus on a single geographic region. By encompassing multiple countries, this study can provide a more comprehensive perspective on the subject matter, offering insights that are both diverse and representative of a broader range of cultural, social, and economic contexts. This approach helps to ensure that the results of the study are more reliable and applicable across a wider range of settings, making them more useful for policymakers, researchers, and practitioners alike. Utilizing the DEA (Data Envelopment Analysis) method can provide valuable insights into the performance of university libraries, enabling areas that require improvement to be identified. However, it is essential to bear in mind the limitations of this approach, including its sensitivity to outliers and the necessity of selecting suitable input-output variables. Additionally, to properly interpret the results, it is necessary to consider the unique contextual factors of each university library.

3. Methodology and data

This study is developed and presented in two stages. In the first stage, the relative efficiency of university libraries operating in the Republic of Croatia is assessed with the application of the CCR Data Envelopment Analysis (DEA) for the analysed 2021 and 2022. In the second

stage of the study, the main focus is on the university libraries operating and located in Eastern Croatia, i.e. the university libraries of the University JJ Strossmayer in Osijek and the University Slavonski Brod. The decision for such a structured paper was twofold: first, by applying the DEA methodology to the whole sample of university libraries in Croatia, we could gain insight into the relative efficiency and performance of the whole sector. Second, by focusing on the university libraries in Eastern Croatia, we compare their performance and efficiency with the one of the whole sector, thus, exploring in detail what the actual factors of their performance could be. Thus, we tackle the issue of regional differences in efficiency in one public sector in Croatia.

In this study, the efficiency of university libraries is evaluated using a technique known as Data Envelopment Analysis (DEA). DEA is a mathematical approach that assesses the effectiveness of decision-making units (DMUs). Efficient DMUs are situated on a predetermined frontier, while inefficient ones are located below it.

The Data Envelopment Analysis (DEA) was first introduced in the seminal paper of Charnes, Cooper and Rhodes (1978) as a vital part of Operation research literature (OR). It is considered today as the leading non-parametric method for evaluation of homogeneous decision-making units (DMUs), that is, comparable units that use the same inputs to produce the same outputs. In other words, DMUs could be banks, insurance companies, universities, university departments, defence bases, and even countries (Fotova Čiković & Lozić, 2022). The main principles for DEA application are as follows: The number of DMUs in the sample should be at least three times larger than the total number of inputs and outputs; if the efficiency score is equal to 1, this means that the Decision-Making unit is operating relatively efficiently, while, when the efficiency score is lower than 1, this suggests that the DMU is operating relatively inefficiently; and lastly, the measure and empirical result given by DEA is relative, i.e. it depends on nature and number of entities included in the analysis, as well as on the number and structure of selected and used inputs and outputs.

The academic interest in assessing the performance and efficiency of non-profit public organisations has an upward trend (Gökşen et al., 2015). Moreover, the literature review highlights DEA's various applications. Vörösmarty (2020) emphasizes its use in assessing sustainable suppliers, while Mariz (2018) focuses on Dynamic DEA and its increasing popularity in sectors such as agriculture, banking, and energy. Mariano (2015) explores the use of DEA in measuring human development and identifying gaps for future research. Cui & Yu (2021) provides an inclusive overview of DEA in airline efficiency, discussing various models and their pros and cons. Collectively, these studies demonstrate the adaptability and promise of DEA in various fields. Meanwhile, DEA has become a well-accepted performance assessment tool in the non-profit sector, especially in social service organizations (Medina-Borja et al., 2007; Medina-Borja et al., 2014). It can be used to evaluate various aspects of performance, such as fundraising efficiency, capacity building, service quality, and outcome achievement (Medina-Borja et al., 2014). In the field of education, Data Envelopment Analysis (DEA) is a widely used method for gauging efficiency and aiding in managerial decision-making. Notably, both Nazarko et al. (2008) and Sarrico et al. (2000) have conducted studies that underscore the value of DEA in assessing the efficacy of institutions of higher learning. While Nazarko et al. (2008) research concentrates on the implementation of DEA in Polish technical universities, Sarrico et al. (2000) investigation centres on the University of Warwick. DEA offers various models for determining relative efficiencies, including the evaluation of a cross-efficiency matrix, the super-efficiency method, benchmarking, multivariate statistical techniques, and the collection of preferential information (Adler et al., 2002). The Network DEA Model, which allows for a more in-depth analysis of organizational inefficiencies, is particularly useful for organizations with complex internal structures (Lewis et al., 2004). Additionally, the performance of two-stage network

structures can be measured using DEA, with future perspectives and challenges discussed (Cook et al., 2010). These studies collectively highlight the potential of DEA as an effective analytical tool for identifying inefficiencies and areas of improvement in non-profit organizations in the public sector.

The CCR (Charnes–Cooper–Rhodes) and the BCC (Banker–Charnes–Cooper) DEA models are two basic DEA models. The CCR DEA model is referred to as the constant returns to scale (CRS) model, whereas the BCC DEA model is a variable returns of scale (VRS) model. Furthermore, DEA models can be input-oriented or output-oriented, as an offered choice of optimization orientation—whether input minimization or output maximization. Input-oriented DEA models aim to determine "how many inputs might be reduced to operate efficiently to maintain the same output levels" (Laso et al., 2022), i.e. help identify a minimum level of input that is necessary to reach maximum efficiency for the outputs (Šebová & Maličká, 2019). Moreover, Zhu & Zhu (2014) discuss the input-oriented DEA models, which focus on potential input reductions while maintaining current output levels. In contrast, an output-oriented model determines "how much output levels could be increased operating efficiently but maintaining input levels" (Laso et al., 2022) or identify the maximum level of output needed to reach maximum efficiency for given outputs. Both the input and output orientation of the DEA model can measure the efficiency of university libraries.
Considering the non-profit public sector of university libraries investigated in this study, the input-oriented CCR DEA model seemed more appropriate, for several reasons. First, most of the relevant published papers and studies conducted employ the input-oriented CCR DEA model (e.g. Noh, 2011; Chen, 1997; Lee, Kwak and Garrett Jr, 2013). More importantly, Pyra & Adamowicz (2021) found the input-oriented CCR DEA model to be "the most useful model" of efficiency evaluation of university/public libraries. Second, the non-profitability of this sector highlights the need to focus more on the minimization of the inputs (in this case, Number of books held, Number of library staff and Actual allocated budget), while maintaining unchanged output levels. This is vital, since most of public and academic libraries maintain strict and limited budget for allocation. Thus, the input-oriented CCR DEA model was employed in this study, which is transformed into a mathematical linear model as follows:

$$Efficiency = Max \sum_{r} u_r \, y_{rk},$$

$$\sum_{r} u_r y_{rj} - \sum_{i} v_i x_{ij} \leq 0, \qquad j = 1, \dots, n,$$

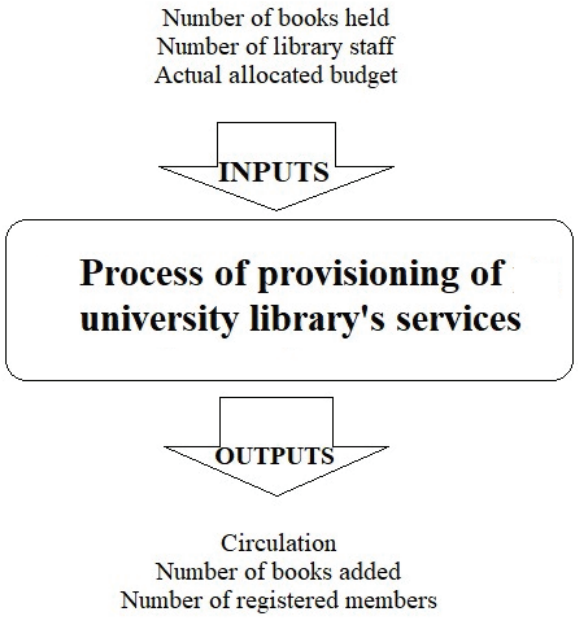
$$\sum_{i} v_i x_{ik} = 1,$$

$$u_r, v_i \geq 0$$

The literature on measuring academic library efficiencies lacks consensus on the most relevant input and output variables, and this is a common issue with DEA applications in different industries as well. For instance, Lee, Kwak and Garrett Jr (2013) incorporated Total holdings, Total expenditure, and Total staff, and Total enrolment as inputs, and Public service, Reference service, Circulation service, and Interlibrary service as output variables. Chen (1997), on the other hand, used library staff, book acquisition expenditure, and area of

library space as inputs and reader visits, book circulation, reference transaction and online search, and interlending service as outputs for his input-oriented CCR and BCC DEA models. In the DEA model of De Carvalho et al. (2012), Number of employees, Area (in square meters), and Volumes were selected as inputs, whereas Consultations, Loans, Enrolments, and User Traffic were selected as outputs. This study follows Mohamed Shahwan & Kaba (2013) in the selection of input and output variables and this shown in Figure 3, whereas Table 1 reports the specification of DEA inputs and outputs deployed in the DEA.

Figure 3: University library production function – the DEA model



Source: Authors

Table 1: Selected input and output variables for the DEA model

Category	Variables	Definition
Inputs	Number of books held	Total number of books
	Number of library staff	Total number of library staff in full-time equivalent (FTE) at the end of the reporting period
	Actual allocated budget	Costs of acquisition of library materials + Gross personal income costs for library staff + Education costs for library staff + Other costs
Outputs	Circulation	Total number of borrowings in the reporting period
	Number of books added	Total new procurement
	Number of registered members	Total number of active users in the reporting period

Source: Authors

The data was manually extracted from the officially published annual reports of each of the 9 university libraries included in the sample, for the observed period 2021-2022. The rationale behind the selected time frame is mirrored in the fact that the library of University Slavonski Brod started working (and thus, publishing annual reports) in 2021. Therefore, due to the unavailability of before 2021, this time frame was selected. In the paper, the input-oriented DEA methodology was employed in the sample of nine academic libraries actively operating in Croatia in the period 2021 to 2022.

The DEA-Solver-LV software was used for solving the specified input-oriented CCR DEA model and more on this software can be found in Cooper et al. (2007). The efficiency scores for each library could help identify which university libraries are relative efficient and which are not. The relatively efficient ones are assigned a score of 1, i.e. 100%, whereas the inefficient ones are assigned a score lower than 1 (lower than 100%).

4. Results

4.1. Overall efficiency results

In this study, the relative efficiency of nine university libraries in Croatia is measured by employing the DEA methodology for the period from 2021 to 2022, using a balanced panel of data for the sample. The obtained results from the input-oriented CCR DEA model are presented in Table 2 and they reveal rather interesting results. Namely, out of 9 university libraries in the sample, only 3 (the university libraries of the University in Dubrovnik, University in Rijeka and the University in Split) operated efficiently in both 2021 and 2022. When looking at the average efficiency results for the whole observed period (2021-2022), the university libraries in University North and the library of the University JJ Strossmayer in Osijek noted the lowest average efficiency (39.70% and 73.27%, respectively). It should be noted that the university libraries of the University of Juraj Dobrila in Pula, University in Zadar, University in Zagreb and University in Slavonski Brod noted full efficiency in the first observed year (i.e. in 2021), and deteriorated efficiency in the second observed year (from 100% to 89.84% for the university library of the University of Juraj Dobrila in Pula; from 100% to 93.18% for university library of the University in Zadar; from 100% to 86.77% for the university library of the University in Zagreb, and lastly, from 100% to 95.82% for the university library of the University in Slavonski Brod). These oscillations of efficiency should be looked into in future work, including a longer time period for analysis.

Moreover, when analyzing these results, it is worthwhile to mention the effect of COVID-19 on these results. The global outbreak of COVID-19 has brought about unprecedented changes in our daily lives. One of the sectors that has been hit the hardest by the pandemic is education, with libraries and educational institutions being at the forefront of the disruption.
As a result, many libraries had to shut down their physical spaces to the public, thereby affecting the ease of access to educational resources for many students and researchers. The COVID-19 pandemic has caused a considerable decline in book circulation and library visitors. Additionally, the shift towards digital sources has resulted in a permanent change in user behavior and preferences. Henson et al. (2022) found an increase in the use of business-related LibGuide during the pandemic, indicating a shift in access methods. Mehta et al. (2020) highlighted the challenges faced by a university library in adapting to the crisis, including the need to transition existing services to digital formats. Carbery et al. (2020)

emphasized the need for libraries to adapt to the changing landscape of education, with a focus on digital services and the acquisition of new skill sets by librarians
During the COVID-19 pandemic, university libraries faced several challenging situations and underwent significant changes. Despite these obstacles, university libraries remained resilient and adaptable and found innovative ways to continue offering essential services and support to students, faculty, and researchers, all while prioritizing health and safety.

Table 2: Efficiency results of university libraries in Croatia (2021-2022)

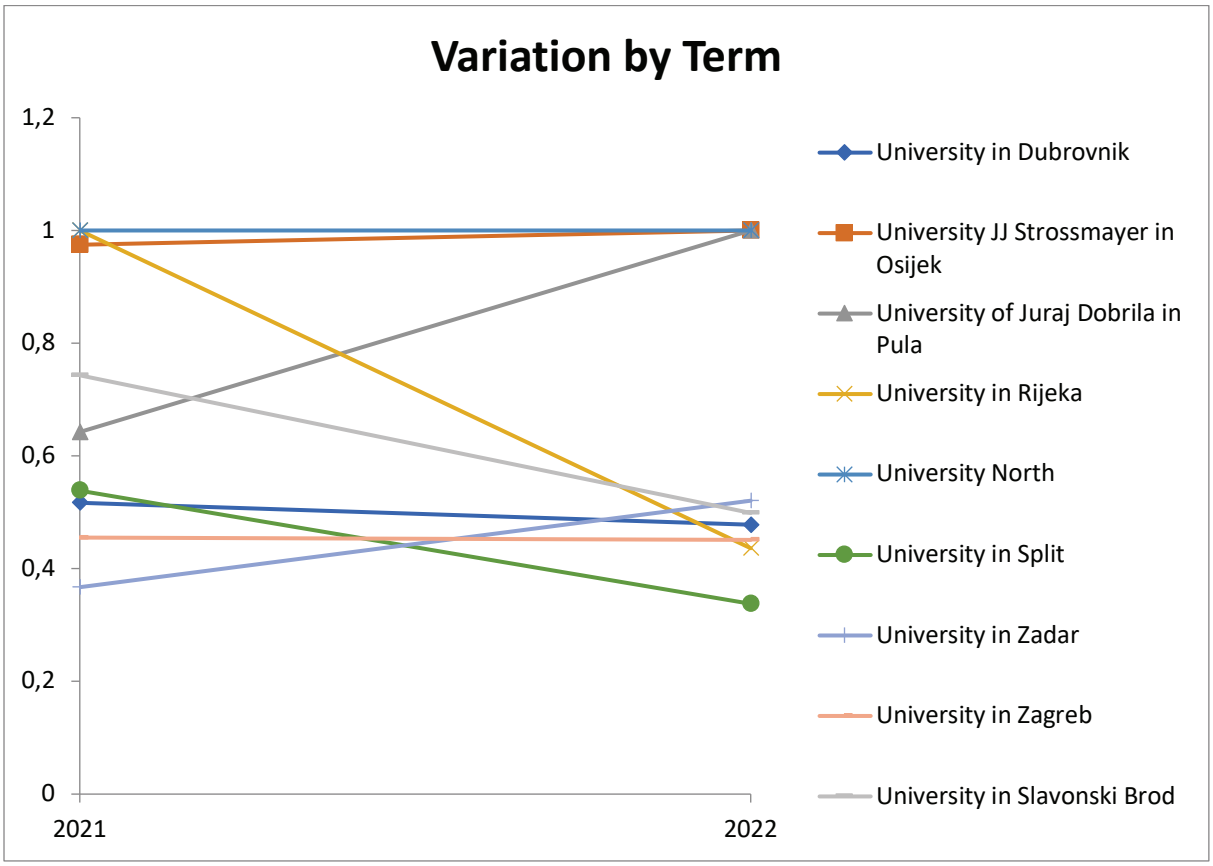
Average by Term	2021	2022	Average for 2021-2022
University in Dubrovnik	1.0000	1.0000	1.0000
University JJ Strossmayer in Osijek	0.8891	0.5764	0.7327
University of Juraj Dobrila in Pula	1.0000	0.8984	0.9492
University in Rijeka	1.0000	1.0000	1.0000
University North	0.4178	0.3762	0.3970
University in Split	1.0000	1.0000	1.0000
University in Zadar	1.0000	0.9318	0.9659
University in Zagreb	1.0000	0.8677	0.9339
University in Sl. Brod	1.0000	0.9582	0.9791
Average by Term	**0.9230**	**0.8454**	**0.8842**

Source: Authors

When observing the average results per term, 2021 is the year with more efficient operations of university libraries in Croatia, with 92.30%, as opposed to 84.54% efficiency in 2022. On average, university libraries in the period 2021-2022 operated at 88.42%.

The variations of each library's efficiency are graphically presented in Figure 4.

Figure 4: Variation of relative efficiency of university libraries in Croatia (2021-2022)

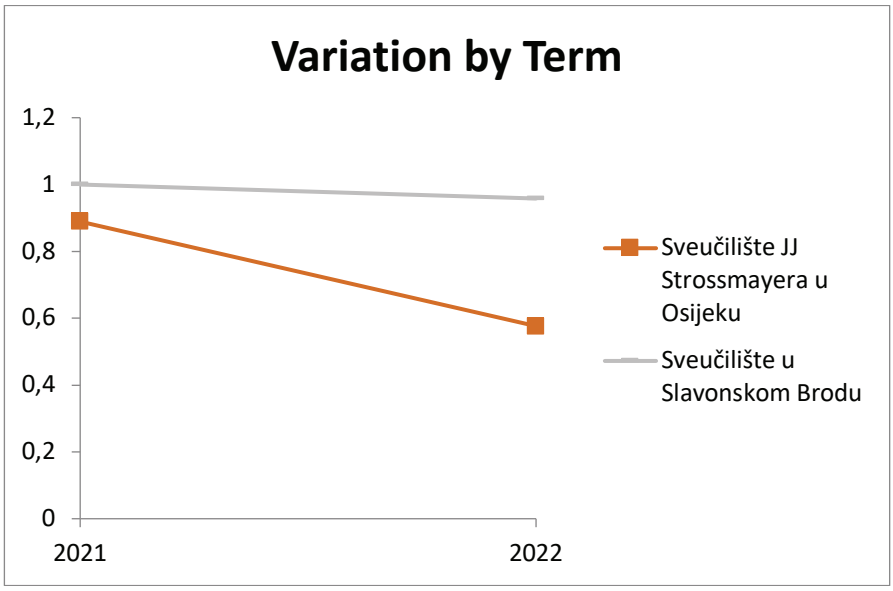


Source: Authors

4.2. Relative efficiency of university libraries in Eastern Croatia

The university library of the University JJ Strossmayer in Osijek noted an efficiency score of 88.91% in 2021 and 57.64% in 2022, whereas the one of University Slavonski Brod noted a relative efficiency score of 100% in 2021 and a small decrease in efficiency in 2022 to 95.82%. Based on recent statistics, there appears to have been a decline in efficiency between 2021 and 2022, likely due to a decrease in new acquisitions and user borrowing. This shift in behaviour may be attributed to the growing popularity of digital resources like e-books, e-journals, and databases, which have prompted a move towards electronic access to information. Furthermore, budget constraints in universities may be limiting their capacity to acquire new materials or renew subscriptions to databases and journals, resulting in fewer acquisitions overall. The academic landscape is constantly evolving, with new areas of study emerging and others becoming less relevant. Libraries may need to adjust their collections accordingly, leading to fluctuations in acquisitions.

Figure 5: Variation of relative efficiency of university libraries of University J. J. Strossmayer of Osijek and University Slavonski Brod (2021-2022)



Source: Authors

This is the first study that tackles and empirically measures the efficiency of university libraries in Eastern Croatia in recent years. Moreover, this is among the very few studies employing DEA in the public sector in Croatia. For these particular reasons, this research represents a benefit for the academic community and a gem in the scholarly literature since it provides new insights for the interested public, university management, policymakers and local community. On top of that, the key contribution of the empirical results, besides the general overview of the relative efficiency of the whole sector in Croatia, is mirrored in the sub-specialisation of the results and its focus on the region of Eastern Croatia. One of the university libraries in operating in Eastern Croatia noted lower efficiency than the average efficiency of the whole sample (which was 88.42%). Namely, this was the university library of the University JJ Strossmayer in Osijek with an average efficiency for the period 2021-2022 of 73.27%, whereas the efficiency score for the University Slavonski Brod for the same time frame was 97.91%. In future work, the authors plan to keep on investigating this and other public sectors by regions, so that the entrenched opinion regarding the regional stagnancy of the region of Eastern Croatia could be refuted.

5. Discussion and conclusion

The development of libraries in Croatia, including those in the eastern region, has been influenced by a range of factors, from the country's transition to democracy and market economy in the 1990s (Stričević, 2015) to the challenges of the information society and globalization (Sabolović-Krajina, 2019). Despite these challenges, Croatian libraries have a strong tradition and have made significant progress in areas such as information and communication technologies (Stričević, 2015). University libraries in Eastern Croatia face unique challenges and opportunities specific to their region due to economic and infrastructural disparities. These challenges may include limited budgets and resources, which can impact acquisitions, services, and outreach efforts. However, these libraries also can support local research and scholarship, fostering a sense of academic community and contributing to regional knowledge development. To address these factors, collaboration,

innovation, and a strong commitment to user needs are essential (Alfirević et al., 2020). The use of information technology, including digital repositories, can also enhance research and teaching (Vrana, 2010).

In the rapidly changing landscape of the modern world, libraries face a host of challenges and opportunities. To navigate this dynamic environment successfully, libraries must prioritize certain key factors. These include fostering a collaborative approach, encouraging innovative thinking, and placing a strong emphasis on meeting the ever-evolving needs of their users. By doing so, libraries can stay ahead of the curve and continue to serve as valuable resources for their communities.

The main goal of this study was to first, assess and explore the relative efficiency and performance of university libraries operating in the Republic of Croatia, and second and more important, to tackle and focus on the regional university library efficiency in Eastern Croatia (i.e. the university library efficiency of the two university libraries located in Eastern Croatia - the University JJ Strossmayer in Osijek and the University Slavonski Brod). Therefore, the main purpose of this study is to estimate the level of the relative regional efficiency of one specific public sector (i.e. the university libraries), which is an interesting issue to tackle from many aspects, by employing the input-oriented CCR DEA methodology with three inputs and three outputs (Number of books held, Number of library staff and Actual allocated budget; and Circulation, Number of books added and Number of registered members, respectively).

The results obtained from the input-oriented CCR DEA model reveal that the average relative efficiency of all university libraries in Croatia is 88.42%. The university library of the University JJ Strossmayer in Osijek noted an efficiency score of 88.91% in 2021 and 57.64% in 2022, whereas the one of University Slavonski Brod noted a relative efficiency score of 100% in 2021 and a small decrease in efficiency in 2022 to 95.82%. Moreover, the findings shed light on the university libraries that need to improve their relative efficiencies. The empirical results reveal interesting results; however, it should be considered that the observed period is post-COVID-19 (2020-2022) and the efficiency and performance of Decision-Making Units in any public or private sector deteriorated.

This paper offers a great scientific as well as practical contribution. First of all, it is among the first empirical studies tackling the issue of one small public sector (university libraries) in Croatia and thus, it fills the void of empirical evidence on performance analysis on the sample of public libraries operating in an EU member country. Moreover, it is among the first studies employing the leading non-parametric methodology DEA in the evaluation of the relative efficiency of university libraries. Furthermore, it tackles and explores the issue of uneven regional development throughout Croatia, in order to acknowledge if the unevenness covers the public sector of university libraries as well.

The findings could be of great value to local and regional government bodies, university management and other public policy sectors' management. However, even though the findings of this research are informative and insightful, this paper has a few limitations. First, additional combinations of different input and output variables should be included in the model for a more robust evaluation of the performance of university libraries. Second, the applied DEA methodology has its perks, but also has limitations, such as the lack of offered possibilities and ways for efficiency improvement; the sensitivity of the results to the selected input and output variables; as well as the ignoration of the impact of various exogenous variables on the calculation and operation (Fotova Čiković & Lozić, 2022). Rather than the

CCR DEA model, a hybrid DEA model should be applied or a combination of DEA with another methodology for more insights. Third, the scope of our sample could be potentially a source of limitation. To overcome this issue, we plan to include other methods, such as cluster analysis so that we group the analysed libraries according to their size and equipment. Moreover, a bigger sample including other EU member states would provide better insights, which is a plan for future research. Finally, the relationship between efficiency and effectiveness should be tackled and explored for more insights to university management and policymakers. Therefore, there is still room for future work in this area. Moreover, considering the immense popularity of the DEA methodology in the academic world and among analysts in many different industries, it is unclear why this methodology has been thus far so neglected in the evaluation of the efficiency of university libraries.

On a micro level, this empirical study measures the relative efficiency of each university library operating in Croatia and thus, provides valuable new insights and comparisons to the local university management regarding their performance and ranking relative to the other university libraries. This way, the most efficient libraries can be traced and their efforts could be copied and implemented in less efficient libraries. On a macro level, on the other hand, this paper could represent a ground-breaking work towards a higher rate of application of DEA in the exploration and empirical assessment of this and many other public sectors in Croatia, regionally and nationally, as well as globally.

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Appendix 1: Descriptive statistics of the input and output variables

Time period = 2021

	I1	I2	I3	O1	O2	O3
Max	155002	21240	68501	2183700	172.75	27534142.48
Min	2461	192	904	13638	2	245477.2
Average	37075.78	6728.333	14076	494038.1	40.15444	6378296.073
SD	46076.76	7059.237	20268.19	651914.6	50.61871	8590821.837

Correlation (Time period = 2021)

	I1	I2	I3	O1	O2	O3
I1	1	0.820181	0.961076	0.924354	0.956661	0.894093786
I2	0.820181	1	0.873202	0.901364	0.916936	0.928838058
I3	0.961076	0.873202	1	0.960558	0.99148	0.946386493
O1	0.924354	0.901364	0.960558	1	0.981822	0.900947222
O2	0.956661	0.916936	0.99148	0.981822	1	0.953885357
O3	0.894094	0.928838	0.946386	0.900947	0.953885	1

Time period = 2022

	I1	I2	I3	O1	O2	O3
Max	180452	19189	66926	2160296	175.56	33432052.75
Min	2219	239	837	17563	2	408898.3
Average	45178.78	5966.778	15007.33	502238	41.91222	8473789.831
SD	53729.8	5911.4	19137.25	643959.5	51.61949	10278586.37

Correlation (Time period = 2022)

	I1	I2	I3	O1	O2	O3
I1	1	0.872014	0.952844	0.911579	0.925451	0.883940129
I2	0.872014	1	0.918327	0.953769	0.964149	0.979201023
I3	0.952844	0.918327	1	0.965298	0.98586	0.955132608
O1	0.911579	0.953769	0.965298	1	0.977489	0.968750017
O2	0.925451	0.964149	0.98586	0.977489	1	0.988891848
O3	0.88394	0.979201	0.955133	0.96875	0.988892	1

Source: Authors

A scientific paper

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THE CHALLENGES OF THE ACCESSION OF THE WESTERN BALKAN COUNTRIES (WB6) TO THE EUROPEAN UNION (EU) IN NEW GEOPOLITICAL RELATIONS

ABSTRACT

It is obvious that the whole world is facing challenges and changing geopolitical relations, including the influence of the major players (European Union, United States and Russia) with the growing influence of China in the Western Balkan countries (WB6), which are becoming more geopolitically attractive than ever. While facing the consequences of COVID-19 and the war in Ukraine, inflationary pressures and slowing economic growth, these countries are striving to strengthen their economies, fight unemployment and increase competitiveness in line with EU standards. The increasing presence of China and Russia in the WB6 countries makes the accession process more complex. These actors are undoubtedly pursuing their own interests, which sometimes conflict with the EU's objectives. The situation is further complicated by China's recent increased presence in the WB6 region through various trade, investment and infrastructure projects. While cooperation with China has its advantages, the question arises as to whether it can simultaneously disrupt the EU accession process.
The aim of this paper is to highlight the specificities of the economic and political transformation of Bosnia and Herzegovina (BiH) and other Western Balkan countries by analyzing and comparing EU and WB6 economic indicators. It will also highlight the role of China's presence and activities in the EU integration process and propose optimal measures for membership, taking into account the dynamics of change and the influence of external factors. Academic articles published in first and second quartile Web of Science (WoS) journals form the basis of the literature review, while the comparison of key macroeconomic indicators is based on secondary data from various sources. As EU accession is a priority for them, the WB6 countries can only enter into partnerships with 'non-European' countries, including China, if they comply with EU requirements.

Key words: *Western Balkans, EU integration, China, risk, prospects*

1. Introduction

EU accession process has been in the focus of the EU-Western Balkans[1] relations for almost three decades. Conditions for EU accession process had been established in the Council Conclusions of April 1997. The Stabilization and Association Process (SAP) was launched in 1999. In order to join the EU, the Western Balkan countries must first fulfill the requirements laid down by the European Council in Copenhagen in June 1993. The political, economic and political-administrative requirements for EU membership are known as the "Copenhagen criteria" The stability of institutions guaranteeing democracy, the rule of law, respect for human rights and the protection of minorities are part of the political criteria. Legal requirements include the ability to fulfill the obligations of membership, such as commitment to the Union's political, economic and monetary objectives. Economic criteria require a functioning market economy that can withstand market forces and competitive pressure (European Commission, 2024a).

The first meeting of the political leaders of the six Western Balkan countries (WB6) took place in Berlin in 2014. By focusing on the development and interconnection of transport and energy infrastructure as a catalyst for economic growth and job creation, they aimed to improve the dynamics of regional cooperation. The Republic of North Macedonia, Serbia, Montenegro and Albania are open to participating in the talks. Bosnia and Herzegovina (BiH) was granted candidate status for EU membership in December 2022 after submitting an application in February 2016. Kosovo is considered a possible candidate. In response to the conflict between Russia and Ukraine, the European Union (EU) has revived the enlargement process (Anghel and Dzankic, 2023). The Commission approved a new growth plan for the Western Balkans in November 2023 and proposed to start EU accession talks with Bosnia and Herzegovina as soon as the required level of accession criteria is met.

The growing influence of China in Central and Eastern Europe (CEE), the post-COVID recovery and the aftermath of the Russian-Ukrainian war pose major challenges for the Western Balkan countries, in addition to their own internal problems and those related to accession. But the Union itself must also undergo internal reforms. Two years ago, French President Emmanuel Macron made the argument that EU enlargement would not happen without them. The President of the European Council, Charles Michel, made an important proposal on August 28 and 29, 2023 at the Strategic Forum in Bled, an annual international conference that brings together leaders from Central and South-Eastern Europe in Slovenia. The proposal includes setting a deadline for the completion of all necessary steps for EU enlargement to the Western Balkans (BSF Conference Report, 2023).

In light of the above, the aim of this paper is to highlight the specificities of the economic and political transformation of Bosnia and Herzegovina (BiH) and other Western Balkan countries by analyzing and comparing EU and WB6 economic indicators. It also aims to emphasize the role of China's presence and activities in the EU integration process and propose optimal measures for membership, taking into account the dynamics of change and the influence of external factors.

The paper is structured as follows: In section 2 the methodology of the literature review and the empirical research are described. Section 3 contains a literature review divided into three parts: the first part refers to papers on regional cooperation and Chinese influence, the second to

[1]Albania, Bosnia and Herzegovina, North Macedonia, Kosovo, Montenegro and Serbia are reffered as Western Balkan countries or Western Balkans or just WB6.

reforms and pre-accession assistance, and the last to previous articles dealing with macroeconomic indicators. Section 4 provides an empirical analysis and comparison of WB6 and EU macroeconomic data before and after the COVID-19 crisis, which has affected all economies and intensified geopolitical changes. Section 5 then discusses the risks of Chinese influence in the WB6 region and the EU, while section 6 draws a conclusion.

2. Methodology

The theoretical literature review on the challenges of the Western Balkan countries in the context of European integration is based on the articles dealing with the above-mentioned topic and published from 2019 to 2023 in journals of the first and second quartile of the WoS (Web of Science Core Collection) database. This database was selected due to the reliability of the indexing of high-ranking journals and because it is considered the most relevant database for the social sciences (Caputo et al., 2021, González-Torres et al., 2021). Many authors use Web of Science to find relevant studies, analyze trends and gain insights into the historical development of research fields. The use of this database increases the quality and efficiency of systematic literature reviews as it provides advanced features and an extensive collection of scientific papers for analysis and synthesis. Articles published in journals from the first two quartiles were selected, and those dealing with terrorism and environmental impacts from an economic perspective were excluded. The remaining articles were then read and used in this paper, in combination with reports from Eurostat, WB, WIIW, IMF and other cited sources so that relevant comparisons and conclusions could be drawn. The methods of analysis and compilation and comparison were used both in the theoretical part of the paper to analyze and define the research problem and in the empirical part related to the comparison of WB6 and EU economic indicators and Chinese influence. The paper is exploratory as it aims to familiarize with a particular problem and make it more accessible and known, and it also provides a basis for future empirical research.

3. Literature review

3.1. Regional cooperation and Chinese influence

China's economic influence in Europe is mainly concentrated in Western Europe, the new member states and the Western Balkans (Richet, 2019). Brussels has reformulated its agenda to limit the autonomy of the Balkan states in shaping relations with Beijing. Albania, North Macedonia and Serbia have launched the Open Balkans Initiative (OBI) to promote regional cooperation for their development (Pavličević, 2019). The OBI aims to improve regional cooperation in various areas, with a focus on economic aspects and EU projects. However, some academics argue (Kulo and Novikau, 2023) that its ideas are not revolutionary and its impact is marginal due to its limited scope. Similarly, Nikolic (2020) and Gruebler (2021) argue against strengthening economic ties in the WB6 in favour of a customs union, while Gruebler sees China's Belt and Road Initiative as important for Europe, especially the Western Balkans.
Greece joined the Cooperation Forum in 2019, expanding the "16 (CESEE) + 1" initiative to 17 + 1, which aims to improve the complementarity of infrastructures between China and the European economies. Since 2018, the EU has been working to improve infrastructure complementarity with China and minimize risks such as unsustainable debt and new trade barriers due to increasing Chinese investment competition (Gruebler, 2021).

Zorić and Strojarova (2023) note an increasing tendency of China in the WB6 and confirm a consolidated position of Turkey along various axes at the expense of Russia, whose influence continues to wane in the context of the war in Ukraine. Russia and Turkey in WB6 are similar in the context of geopolitical changes in that they are trying to strengthen their position in WB6 in the context of the weakening of the EU (Vuksanovic, 2023). The difference between the two powers is that Russia can be defined as a status quo power as it aims to act as a spoiler and maintain the current state of political dysfunction; Turkey is not a status quo actor as it does not oppose the region's membership in Western institutions as long as its interests are respected. For the WB6 countries, the EU may treat the area of foreign policy differently than other enlargement chapters, reflecting the special position of the Common Foreign and Security Policy (CFSP) as an intergovernmental policy with no pressure to adapt at the EU level (Marosková and Spurná, 2021).

Since environmental protection is linked to upholding the rule of law (an essential criterion for EU membership that has been marginalized in the history of EU enlargement), Bogojevic and Drenovak-Ivanovic (2019) use the example of Serbia to emphasize that the role of environmental protection in the EU's enlargement policy should be reassessed. Bojaj et al. (2023) analyze the relationship between income inequality, governance and key macroeconomic factors in the European Economic and Monetary Union (EMU) and the Western Balkans (WB). Their findings suggest that the EU must immediately support the WB in stabilizing inequality in the Western Balkans.

Pavlovic (2023) analyzes the promotion of autocracy and the erosion of democracy in the Western Balkans (WB) in the context of the EU enlargement process. He gives reasons why the EU Commission tolerates a certain degree of authoritarianism in the Western Balkan countries: If the incumbent president of the Western Balkans guarantees stability and accepts Euro-Atlantic policies, the result is a hybrid regime with less likelihood of transitioning into a form of autocracy.

3.2. Reforms and pre-accession assistance

Institutional reforms have redefined the role of the state, the market and the corporate sector in the Western Balkans. The study by Aralica et al. (2018) on institutions and firm performance in transition countries shows that curbing corruption and providing inter-industry externalities through the development of commercial and professional infrastructure have a positive impact on firm productivity, while a stricter policy and legal framework and the provision of R&D infrastructure have a negative impact. The authors conclude that institutional development should be accompanied by a strengthening of firms' absorptive capacity so that firms can benefit from such changes. Exporting provides an opportunity for market expansion. A major problem for small and medium-sized enterprises from WB6 is identifying and accessing potential buyers. In this context, Cusolito et al. (2023) conducted an experiment on the impact of strengthening distribution capacity for the Western Balkans countries. The result, after one year, is a positive and significant impact on the number of customers and a significant increase in the intensive margin on export sales. In a study of 1298 companies from the Western Balkans, Vuckovic et al. (2022) examine the effects of interpersonal and institutional trust on company performance. The results show that fair, impartial courts lead to lower costs and higher sales, while trade credit has a positive impact on productivity and sales expectations.

The European Union's pre-accession assistance is an integral part of its enlargement policy. This segment of the accession process complements and enables, in financial terms, the implementation of the main complementary elements such as the adaptation of the strategic framework and the harmonization of legislation. Looking back, several stages in the development of these instruments can be identified, all of which were aimed at helping

countries to implement reforms with a view to future membership. Both the beneficiary countries and the European Union have, over the long-term development of the various financial frameworks, tried to improve the use of these types of funds on the basis of numerous experiences and have gradually succeeded in doing so. In relation to the Western Balkans region and Bosnia and Herzegovina, several instruments can thus be distinguished, which have been used throughout history at different stages of the integration process.

The European Union has developed a new instrument for pre-accession assistance, IPA II, for countries in the enlargement process. Through this funding, totaling approximately 11 billion euros (Table 1), the EU has supported the reform efforts of the Western Balkan countries and Turkey over a period of 7 years. These countries were involved in identifying the key areas where they would receive the most support and other stakeholders such as the European Parliament and Member States as well as civil society, international organizations and financial institutions were adequately consulted. Although the previous instrument proved to be quite successful, many improvements have been proposed for the next period based on many experiences. These include: a more coherent consideration of policy priorities in the multi-annual strategy, targeting key sectors for reform, an adapted approach reflecting country needs, more flexibility and simplification for faster and easier access to funding, and a stronger focus on results: a system of performance incentives that will help to distribute funds more easily to the countries and sectors with the best results. The basic provisions for the use of this instrument are certainly set out in the Regulation establishing the Instrument for Pre-Accession Assistance, which establishes IPA II as support for the beneficiaries (Albania, Bosnia and Herzegovina, Iceland, Kosovo, Montenegro, Serbia and Turkey, the former Yugoslav Republic of Macedonia) in the adoption and implementation of political, institutional, legal, administrative, social and economic reforms necessary for alignment with the values of the Union and progressive alignment with the rules, standards, policies and practices of the Union with a view to membership of the Union. Instead of the previous five components, the following policy areas are listed, which are fully available to all beneficiaries, regardless of candidate status:

(a) reforms during preparation for Union membership and related institution and capacity building

(b) socio-economic and regional development

(c) employment, social policies, education, promotion of gender equality, and human resource development

(d) agricultural and rural development

(e) regional and territorial cooperation (EUR-Lex, 2014).

Table 1: IPA II 2014-2020

Country	2014	2015	2016	2017	2018	2019	2020	Total 2014-2020
Albania	68.7	91.9	82.7	80.2	107.4	91.2	236.6	758.0
Bosnia and Herzegovina	75.7	39.7	47	74.8	83.8	103.2	112.3	539.6
Kosovo*	66.75	82.1	73.86	78.16	91.3	89.3	91.7	573.1
Montenegro	39.5	36.4	35.4	41.4	44.2	42.3	31.7	269.2
North Macedonia	81.7	67.2	64.6	82.2	99.2	111.0	127.2	633.0
Serbia	189.1	216.1	189.4	166.7	214.1	211.0	218.1	1,404.4
Turkey	619.6	625.7	629.2	508.6	386.8	248.3	168.2	3,186.5
Multi-state programs	248.1	359.1	441.6	458.2	516.3	632.4	664.1	3,319.7
Total	**1,543.1**	**1,649.9**	**1,391.2**	**1,521.5**	**1,566.2**	**1,483.1**	**1,528.5**	**10,683.5**

Source: European Commission, 2024b

Research shows that in Serbia and Bosnia and Herzegovina the training and recruitment of judges and prosecutors has improved as a result of the new EU-funded measures, but the institutionalization of the new rules and procedures is a much more complex process (Fagan and Dimitrova, 2019). Some authors (Soyaltin-Colella, 2022) believe that Serbia and Montenegro, as pioneers in the EU accession process, have failed to control corruption and yet have managed to progress towards EU integration, where Chinese influence has had a negative impact on stabilization. Corrupt elites are able to evade prosecution and remain unpunished (Jackson, 2020). Overall, despite the challenges in the individual recipient countries, the European Union has succeeded with this instrument in providing the necessary technical and financial support to the candidate countries and potential candidates, thereby promoting their growth and sustainable development.

In 2021, the European Parliament approved the Instrument for Pre-Accession Assistance (IPA III) for the period 2021-2027, which provides €14.2 billion to support political, institutional, social and economic reforms in the candidate countries. The instrument focuses on the rule of law, democratic institutions, public administration, economic governance, sustainable economic recovery, energy supply, transport, environment, climate change and digital transformation.

3.3. Macroeconomic indicators

With regard to inflation, Karadzic and Pejovic (2021) compare the accuracy of the three types of models: Autoregressive Integrated Moving Average (ARIMA) models, Holt-Winters models and Neural Network Auto-Regressive (NNAR) models in forecasting the Harmonized Index of Consumer Prices (HICP) for the countries of the European Union and the Western Balkans (Montenegro, Serbia and North Macedonia). The main finding of the study is that the ARIMA model provides the most accurate forecast of 12-month inflation in the EU countries, reflecting the fact that the European Union has long pursued a policy of strict inflation targeting. However, this policy is not implemented in the same way in the Western Balkan countries, so the NNAR models provide the most accurate forecasts for these countries.
The WB6 countries are in a delayed transition phase and at a certain stage of the EU accession process. Key growth drivers need to be identified in order to design development policies that complete the transition and the EU accession process. For example, Nedić et al. (2020) analyze the impact of institutional reform policies and institutional quality on the economic growth of five Western Balkan countries (WB countries: Serbia, Montenegro, Bosnia and Herzegovina, North Macedonia and Albania) in the period 2006-2016. The results of the multiple linear regression analysis with panel data show the largest statistically significant and positive influence of the variables government effectiveness and quality of regulation on economic growth, while the influence of the variables corruption control and rule of law on GDP per capita is somewhat weaker, but also very pronounced. This is very important for policy makers to consider when modeling economic growth policies. Bajra (2021) examines the impact of remittances from migrant workers on economic growth (EG) and inequality in the Western Balkans as a whole (WB6). The results show that remittances from migrant workers do not strongly support economic growth and inequality.
Kurtović et al (2020) found that traditional, agglomeration, and institutional determinants positively impact the choice of FDI location in six Western Balkan countries, and also contribute to the adjustment speed towards a balanced per capita FDI stock. The development of the digital economy is a prerequisite for catching up in today's world. The Western Balkans are also lagging behind in this area. Central and Eastern European countries are approaching

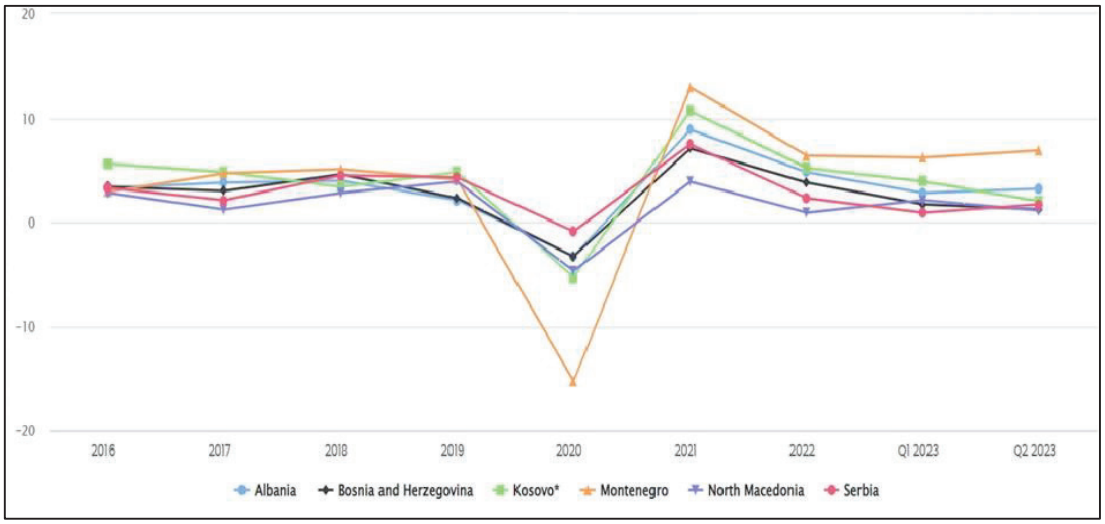
the EU average in terms of the level of development of the digital economy, while there is a digital divide between the EU and the Western Balkan countries (Mitrović, 2020).
Industrial development and reindustrialization are at the heart of development strategies in many countries. Industrial capacities in WB6 countries need to be restructured and adapted to the rules of an open market. Popovic et al. (2021) analyze the impact of technological readiness, production value added and trade in goods as well as gross investment and innovation on the extent and quality of industrial development, which is approximated by the share of industrial production in gross domestic product. The negative coefficient of the liberalization of trade in goods implies a slowdown in industrial development due to the high WB6 trade deficit.
The structure of a country's export basket is important for measuring competitiveness and economic performance (Hausmann et al., 2005). Export complexity has a positive and significant impact on growth in WB6 countries and is driven by complexity in medium-skill, high-technology-intensity manufacturing goods rather than complexity in high-skill goods (Shimbov et al., 2019). The process of industrialization in the context of global value chains implies an upgrading towards functions that generate greater added value (Sturgeon et al., 2013). Greater involvement in international production fragmentation and a better institutional environment promote the upgrading of exports and subsequent economic growth of WB6 countries (Shimbov et al., 2019). Political connections tend to undermine the corporate performance of linked firms, potentially negatively affecting the economic development of the countries concerned. The negative impact on corporate performance is significant, especially in the services sector and in the Western Balkans countries (Bartlett, 2023).
Vujacic et al. (2020) test the convergence hypothesis between the states of the former Yugoslavia with regard to the Human Development Index (HDI). They use two different approaches to test for the presence of beta (beta) and sigma (sigma) convergence. The results suggest that the gap between the countries of the former Yugoslavia is narrowing, albeit slowly. The authors therefore recommend an active EU policy aimed at accelerating the accession of former Yugoslavian states that are currently not part of the EU, in order to speed up the convergence process.
Rajković et al. (2020) investigate the ability of exchange rate devaluations and/or depreciation to effectively and completely eliminate the negative effects of the global economic crisis in the countries of the Western Balkans and Central and Eastern European (CEE). The results show that the trade deficit during an economic crisis cannot be substantially offset by currency depreciation and that government spending, foreign demand and direct investment play a more important role. Similarly, government intervention in the Western Balkans has a larger and statistically significant impact on the receipt of external finance for smaller firms and for firms less likely to be financed elsewhere (Causolito et al., 2021).

4. Empirical analysis and comparison of macroeconomic data in WB6 and EU before and after Covid19 crisis

Comparing economies before and after the COVID-19 pandemic is important because it allows us to analyze the impact of the global health crisis on various economic indicators such as GDP growth, unemployment rate, inflation and international trade. By comparing data before and after COVID-19, policy makers, economists and researchers can better understand the extent of the damage caused by the pandemic and develop strategies for recovery. The pandemic has also affected global politics, economics and international relations in different ways. For example, some countries have suffered a loss of international influence due to an inadequate response to the pandemic, while others have managed to use the crisis to increase their power and influence. For this reason, a comparison of economic performance in the period before and after the pandemic is made below, which is relevant to the topic of the article.

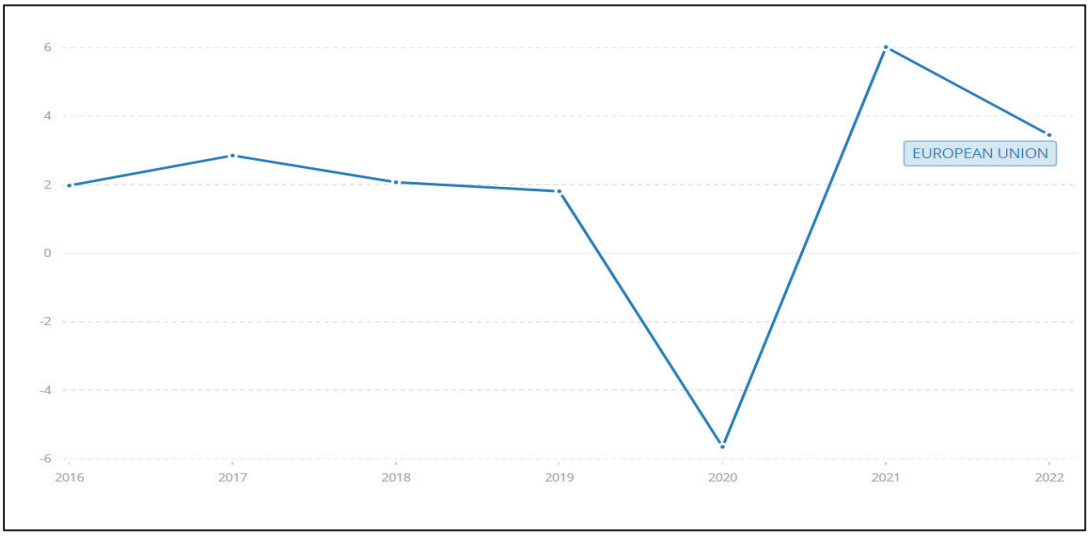
GDP growth slowed in all Western Balkan countries and in the EU in 2022, but exceeded the 2019 level, albeit at different rates (Figure 1 and Figure 2). Growth was driven by a robust increase in domestic demand and a rise in public investment. According to the World Bank Group report (2023), trade facilitation and regional integration are crucial for economic growth and competitiveness in the Western Balkan countries. In 2020, the EU recorded a real GDP contraction of 5.6% as the first impact of the COVID-19 crisis. The recovery of economic activity in 2021, which increased by around 6%, continued the further expansion in 2022, which increased by 3.5%.

Figure 1: Gross domestic product (in real terms, annual % change), WB6



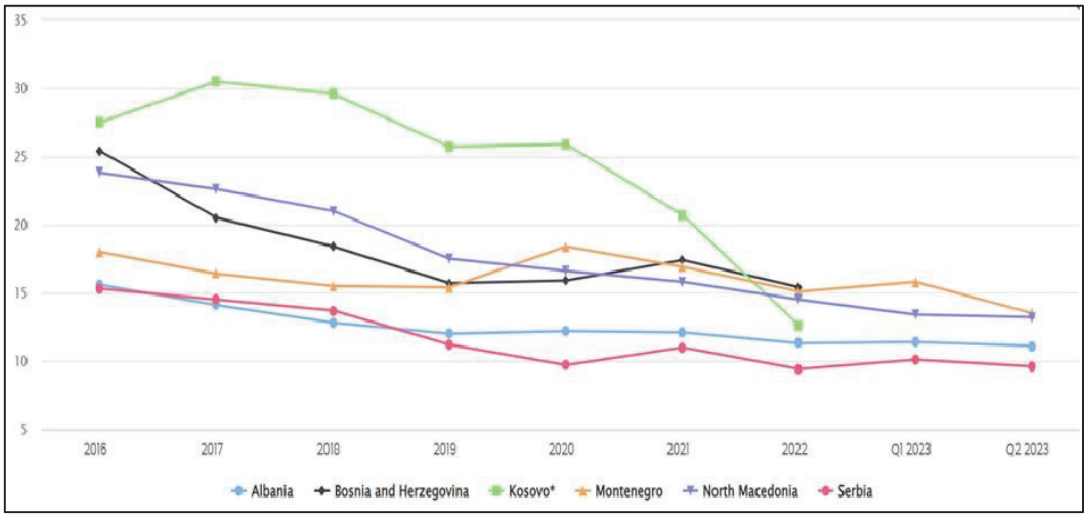
Source: ESAP, 2024a

Figure 2: Gross domestic product (in real terms, annual % change), EU



Source: Worldbank, 2024

Figure 3: Unemployment rate in Western Balkans (2016- Q2 2023)*

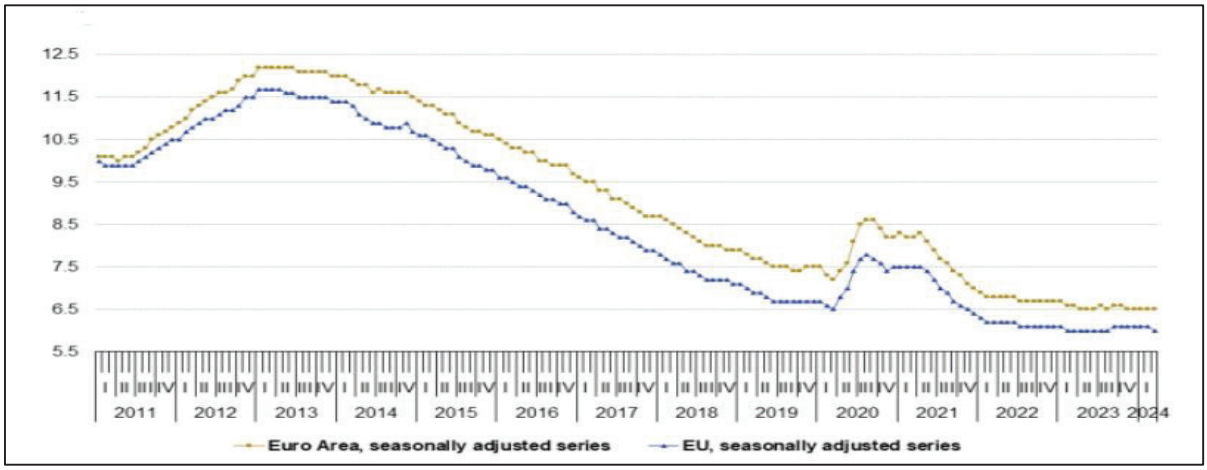


*Notes: Observatory data were updated on 22 November 2023, to include macro, annual and quarterly employment data from the **EU Candidate Countries' & Potential Candidates' Economic Quarterly (CCEQ) – Western Balkans and Türkiye, 3rd Quarter 2023**, LFSs, and monthly data from Western Balkans' Public Employment Services (PESs)

Source: ESAP, 2024b https://www.esap.online/observatory/home (accessed 24.1.2024)

Following the outbreak of COVID-19, unemployment rates increased significantly in both regions as many businesses were forced to close or downsize due to lockdown measures and the economic downturn. The EU saw a sharp rise in unemployment in 2020, while the WB6 countries also experienced an increase in unemployment rates. Regional differences in unemployment persisted throughout the crisis and recovery (WB, 2023), suggesting low labor mobility (Figure 3). Unemployment in WB6 was disproportionately affected by the pandemic: Service-intensive regions were particularly affected (e.g. the coast of Albania and Montenegro), while regions struggling with structural unemployment (the northern region in Montenegro, the Federation of Bosnia and Herzegovina and the north-eastern region in North Macedonia) did not experience much change. Unemployment remains a major problem for all economies in the region even after COVID-19.

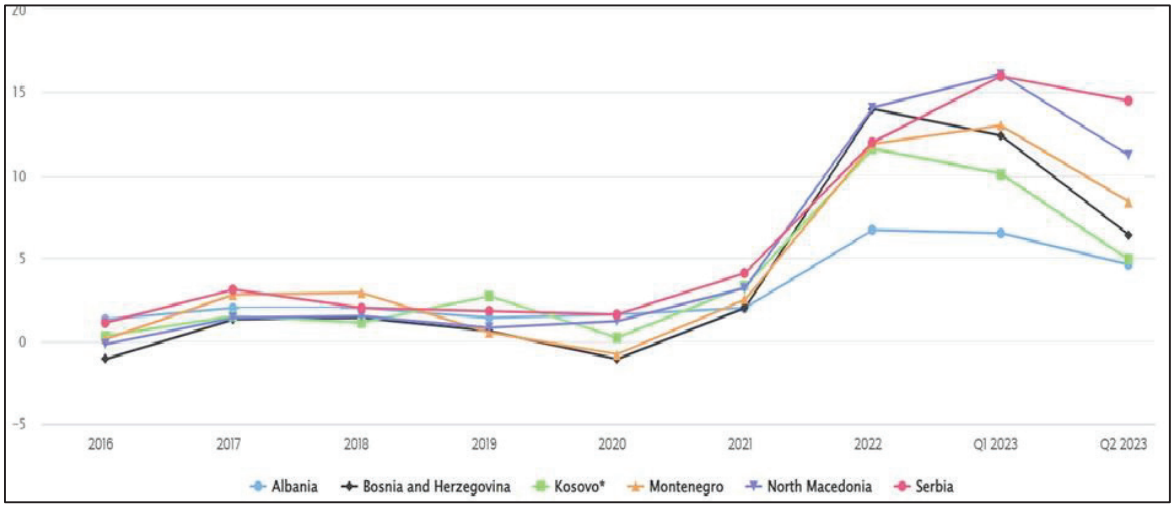
Figure 4: Unemployment rates, EU and EA, seasonally adjusted, January 2011- March 2024



Source Eurostat, 2024a

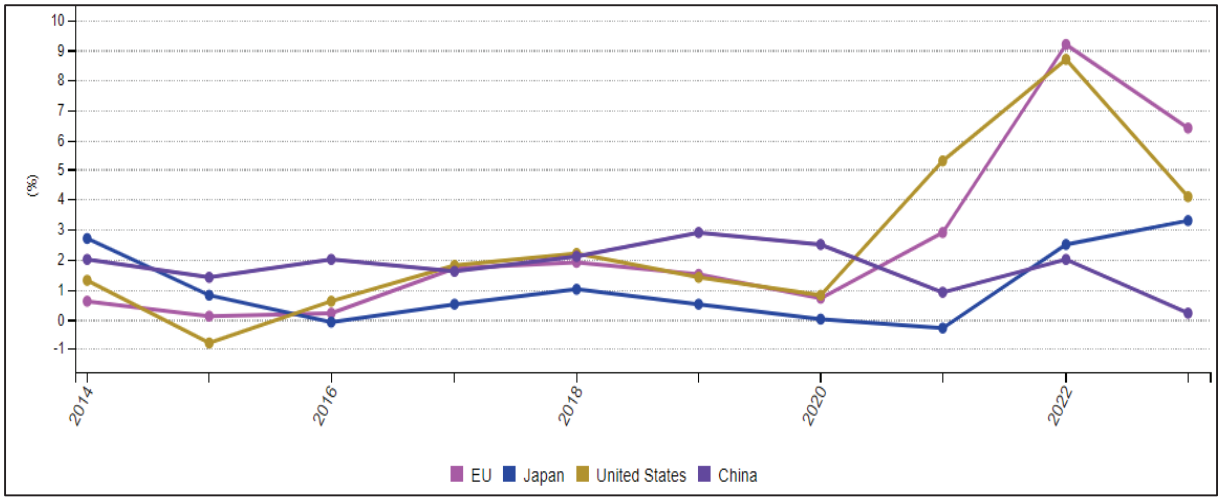
Throughout 2022, inflation was driven by the rise in energy and food prices (Figure 5). Policy measures (WB) focused on reducing food inflation for all consumers through food price caps (all countries except Kosovo), tax cuts (Montenegro and North Macedonia), export bans (North Macedonia and Serbia), reductions in import tariffs (North Macedonia) and mitigating the impact on the poor (through social protection).

Figure 5: Inflation in Western Balkans, 2016 – Q2 2023 (consumer price index, annual % change)



Source: ESAP, 2024c

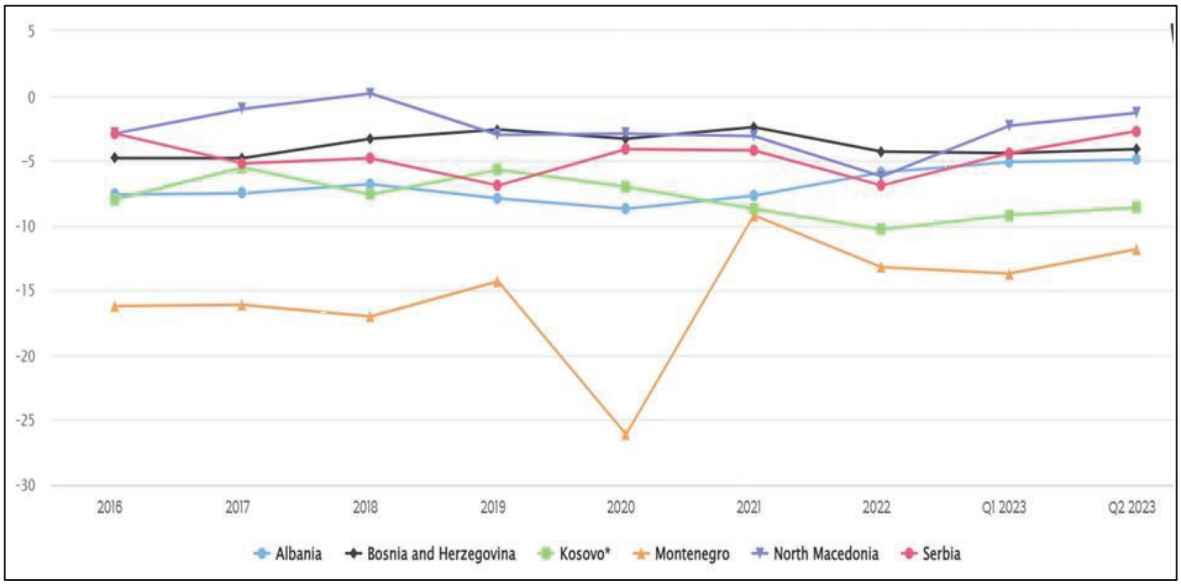
Figure 6: HICP and CPI, all items development of the annual average inflation rates 2014-2022



Source: Eurostat, 2024b

The average annual inflation rate in the EU rose to 1.7% in 2017 and 1.9% in 2018, before falling to 1.5% in 2019. After a significant decline to 0.7% in 2020, it jumped to 2.9% in 2021 and reached an all-time high of 9.2% in 2022. The annual inflation rate rose dramatically in 2021 and more than tripled in 2022. In 2023, it stood at 6.4 %. Figure 6 compares the development of consumer prices in the EU, Japan, the USA and China. Price changes in Japan were generally lower than in the EU, while they were generally higher in the US and China in the period 2014-2020. In comparison between the EU and the WB6, all WB6 countries have higher average annual inflation rates.

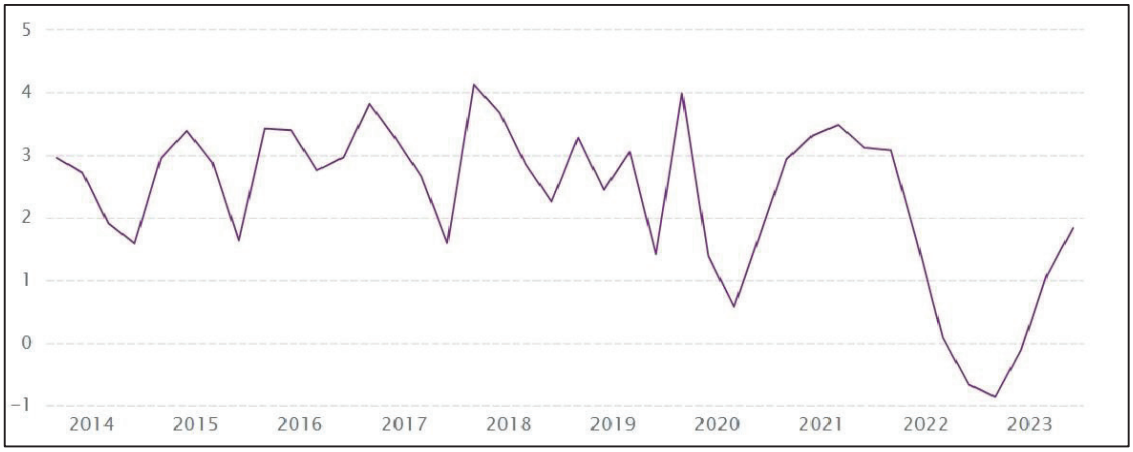
Figure 7: Current account balance in Western Balkans, % GDP (2016- Q2 2023)



Source: ESAP, 2024d

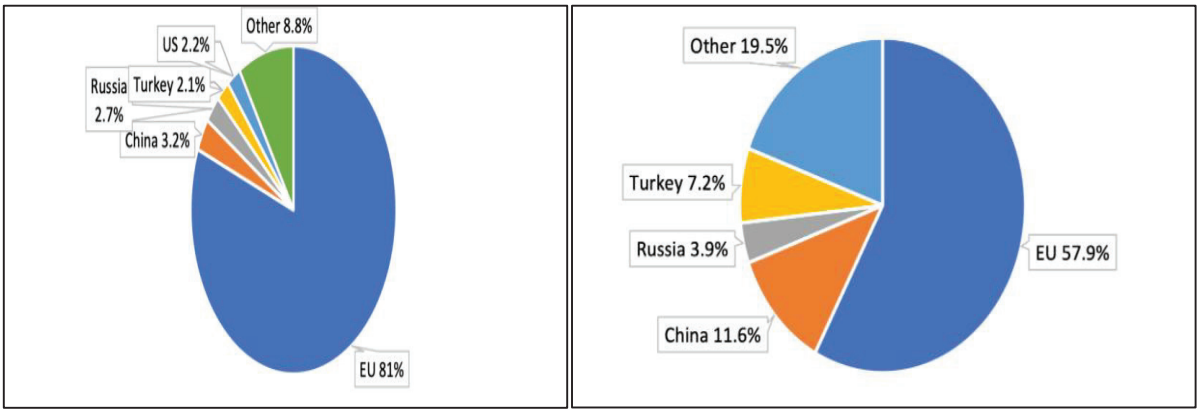
The regional current account deficit is larger (Figure 7), which is mainly due to the deficit in trade in goods. Negative changes in the terms of trade are the result of the Russian-Ukrainian war and the disruption of the supply chain. According to the data on these macroeconomic indicators, WB6 lags behind the EU average. The EU is the most important trading partner for the WB6 region, but China has quickly become one of the region's largest trading partners (Figure 9). Based on the free trade agreements that the Western Balkans countries have concluded with the EU, Chinese companies could in future circumvent trade restrictions and export products directly to a market of 800 million consumers, which is one of the main objectives of China's "Go Global strategy". The WB6 are "the Chinese gateway to the Western market".

Figure 8: European Union's Current Account Balance, % of GDP (2014-2023)



Source: CEIC, 2024

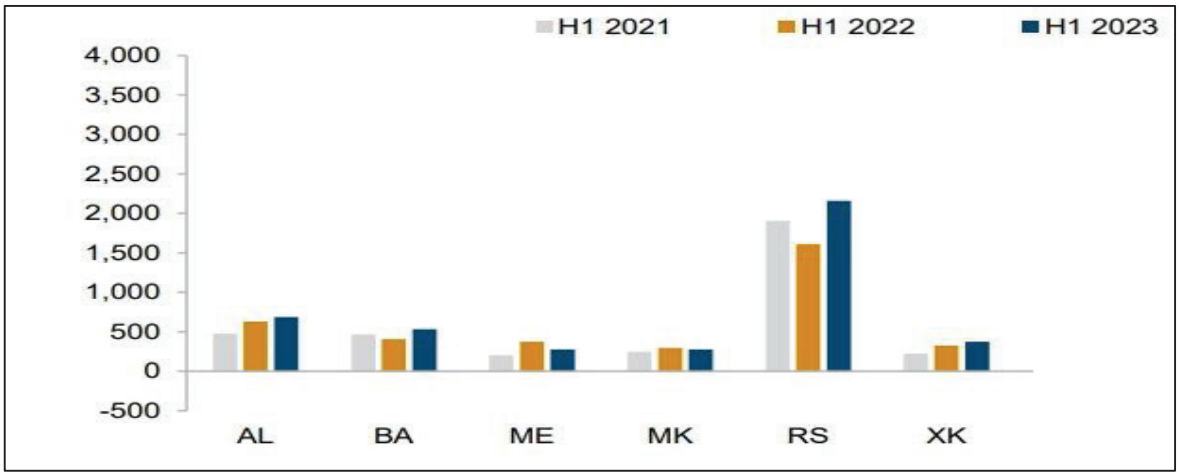
Figure 9: Western Balkans: Main Trade Partners in 2021 (Exports as % of total)



Source: Eurostat, 2024c

With over 70% of its engagement, EU remains the main trade partner for the WB6, both for its exports (81%) and imports (58%) but data show that China has becoming the second or third largest trade partner for the region (Figure 9).

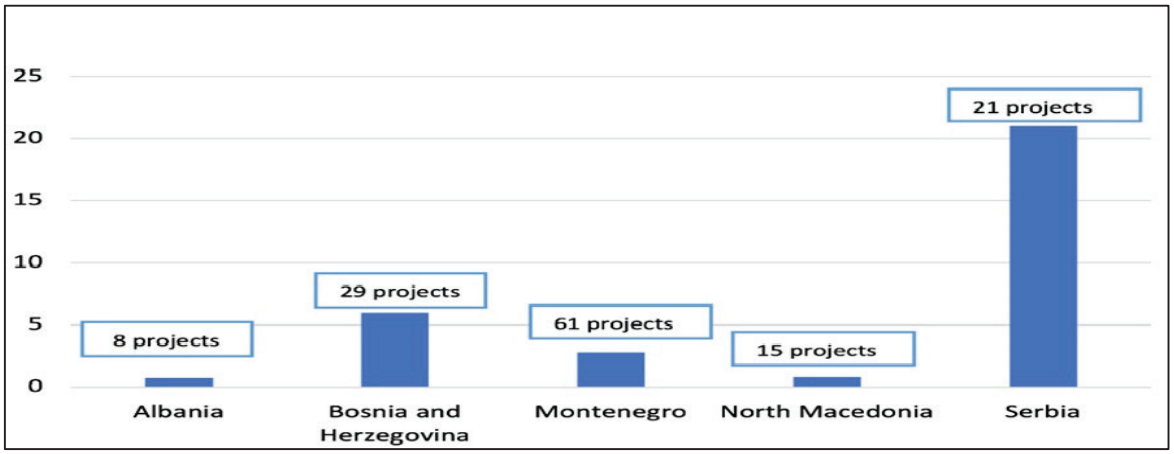
Figure 10: FDI inflows in WB countries in 2021-2023, EUR million



Source: WIIW Monthly Report 2023/11 (accessed 24.01.2024.)
Notes: AL- Albania, BA- Bosnia and Herzegovina, ME- Montenegro, MK- North Macedonia, RS- Serbia, XK- Kosovo

Figure 10 indicates Serbia as the leader in terms of growth in FDI inflows in H1 2023. A significant increase come from the EU (WIIW 2023/11). Bosnia and Herzegovina is in second place, with a 30% increase in their value compared to H1 2022. Montenegro and North Macedonia experienced a decline in FDI inflows in H1 2023. EU is the biggest trade partner in the Western Balkans and the largest provider of financial and development assistant, but Chinese investments also expanded rapidly in last decade (figure 11 and 12). In 2021 there were about 122 Chinese projects with an estimated value of around $31 billion (BIRN Data on Chinese investments).

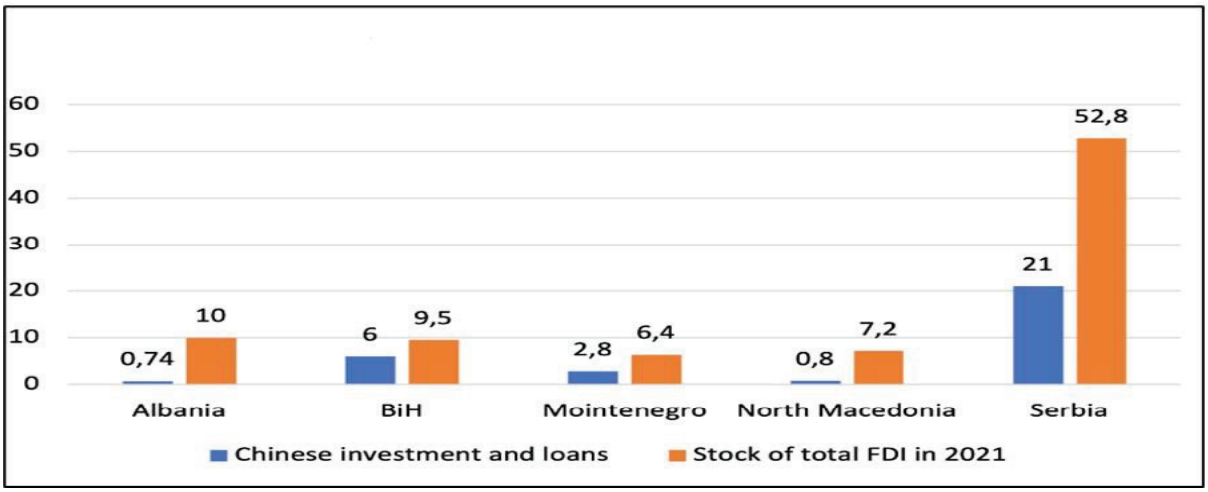
Figure 11: Chinese investments in the Western Balkans, excluding Kosovo (FDI and loans)



Source: BIRN, 2021

The main sectors for economic cooperation are infrastructure, energy, mining and mineral processioning, communication technology, health sector, educational, and cultural centers while engagement is mainly on a government-to-government basis.

Figure 12: Chinese investment vs total FDI stock in WB (excluding Kosovo)



Source: BIRN, 2021

5. Managing the risks of Chinese influence in the WB6 Region and the EU

China's presence in the WB6 region through various trade, investment and infrastructure projects (Table 2) should not pose a risk as long as these projects do not directly disrupt and jeopardize the accession process of individual WB6 countries to the European Union. An analysis by the Konrad Adenauer Foundation and the Wilfried Martens Center for European Studies (2023) highlights that China's interests in the region are not aligned with the EU acquis, but some experts note that China's influence is strong even within the Union.

However, China's economic and trade policies encourage Chinese companies to invest abroad, especially in strategic sectors (e.g. energy, telecommunications and railroad systems) where state-owned enterprises predominantly use Chinese public funding.

Table 2: Chinese investments in WB countries

WB Country	The name of investments	Contractor	Investments value	Investor
Bosnia and Herzegovina, Republika Srpska (RS) entity	the first phase of the highway linking Banja Luka with Novi Grad on the Croatian border	Jinan-based Shandong Gaosu Group	300 million euros	Exim Bank of China
Bosnia and Herzegovina, Federation of Bosnia and Herzegovina entity	Construction of a new unit in the thermal power plant in Tuzla	China Gezhouba Group and Guangdong Electric Power Design	722 million euros	Exim Bank of China
Bosnia and Herzegovina Republika Srpska (RS) entity	Construction of the thermal power plant Gacko 2 in RS, which should ultimately replace the existing, aging Gacko 1 plant	China Machinery Engineering Corporation and Emerging Market Power Fund	504 million euros	A joint investment between China and the Government of the Republic of Srpska
Republika Srpska (RS) entity	Thermal Power Plant project, Stanari	The Chinese company Dongfang Electric Corporation.	350 million euros	China Development Bank
Republika Srpska (RS) entity	Hydropower plant Bistrica	China National Aerotechnology International Engineering Corporation AVIC.	604 million euros	The Industrial and Commercial Bank of China
North Macedonia	Corridor 8 connecting North Macedonia with Bulgaria to the east and Albania to the west	Chinese company Sinohydro Corporation LTD	574 million euros	The Exim Bank of China
Montenegro	The construction of the Bar-Boljare highway	The China Road and Bridge Corporation	734 million euros	Chinese government loan
Serbia	The construction of the high-speed rail link between Belgrade and Budapest	Chinese company	3,2 billion euros	The Chinese investment Exim bank
Serbia	Highway E-763 (Corridor 11)	Chinese company		The Chinese investment Exim bank
Serbia	The bridge in Belgrade over the Danube River, connecting the Zemun and Borca	Chinese company China Road and Bridge Corporation	1,6 billion euros	The Chinese investment Exim bank

WB Country	The name of investments	Contractor	Investments value	Investor
Serbia	The Steel Plant in Smederevo	Chinese company HBIS Group	300 million euros	Chinese company HBIS Group
Serbia	Chinese company took over copper producer RTB Bor	Zijin Mining Group	1,33 billion euros	Zijin Mining Group
Albania	The construction two-lane highway connecting Tirana with the Dibra/Debar region on the Macedonian border	The China State Construction Company	250 million euros	The Exim Bank of China
Albania	Canadian company Bankers Petroleum sold its Albanian oil exploration and production rights to the Chinese company Geo-Jade Petroleum	The Chinese company Geo-Jade Petroleum	406 million euros	The Chinese company Geo-Jade Petroleum

Source: BIRN, 2021

The loan that Montenegro has taken out from Chinese institutions, which will ultimately amount to one billion euros, has increased the country's national debt by more than the estimated 25%. The real threat comes from further loans of this kind, which could lead Montenegro down the path of a 'Chinese debt crisis'.

Chinese-owned Bakers Petroleum manages the largest onshore oil reserves in Europe, the second largest oil field in Albania and currently produces 95% of Albania's crude oil. In October 2019, Chinese-owned Bakers Petroleum was accused of abusing its supremacy in the oil market in violation of European market rules, among other things. These practices have disrupted competition in the market, particularly in the EU internal market, as Chinese state-owned companies are not subject to EU state aid rules. In 2019, an audit by the Albanian Supreme Audit Office revealed that pesticides and other plant protection products, poisons and hazardous chemicals were allowed to be imported into Albania from China in 2017 and 2018, even though these products were banned in the EU. The EU is committed to ensuring a level playing field for EU companies competing with Chinese companies and ensuring strategic alignment with EU standards.

In October 2023, Serbia signed a free trade agreement with China. While the Serbian government expects significant economic benefits from the agreement, experts are skeptical due to the considerable trade asymmetry between the two countries. On the other hand, the agreement contradicts EU trade policy, as trade is the exclusive competence of the EU and the European institutions are responsible for negotiating and signing free trade agreements with third countries. It is indisputable that Serbia should align its policy with the European community it wants to join. This means that it must give up free trade with China before joining the EU. As a candidate for EU membership, it has pledged to withdraw "from "all bilateral free trade agreements" on the day it joins the Union.

6. Conclusions

The aim of the paper is to highlight the opportunities and threats that WB6 countries face in the context of new geopolitical constellations. In this sense, the paper reviews articles dealing with similar issues and gives a comparative account of the macroeconomic performance of the WB6 and the EU. Economic analysis warns that the growing Chinese influence in the Western

Balkans is distancing them from EU membership. The reason for this is the strong Chinese influence, which is not in line with the EU acquis in various areas, in particular the rule of law, free movement of goods, public procurement, trade law and media freedom. In addition, Chinese influence has a negative impact on the preparation of these countries for EU membership in numerous areas such as food safety and plant health, environmental protection and taxation. It is evident that the strengthening of WB6 countries' relations with China has a negative impact on their alignment with the EU's common foreign and trade policies, and overall, the Chinese presence in the Western Balkans poses a challenge to the region's efforts to adhere to EU values and standards.
The EU is committed to ensuring a level playing field and reciprocal measures between the EU and China. The Chinese presence in the Western Balkans region requires a strategic approach by political leaders in these countries. This approach should be based on an economic and political-strategic analysis of the long-term impact by supporting the development and deepening of bilateral relations. Cooperation with China should also take place through national institutions and follow existing procedures based on EU standards.

On the one hand, WB6 countries should work through a common strategic approach to address the main risks in their relations with the Chinese economy identified by the European Court of Auditors in its detailed analysis, including the risk of insufficient coordination between EU and Chinese infrastructure programs, which could lead to gaps in connectivity infrastructure or investment projects competing with other initiatives; the risk of WB6 countries' debt dependency on Chinese financial institutions; the risk of the WB6 economy being negatively impacted by supply chain shocks in the region involving key Chinese suppliers; and the risk to public health due to non-compliance with European and international regulatory standards.

On the other hand, a common strategic approach among WB6 countries should provide an overview of the external opportunities of Chinese investment in the WB6 region, such as facilitating economic growth and development and easing the path to EU membership, as well as promoting cooperation that contributes to peace and security on Europe's doorstep.

Overall, the EU as a whole has a better economic performance than the WB6 countries (regardless of external shocks), which chose the European path a long time ago. However, this does not mean that the Western Balkans region has no potential for growth and development, especially through the EU accession process, but it faces numerous challenges that need to be overcome in order to achieve sustainable economic progress. The complex political situation in the WB6 countries, the consequences of the COVID19 pandemic and the growing influence of China pursuing its own interests are just some of them. The key is the strategic approach of the WB6 countries towards the EU and China, but also of the European Union towards the WB6 by increasing the EU's presence and engagement in the WB6 region, in particular through economic support, democratic reforms and infrastructure development. In this way, the region's vulnerability to external influences (including China's influence) can be reduced and the EU accession process can be facilitated and accelerated.

This paper has many limitations, but it addresses an important topic that should be of interest to policymakers and academics. It aims to provide an overview of the existing literature on an important topic, but can be a good basis for future research: the quantification and use of dynamic models based on the variables presented in this paper. This should clarify the actual impact of the main actors on the macroeconomic performance of the WB6, which remains a recommendation for future research.

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THE FUTURE OF BUSINESS TOURISM IN NORTHWESTERN CROATIA AFTER THE COVID-19 PANDEMIC FROM THE PERSPECTIVE OF HOTELS WITH CONGRESS FACILITIES

ABSTRACT

The topic of this research paper is the future of business tourism after the COVID-19 pandemic, emphasizing Northwestern Croatia. The research aims to analyze the impact of the COVID-19 pandemic on business tourism in Northwestern Croatia from the perspective of hotels with congress facilities. The current and future trends are explored. Following the aim of the research, three hypotheses were set: (H1) "During the COVID-19 pandemic, hotels invested in the equipment of their congress halls to be able to follow the business events both in person and virtually."; (H2) "Hotel management believe that business tourism will return to an upward trajectory after the COVID-19 pandemic."; (H3) "Hotels will maintain the established standards (distance, high hygiene standards, smaller gatherings of people) even after the COVID-19 pandemic."
Research methodology consists of historical method, analysis, synthesis, comparison and descriptive research. The research was conducted by applying systematic observation from available secondary sources and reviewing the relevant professional and scientific literature and available statistical data. Primary quantitative research was conducted through a structured survey.
The initial hypotheses were tested with the T-test. Hypothesis (H1) was rejected because more than 75 % of the surveyed hotels did not offer the possibility of holding business events. Hypothesis (H2) is accepted and verified. Hotels in Northwestern Croatia expect increased business events after the COVID-19 pandemic and will raise their prices. Although secondary research has shown that the standards established during the COVID-19 pandemic (social distance, high hygiene patterns) are likely to remain for a long time, even after the end of the pandemic, primary research has just shown the opposite. As a result, the hypothesis (H3) was rejected.

Key words: *business tourism, congress tourism, COVID-19, Republic of Croatia.*

1. Introduction

At the end of the 19th Century and the beginning of the 20th Century, Western Europe and the USA hosted gatherings with several hundred or even thousands of participants as a part of trade associations, educational institutions or political parties. Cities soon realized the economic benefit of participating in an organization to present themselves as a congress destination. Business tourism is one of the oldest types of tourism because people have been travelling for work (mainly trade) since the earliest times. Services in tourism are liberalized around the world e through the General Agreement on Trade in Services (GATS). Globally, travel and tourism are sectors around which most new employments are opened and where socio-economic and cultural factors develop the most. (McCabe, Qiao, 2020) Tourism is a strategic support for most countries' GDP, especially for the Republic of Croatia. Northwestern Croatia (Međimurje County, Varaždin County and Krapina-Zagorje County) has a great potential in development of business tourism due to the good traffic connection and established hotels. The region is also connected with neighbouring states – Slovenia, Hungary, Austria.

However, news about epidemics, pandemics, and natural disasters have significantly declined travel and tourism. (Abbas, 2021) During the COVID-19 pandemic, tourists are abandoning their planned trips to avoid transmission of the virus (Mamirkuloa et al., 2020), and because of this, the tourism sector is the most vulnerable. (Ma, de Jong, Sun, Bao, 2020)

Given the above, research was conducted with the help of systematic observation from available secondary sources (relevant professional-scientific literature, significant and available statistical data) and primary research intended for hotels in Northwestern Croatia (Međimurje County, Varaždin County and Krapina-Zagorje County) about their vision of the future of business tourism after the COVID-19 pandemic conducted during April of 2022.

2. Literature review

The literature review focuses on the theoretical framework related to business tourism, emphasizing the trends after the COVID-19 pandemic in the Republic of Croatia.

2.1. Business tourism

Congress and business tourism is a subgroup of cultural tourism which is grown by urbanism through meetings, educational and scientific gatherings, and manifestations of business people. (Geić, 2011) Nowadays, it is the travel and stay of persons outside their residence or work who meet to exchange information, most often scientific and professional. (Gračan, Rudančić-Lugarić, 2011)

Davidson and Rogers (2006) state that the most common meetings are corporate events such as annual general assemblies, sales meetings, employee training, new product launches and award trips. Pike (2010) states that business tourism markets are generally more resilient than the vacation segment to tourist destinations, giving more opportunities to earn off-season. While investing in business tourism, cities in the continental part of the country recover but also realize advantages that other types of tourists can use. (Geić 2011) The International Congress and Convention Association (ICCA) states that almost a quarter of all international tourism in arrivals and foreign exchange inflow comes from business tourists. (Soldić, 2015) ICCA is an international association founded in 1963 by travel agencies. Today, it is a global society and a treasure trove of knowledge for the international meetings industry. ICCA offers

statistical data, education, communication channels, business development, and networking opportunities. (ICCA world: About ICCA)
MICE tourism *(Meetings, Incentives, Congress, Exhibitions)* contributes to the main tourist form. The main feature of business tourism is the reduction of seasonality, i.e. extension of the tourist season, higher level of spending by business guests, the educational aspect of conferences and meetings, and interaction with other economic activities that help shape the image of business tourist destination. Mentioned reduction of seasonality has the potential for more employment. (Gračan, Rudančić-Lugarić, 2011)
Business tourists are mostly highly educated people with higher disposable income and higher credit ratings. (Gračan, Rudančić-Lugarić, 2011) Therefore, it is not surprising that business tourists are less sensitive to changes in accommodation prices than other tourists. Likewise, business tourists are proven to spend more money than other tourists. Therefore, quality business tourism requires relatively high investment if appropriate social results are expected. (Gračan, Rudančić-Lugarić, 2011)
Congress tourism is not just tourism but an industry. For example, many need simultaneous translation, and experts of various professions will probably be interested in cooperation with local universities, business entities, or local self-government, so other infrastructure will also be used. As part of the offer, congress guests are often taken on tours where they get to know local sights and gastronomy, which benefit the wider community. (Soldić, 2015) Congress tourism is vital for promoting the destination; as many as 40% of guests return to the destination in a private arrangement with family or friends (Gregorić, Nađ, Gregorić, 2016). "Repeat visits indicate the destination's lasting impression and potential for building loyalty." (Monroy-Rodríguez, Caro-Carretero, 2023, 20). "Tourist regions with higher specialization have come out with the more distinct and suppliable congress hospitality product. Namely, a more active policy is necessary for congress tourism to be a priority." (Kostadinova, Mancheva-Ali, 2023, 587) This requires different spaces, such as conference rooms, offices, exhibition spaces and multifunctional halls. In addition to space, technical equipment is vital – translation equipment, modern audiovisual, computer and video equipment.

2.1.1. Business Tourism in the Republic of Croatia

Tourism in the Republic of Croatia is a capital-intensive branch of the economy, with as much as 11.9% share of GDP (Nicula, Elena, 2014), and the traffic growth is accompanied by significant investments in accommodation and content offered in all types and special forms of tourism. (Poljak, 2021) Thus, business tourism in the Republic of Croatia significantly impacts the increase in tourism competitiveness. The Republic of Croatia has all the necessary and desirable natural and geographical characteristics for the development of business tourism. It is located in an ideal geopolitical area with a well-developed infrastructure, a rich cultural and historical heritage and an image of a good tourist destination that has been developing for years. The competitiveness of Croatian tourism can be increased by investing in business tourism. (Gračan, Rudančić-Lugarić, 2011) The most attractive congress destinations in the Republic of Croatia are Dubrovnik, Split, Opatija and Zagreb. (Heina, 2021) Considering the above, it can be concluded that Zagreb is primarily represented in continental Croatia, mostly thanks to the MICE segment. (Šulc, Fuerst-Bjeliš, 2021) However, regardless of the existing congress destinations, it is necessary to intensify this type of tourism in Croatia due to the extension of the tourist season, the creation of additional income, the creation of new jobs and the promotion of the country's image worldwide. (Soldić, 2015) No convention centers exist, so most congresses and gatherings are held in hotel conference rooms. (Lider media: Interes za poslovnim turizmom u Hrvatskoj raste, ali nedostaje kongresnih centara, 2017) The first convention center was opened in Šibenik, while

in the rest of Croatia, some spaces were converted into event centers. However, there are still few that can accommodate more than 500 participants. (Lider media: Interes za poslovnim turizmom u Hrvatskoj raste, ali nedostaje kongresnih centara, 2017) Croatia needs a congress center with excellent hotel accommodations, suitable congress halls, enough physical space in front of the hall, catering offers, good connections to the city center and the availability and quality of all the facilities the destination offers. (Geić, 2011) In addition to congress centers, building the accompanying industry – gastronomy, entertainment, nightlife, shopping, sports, and tours is essential. (Gregorić, Nađ, Gregorić, 2016)

In 2011, the Croatian Association of Congress Tourism Professionals (HUPKT – Hrvatska udruga profesionalaca kongresnog turizma) was founded. HUPKT strives to raise the standard of services for its members and all other entities from the congress tourism sector through constant education, cooperation, connection, and interaction with others. HUPKT constantly cooperates with the Croatian Tourist Association (HTZ), the Croatian Chamber of Commerce (HGK), and the public and private sectors at the national and local level in the development of Croatia as an important international destination for congress tourism. HUPKT owns and co-founded MEETEX, i.e., the first Croatian business tourism exchange. It is also a member of the European Federation of Congress Organizers and holder and owner of the Certified Croatian Meetings & Events Professional educational certificate. (HUPKT: O udruzi/about the association)

In 2018, the Croatian Tourist Board won recognition for the best business tourism destination in Europe from the British Magazine Business Destinations (a travel magazine and internet portal intended for business travellers and employees of the business travel industry). On this occasion, director Kristijan Staničić stated that research in the hotel sector shows that business guests account for between 10 and 15% of all hotel guests. (Poslovni.hr: Business destinations: Hrvatska najbolja destinacija za poslovni turizam u 2018. 2019)

Before the COVID-19 pandemic, around 200 international conferences were organized in the Republic of Croatia annually, which significantly contributed to year-round tourism, and the Minister of Tourism and Sports, Nikolina Brnjac, points out that business guests spend 3 to 5 times more than traditional guests. (Heina, 2021) The reason for this is the structure of guests, i.e. their increased purchasing power. The company covers accommodation and food costs for most business guests, leaving them with a larger budget for personal consumption. (Soldić, 2015) The amount of spending by business tourists is directly and indirectly related to the primary purpose of the trip (participating in a conference) while spending factors can be influenced. The quality and availability of services or offers can be affected, and the most crucial factor is the accessibility of the product or service, given that the length of stay limits business tourism. (Gračan, Rudančić-Lugarić, 2011) This increased consumption by business tourists brings a faster return on investment (ROI) in business tourism infrastructure. Because of their higher spending power, they want quality service, i.e. "value for money" and "experience for money."

In order to expand the Croatian business tourism market, it is necessary to invest in better transport connections, a more significant number of direct international flights and recognizable branding. (Lider media: Koji su hrvatski gradovi predvodnici poslovnog turizma? 2015)

Research shows that between 10% and 15% of hotel guests in Croatia are business guests. (Gregorić, Nađ, Gregorić 2016) Guests on a business trip to Croatia primarily come for business meetings (46%), followed by conferences (18%), seminars (13%), team building (5%) and award trips (2%) (Marušić, 2020)

The tourism development of the Republic of Croatia must follow the trend of investment in business tourism. The profitability of business tourism and positive investment activities can result in higher daily consumption of congress participants, the construction of additional

accommodation, and an increase in the employment of the local population and GDP growth. (Gračan, Rudančić-Lugarić, 2011)

2.2. Business tourism and the COVID-19 pandemic in the Republic of Croatia

No tourist destination is immune to disasters. Any organization marketing a tourist destination should take into account the possibility of a disaster occurring in the future. (Pike, 2010) Tourism is one of the largest and fastest-growing industries in the world. (Trstenjak, Žiković, Mansour, 2020) Until 2020, tourism had a solid and stable growing trend that was interrupted due to the COVID-19 pandemic when the world was faced with a health, economic and social crisis. The COVID-19 pandemic strongly impacted everyone's lives due to the disease and the spread of the infection, and almost all countries and industries are facing various restrictions. The tourism sector is one of the most affected by the global COVID-19 crisis because, in the health sense, we talk about a disease, and in the economy, we call a "disease" a crisis. A crisis can be short-lived, but it can, as in the case of the global COVID-19 pandemic, last an entire annual business cycle. (Poljak, 2021)

Two factors are recognized as influences on processes, trends, and possibly the future of tourism in Croatia. (Šulc, Fuerst-Bjeliš, 2021) The first and fundamental concerns global mobility, i.e. prohibited movements and restrictions. During the "lockdown," all businesses considered unnecessary, which mainly refers to industry and leisure services, were closed. The second factor is personal, i.e. tourists are no longer motivated to travel, and their behaviour under the influence of the pandemic is mainly based on keeping a distance. Considering this, it should not be surprising that these factors greatly influence the choice of destinations. (Šulc, Fuerst-Bjeliš, 2021) The pandemic caused by the COVID-19 virus led to a decrease in the number of overnight stays, as well as in general tourist arrivals in tourist destinations (Santos, Moreira, 2021).

Accordingly, the following research should not be surprising. Research by the specialized internet portal *Poslovni turizam* showed that in 2019, 45% of respondents recorded a 10-30% growth in the MICE segment, and 2020 was supposed to be a record year. (Laslavić, 2020) However, in 2020, congress and business tourism experienced a major failure due to the pandemic despite all predictions. (Heina, 2021) Another advantage for hoteliers is that meetings and conferences are organized several years in advance, so hotel capacities are filled regardless of external conditions (Soldić, 2015). The COVID-19 pandemic has proven that this is not the case, and most meetings and conferences arranged for 2020 have either been cancelled or held virtually, as evidenced by Aburumman's research (2020), which showed that the MICE industry suffered a significant blow in the COVID-19 pandemic.

The president of the Croatian Association of Congress Tourism Professionals (HUPKT) Ranko Filipović states: "The first pandemic year of 2020 brought losses to all of us, on average as much as 90 percent, while for 2021, an average of only 50 percent of the income from the pre-pandemic years is expected." He also points out that state support for preserving jobs was significant for the survival of this branch of tourism. (T-portal: Poslovni turizam se ne predaje i u 2022. očekuje blagi pozitivni trend 2021) The measure of support for the preservation of jobs refers to employers affected by the effects of COVID-19. (HZZ: Popis korisnika potpore za poduzetnike u djelatnostima pogođenim koronavirusom)

Although the most significant part of tourist supply and demand in Croatia refers to destinations related to the concept of "sun and sea" to describe the extent of the impact of the global pandemic of the COVID-19 crisis on the tourism sector, specific continental destinations should have been considered. At the same time, they experienced a significant rise from 2011 to 2019, with a more than double increase in overnight stays. For example, the City of Zagreb had an increase in overnight stays of 123%, followed by Krapina-Zagorje

County, with a 153% increase and Međimurje County, with a 149% increase. The same indicates that the impact of the global pandemic of the COVID-19 crisis was felt not only by the summer and "sea" regions but also by all forms of tourism and affected all regions. (Poljak, 2021)

"The impact of strong crises encourages changes in tourism demand and the availability of tourism products. Research into the behaviour of visitors in the conditions of the current pandemic indicates a strengthening of the importance of responsibility and sustainability in choosing destinations and purchasing products." (Nacrt prijedloga Strategije razvoja održivog turizma do 2030. godine: Dio – Analiza scenarija, završna verzija, 2021)

Despite the predictions, Croatia managed to save about 50% of its income in 2020 compared to the previous year (Bašić, Škorić, 2020) due to removing physical obstacles to the arrival of tourists in the form of opening borders. It was a prerequisite for perceiving Croatia as a safe area. Creating a safe and unsafe space is identified through measures related to limiting border crossing and the creation of safe and unsafe zones within European space. (Lučev, Zorko, 2023) At the global level, the tourism industry's share in GDP almost halved from 10.4% in 2019 to 5.3% in 2020, and in Croatia, it fell slightly less, from 24.8% to 13.2%. The decline in employment in tourism at the global level in 2020 was 18.6% compared to 2019, while in Croatia, this decline was only 3.8%. (Devčić, Tonković Pražić, 2023)

2.3. Future of Business Tourism in the Republic of Croatia

HUPK believes that weaknesses in the form of a lack of large congress capacities will turn into strengths and take advantage of opportunities on the market since a multi-year trend of holding small and medium-sized business and professional gatherings is expected. (T-portal: Poslovni turizam se ne predaje i u 2022. očekuje blagi pozitivni trend, 2021) The survival strategy of business tourism is to hire competent employees, set up a modern communication system and promote digitization. (Aburumman, 2020)

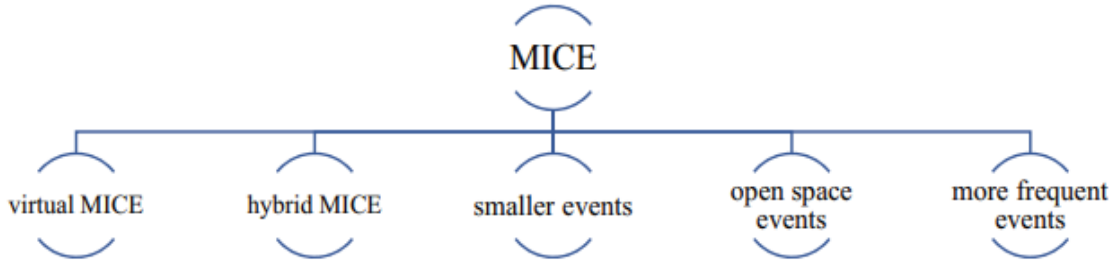
The future of business tourism is based on a high level of safety and health in carefully selected and closer destinations, with a shorter duration and fewer participants. (T-portal: Poslovni turizam se ne predaje i u 2022. očekuje blagi pozitivni trend, 2021) Trends show that travel due to the pandemic is oriented towards individual trips, trips to nature or rural areas far from the crowds, and thus from the hotspots of infection. (Šulc, Fuerst-Bjeliš, 2021) Considering these trends, the pandemic has also opened the door to a hybrid type of gatherings held live and simultaneously transmitted virtually. So, the crisis of the COVID-19 pandemic showed that it is necessary to develop new ways of developing tourism using all the advantages of modern technology. (Roška, 2021)

Governments use economic diplomacy to promote economic prosperity and political stability, emphasizing tourism. During the COVID-19 pandemic and in other times of crisis, it is essential to influence the general public with diplomacy as a communication method. It is based on solidarity and humanity, especially about finding mutual understanding in a multilateral context. (Mišević, Rudančić, Žužul, 2021) Although Croatia keeps pace with global organizational creativity and innovation trends, it can position itself better on the global map of business tourism destinations. The president of HUPKT believes that the key to this is the synergy of private and public at all levels, but also better cooperation with the line ministry, HTZ, HGK and local tourism associations (T-portal: Poslovni turizam se ne predaje i u 2022. očekuje blagi pozitivni trend, 2021) In addition to the above, it is vital to turn to the 5P marketing model (product, price, promotion, place, people). (Aburumman, 2020)

Graph 1 shows how MICE tourism is adapting to the measures and restrictions of COVID-19, namely virtual meetings, hybrid meetings, smaller events, outdoor meetings and more frequent meetings. (Skryl, Gregorić, 2022) Therefore, it should not be surprising that a part of

business tourism will return. However, not the congress part – due to recessions in many markets, it will take a long time for that segment to recover fully, and the use of various video applications has enabled virtual meetings that quickly become normal. (Čorak, 2021) "Once the pandemic is broadly under control and economies have begun to recover, the hospitality industry will resume growth of at least 5% per year. We do not expect to see that before 2026, though pent-up demand could cause a temporary boom as early as 2024." (DeMicco, et al., 2021)

Figure 1: MICE tourism and adapting to COVID-19 measures



Source: Skryl, T. V., Gregorić, M. (2022). Tourism in the Post-COVID Age. U: Osipov, V. S. (ur.) Post-COVID Economic Revival, Volume III.

The state's role in the pandemic is crucial, but more is needed to replace a good tourist season. Both hotels and the government must be incredibly innovative to save tourism. So, the governments of all tourist destinations must adopt new measures to maintain the tourism sector and prepare for the new tourist season. (Roška, 2021) The business travel segment will recover incredibly slowly. (Čorak, Boranić Živoder, 2021) It can be seen as a reason why Croatia needs to move away from mass tourism. Sustainability models are essential, and building on everything learned during the pandemic is necessary to make tourism as socially responsible as possible, thus emphasizing the importance of local communities. (Šulc, Fuerst-Bjeliš, 2021) "All levels of society and stakeholders are expected to comply with the health protocols with full responsibility so that the tourism sector can return soon, and this is very important in building and maintaining public trust, especially about tourists, in tourism services. If tourism business actors can ensure that they provide tourism services that are clean, hygienic, comfortable, and safe following health protocols, then tourists will gradually return to visit." (Wahyuningsih, Suparman, Bachri, Muzakir, 2022)

Any tourist destination in a crisis will be forced to apply recovery strategies to avoid or minimize the crisis effect. (Pike, 2010) Therefore, Croatia created its National Recovery and Resilience Plan 2021-2026. which has been reviewed and approved by the European Commission. (Poljak, 2021) In the National Recovery and Resilience Plan for Tourism, it is emphasized that investments are planned for facilities and attractions that are necessary for the development of sustainable tourism products, and among others: "Congress tourism can also significantly contribute to the expansion of the tourist offer and the extension of the tourist season. Numerous foreign and domestic companies demand the organization and maintenance of congresses, conferences, seminars, professional gatherings, team building, and similar business activities, and they usually take place before or after the summer tourist season. One of the prerequisites for organizing the mentioned activities is adequate premises equipped with modern technologies required by today's business. The development of congress tourism is an excellent way to promote a certain destination, considering the various possibilities of connection with other tourist attractions." (Nacionalni plan oporavka i otpornosti 2021. – 2026. dio Turizam 2021)

A certain amount of caution in business planning and determination of potential financial exposure to some future possible disruptions in the market will undoubtedly be an integral part of the management of tourism companies because tourism as an activity is based on a positive and affirmative approach; it is necessary to maintain a dose of reality and caution in case the impact of the COVID-19 pandemic will last on the long term. (Poljak, 2021) The global experience with the pandemic will have a long-term impact on human lives and the change in the value system. This experience could result in more spatially, environmentally and socially responsible behaviour. Therefore, tourism will be better after the COVID-19 pandemic; that is, it should be better. (Telišman-Košuta, 2021) Implementing green practices in the hotel business effectively preserves the environment and has a competitive advantage in market competition. Green or ecological practices in the accommodation sector are growing globally, and ecologically conscious tourists demand this type of service. (Gregorić, Somođi, Patafta, 2019)

It is challenging to imagine a complete return to the old ways. However, at least when it comes to tourism, the further penetration of technology into the tasks of communicating with the market or into the performance of various administrative, repetitive and more straightforward tasks is realistic, while travelling 'in person' will (still) always remain irreplaceable as an incredibly emotional investment. (Telišman-Košuta, 2021) Therefore, Howart (2024) emphasizes that top travel industry trends (2024-2027) are solo travellers, pursuing authentic local experiences, adopting technology in the travel industry, sustainable travelling and blending business and leisure travel. Croatian tourism could use the crisis caused by the pandemic to encourage authenticity, innovation, and creativity in tourism throughout the area. Cultural tourism also has a significant place with the aim of achieving year-round tourism that would include the continental part. (Gregorić, 2022)

A new post-pandemic travel trend combines business and leisure tourism – abbreviated as "leisure." Bleisure combines business travel and a few more days of vacation. It is mainly popular because of lower rates for a more extended stay, bringing family and friends along and keeping employees satisfied. (Azzahra, 2023)

“In the Global Business Travel Association (GBTA) report, the world's largest business travel association (2021), it is believed/forecasted that from Setback to Surge: Business Travel is expected to recover fully by 2024. Pandemic risk, vaccination rates, inflation, business traveller considerations, and travel volume return are among potential recovery challenges ahead; business travel recovery in 2021 proceeded at a slower, more cautionary pace than expected from a year ago. However, global business spending is expected to surge in 2022 with full recovery expected in 2024, ending the year on pace with the 2019 pre-pandemic spend of $1.4 trillion, and a year sooner than previously forecast.” (Davtyan, 2023, 86)

In order to achieve satisfying tourist results, "the key factor of success and good results in tourism under both regular and extraordinary circumstances is something that professionals can predict, react, plan and act, and then success is inevitably achieved. “(Haluga, Sviličić, Grula, 2021) Besides that, Kanade and Pagar (2023) suggest flexible services – costing, work environment, and cancellation terms and conditions. This approach would positively result in the long term.

3. Empirical research

The subject of the research is the future of business tourism after the COVID-19 pandemic, with an emphasis on northwestern Croatia, from the perspective of hotels with congress halls.

The cognitive goal of this research is to find out how hotels dealt with business tourism before and during the pandemic and their expectations after the pandemic ends. From this, the

pragmatic goal of the research is to investigate the impact of the pandemic on business tourism in the Republic of Croatia and the future of business tourism. Following the goal of the research, three initial hypotheses were set:

Hypothesis (H1)

During the COVID-19 pandemic, hotels invested in the equipment of their congress hall to follow business events in person and virtually.

Hypothesis (H2)

Hotels believe that business tourism will return to an upward trajectory after the COVID-19 pandemic.

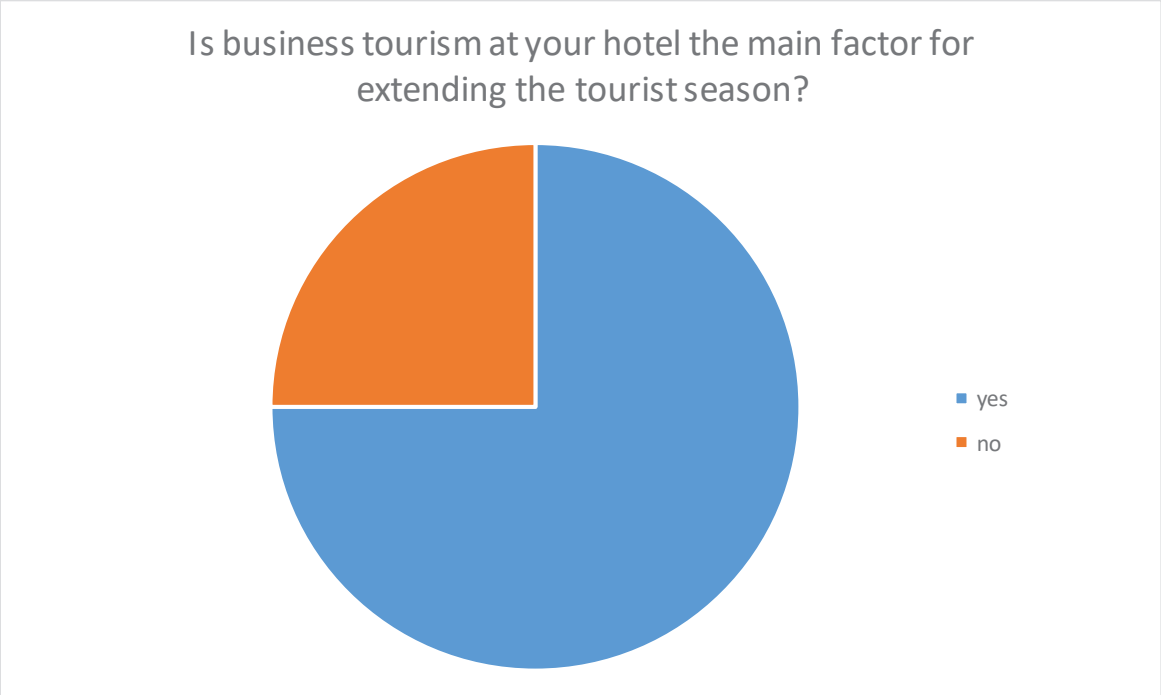
Hypothesis (H3)

Hotels will maintain established standards (distance, high hygiene standards, smaller gatherings of people) even after the COVID-19 pandemic.

From the research goal, the research tasks that need to be solved to respond to the problem related to the post-pandemic business of hotels with congress halls in the Republic of Croatia arise. It was necessary to survey hotels in the Republic of Croatia to determine the future of business tourism after the COVID-19 pandemic. The survey was conducted and sent via e-mail to all hotels that deal with buisness tourism in Northwestern Croatia – in total of 17 hotels. Four hotels responded to the survey. In spite of the limitation of only 24% respondees, the hotels who participated are large hotels that are the carriers of business tourism in this part of Croatia.

The research was conducted at four hotels in Northwestern Croatia during April of 2022. Most respondents were from Međimurje County (2). Hotels from Čakovec, Bednja, Tuheljske toplice and Sveti Martin na Muri participated. All the hotels that participated in the research deal with business tourism. In addition to the above, the hotels answered that business tourism is not their primary source of income. However, 75% of the surveyed hotels in northwestern Croatia believe that business events are the main factors for extending the tourist season which is seen in Graph 2.

Graph 1: The structure of the sample according to the factor that business tourism is important for the expansion of the tourist season



Source: Authors

The research was carried out with the help of systematic observation from available secondary sources - relevant professional and scientific literature, significant and available statistical data, and primary research intended for hotels in northwestern Croatia (Međimurje County, Varaždin County and Krapina-Zagorje County) on their vision of the future of business tourism after the COVID-19 pandemic.
The primary research was carried out through an online survey. In the secondary research, the historical method, the analysis method, the synthesis method, the comparison method, and the description method were used.

4. Research results

Based on the statistical processing of the obtained data, it is possible to verify the hypotheses (3) set at the beginning of the research. Below is a presentation of the summarized results, based on which conclusions will be drawn about the confirmation or rejection of each hypothesis using the T-test.
Hypothesis (H1)
During the COVID-19 pandemic, hotels invested in the equipment of their congress halls to follow business events in person and virtually.
Respondents most strongly agreed with the statement, "During the COVID-19 pandemic, your hotel invests in the technological equipment of its congress halls so that business events can be monitored both in person and virtually" (M=4.50, SD=0.577).
Table 1 shows that the limit t is in the differentiation interval, which means that the first hypothesis *is that During the COVID-19 pandemic, hotels invested in the equipment of their congress halls so that they could follow business events both in person and virtually,* rejected. Even 75% of the surveyed hotels did not offer the possibility of holding business events in person or virtually.

Table 1: T-test hypothesis (H1)

One-Sample Test						
	Test Value = 0					
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
During the COVID-19 pandemic, your hotel is investing in the technological equipment of its congress halls so that business events can be monitored in person and virtually.	15,588	3	0,001	4,500	3,58	5,42
During the COVID-19 pandemic, your hotel holds business events in person and virtually.	3,286	3	0,046	3,000	0,09	5,91
During the COVID-19 pandemic, your hotel holds business events in person and virtually, and business tourists are very satisfied with that.	3,153	3	0,051	3,250	-0,03	6,53

Source: Authors

Hypothesis (H2)
Hotels believe that business tourism will return to an upward trajectory after the COVID-19 pandemic.

Respondents most strongly agreed with the statement, "After the COVID-19 pandemic, your hotel expects an increase in business events." (M=4.75, SD=0.500).
Table 2 shows that the threshold t is greater than the differentiation interval, which means the second hypothesis is true. *Hotel management believes that business tourism will return to an upward trajectory after the COVID-19 pandemic*. Considering the above, all surveyed hotels will raise their prices after the COVID-19 pandemic which is correspondent with "The rise in prices was caused due to more expensive raw materials for production, a more complicated supply chain, and unjustifiable price increases of necessary products during the COVID-19 pandemic." (Šostar, Ristanović, 2023)

Table 2: T-test hypothesis (H2)

One-Sample Test						
	Test Value = 0					
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
After the COVID-19 pandemic, your hotel expects an increase in business events.	19,000	3	0,000	4,750	3,95	5,55
After the COVID-19 pandemic, your hotel expects that there will be more and more business tourists.	9,798	3	0,002	4,000	2,70	5,30

Source: Authors

Hypothesis (H3)
Hotels will maintain established standards (distance, high hygiene standards, smaller gatherings of people) even after the COVID-19 pandemic.

Respondents most strongly agreed with the statement, "After the COVID-19 pandemic, your hotel will maintain high hygiene standards" (M=4.50, SD=1.000).
Table 3 shows that the limit t is in the differentiation interval, which means that the third hypothesis, *Hotels will maintain established standards (distance, high hygiene standards, smaller gatherings of people) even after the COVID-19 pandemic,* is rejected.

Table 3: T-test hypothesis (H3)

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
After the COVID-19 pandemic, your hotel will maintain the established standard - social distance between visitors (spaced chairs between rows).	3,220	3	0,049	2,750	0,03	5,47
After the COVID-19 pandemic, your hotel will maintain high hygiene standards.	9,000	3	0,003	4,500	2,91	6,09
After the COVID-19 pandemic, your hotel will maintain the created standard and advise smaller gatherings of people.	3,220	3	0,049	2,750	0,03	5,47

Source: Authors

5. Discussion

Considering various crises, epidemics, and especially the COVID-19 pandemic, there is a need for cooperation between tourism scientists and practitioners. Practitioners should be more open to education (tourism economy, management, psychology, modern technology). At the same time, scientists could facilitate practitioners by simplifying and specifying the steps necessary to achieve a specific goal. The challenges facing tourism due to the COVID-19 pandemic have highlighted the need to harmonize data, activities, policies and measures. (Čorak, Boranić Živoder, Marušić, 2020) Business tourism plays a vital role in Croatian tourism's development strategy. However, there is no central management for this tourism branch or statistical indicators, considering that the CBS stopped monitoring this segment in 2014, and the need for congress centers still exists. (Gregorić, Nađ, Gregorić, 2016) In this way, more international organizers will be reached.

Among the trends for business/congress tourism, the main ones are - sustainability (social, ecological and economic), security (physical, IT, ecological and health), wellness (health and recreation component in the destination), diversity, equality and inclusivity, virtual experience and local offer. All the elements of sustainable development of a destination, applicable to tourism in general, can also be applied to the sustainable development of business tourism. (Gregorić, 2013)

The COVID-19 pandemic has opened the door to remote work and virtual meetings – instead of seminars, webinars and video conferences have become standard in almost all business sectors. (Čorak, Boranić Živoder, Marušić, 2020) However, ICCA statistics show that as many as 44% of business meetings were cancelled in 2020, and 30% were held virtually.

What is important to emphasize in business tourism during and after the COVID-19 pandemic is the maintenance and adherence to measures. Primary research has shown that hotels will

maintain high hygiene standards, but after the COVID-19 pandemic, they will not advise smaller gatherings of people. The main features to be included in all tourism products are health, hygiene, remote or contactless services, relaxation, sports, fresh air, sun and green landscape, wellness in a controlled environment and availability of medical care. (Skryl, Gregorić, 2022) Everyone in business tourism will have to embrace new ways of thinking, acting, and operating that are more in line with long-term sustainability. (Kumar, Ekka, 2024)
Travel and personal contact are still the most effective ways to close deals because personal contacts can be challenging to make virtually. (Denstadli, 2004) In 2022 and 2023 22% of guests to continental Croatia (mostly North Western Croatia) is for business – meetings (62%), conferences (12%), seminars (13%), team building (4%) and incentives (1%). (Marušić, 2023) MICE tourism has a growing demand for virtual events, which will undoubtedly be one of the trends that will continue in the post-COVID era. (Skryl, Gregorić, 2022) As a result of the empirical research, it can be concluded that the hotels of northwestern Croatia are ready to maintain or create the possibility of contact and virtual monitoring of business events in their hotels.
More over, recommendations for hotels are to accept new values, new technical capabilities and competent service providers, adjust the space and make a more sustainable and inclusive destination with offers for peoples wellbeing.

6. Conclusion

News related to diseases, natural disasters, wars and the like result in a reduction in travel, and news related to today's biggest epidemic results in a sharp decline in tourism, making it one of the most vulnerable sectors.

The research was conducted to identify the future of business tourism in Northwestern Croatia. Business tourism in Croatia has extended the season because it can occur throughout the year, significantly impacting the increase in tourism competitiveness. Given that Croatia has all the necessary and desirable natural-geographical characteristics for tourism development, competitiveness can be increased by investing in business tourism. However, with the arrival of the COVID-19 pandemic in 2020, despite great expectations from business tourism, there was a drastic drop of an average of 90%. Fortunately, Croatia's tourism saved about 50% of its income. The future of business tourism is based on a high level of safety and health in carefully selected and closer destinations, with a shorter duration and fewer participants.

Based on the statistical processing of the obtained data, the hypotheses (3) set at the beginning of the research were verified. H1 reads, "During the COVID-19 pandemic, hotels invested in the equipment of their congress halls in order to be able to attend business events both in person and virtually." contact and virtual, that hypothesis was rejected. Based on primary and secondary research, it can be concluded that hotels in northwestern Croatia hope, or believe, that business tourism will return to an upward trajectory after the COVID-19 pandemic. H2 "Hotels believe that business tourism will return to an upward trajectory after the COVID-19 pandemic." is accepted. Hotels in northwestern Croatia expect increased business events after the COVID-19 pandemic and will raise prices.

After the pandemic, will guests return to business tourism in the same (or greater) numbers as in the pre-pandemic era, or will more attention be paid to virtual meetings and gatherings? Although concerned about health, people are eager for social contact and expect a high level of hygiene and care for health in business tourism destinations. Although secondary research

has shown that the standards that were created during the duration of the COVID-19 pandemic (distance, high hygiene patterns) are likely to remain in force for a long time even after the end of the pandemic, primary research has shown just the opposite, and H3 "Hotels will maintain the established standards (distance, high hygiene patterns, smaller gatherings of people) even after the COVID-19 pandemic." rejected.

This research, conducted from secondary sources of professional and scientific literature and statistical data, as well as primary research, opens up some new questions, i.e. recommendations for further research: Is there still interest among companies in sending employees to business meetings, conferences and the like even though they realized that there is a virtual way that works? The answers to these and many other open questions will be answered in the coming years, given that scientists will be dealing with such topics for a long time.

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A scientific paper

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ENRICHING THE CONTENT OF THE MUSEUM OF SLAVONIA TO STRENGTHEN THE TOURIST OFFER

ABSTRACT

The paper examines the potential impact of a significant art donation to the Museum of Slavonia in Osijek, Croatia, discovered in 2020. It aims to assess how integrating these sculptures and glass negatives can strengthen the museum's brand, enhance tourist experiences, and enrich regional cultural heritage. The methodology highlights the discovery of artworks by Franjo Körner and Rudolf Švagel Lešić, emphasizing their historical significance. The family's intention to donate these artifacts, including sculptures, reliefs, and glass negatives, underscores their cultural value, especially Körner's "Old Slavonian Oak Trees" photographic series. The paper discusses the donation's potential impact on collection diversity, educational opportunities, and the development of programs, workshops, and guided tours. It suggests that adding these artifacts could spur collaborations, leading to innovative exhibits and events while exploring digital technologies for interactive displays and virtual tours. Anticipated outcomes include increased visibility, positive media coverage, and positioning of the museum as a cultural destination. Ultimately, the paper argues that strategically incorporating these artifacts will establish the MS as a cultural hub, attracting diverse audiences and significantly contributing to the region's cultural heritage in a modern context.

Key words*: art donation, Museum of Slavonia, cultural content enrichment, tourist attraction, visitor experience.*

1. Introduction

In art and culture, museums serve as the cornerstone of preserving, interpreting, and promoting cultural heritage. Their operations are based on the preservation of cultural and national treasures. Collecting, preserving, and presenting heritage to society is immensely important. Many museums are funded through state budgets, public funds, or institutional financing, but private donations play a crucial role in maintaining their vitality and progress. Private donations to museums are not just financial contributions; they also represent a deeper connection between individuals or organizations and cultural institutions.

Museums are spaces where the past, present, and future converge. Their role in society extends beyond preserving art and artifacts; today, they are places of education, inspiration, and reflection.

However, as socio-economic society changes, financial pressures on museums are increasing. Public funds are often limited, and cultural budgets are frequently reduced, significantly restricting the opportunities for enriching museum collections through acquisitions, fieldwork, and research. It leaves many museums searching for alternative sources of funding. In this sense, many museums today prioritize donations above all else, as stated by the editor of the Informatica Museologica magazine, Lada Dražin-Trbuljak (2024). Private donations can come from individuals, families, corporations, charitable organizations, and others, each with their motives and goals. Whether donating objects or collections or funding exhibitions or educational programs, private donations enable museums to realize projects and programs that would otherwise not be possible. Additionally, private donations often involve active participation from donors in the museum's life. For example, participating in organizing exhibitions and/or events.[1] This interaction creates a deeper connection between the museum and the community, fostering dialogue and engagement. Consequently, private donations also bring specific challenges, such as ethical questions, transparency, independence, and the potential for imbalances in museum program priorities.

The paper extensively explores the family donation of Melita Rendić, born Štanfel (1957), a photographer from Zagreb: plaster busts of Franjo Körner (1901-1945), a well-known pre-war photographer from Vinkovci, and a relief of his wife Ankica, her grandfather and grandmother on her father's side. Both works were created in 1935 by Slavonian sculptor Rudolf Švagel Lešić and exhibited at his exhibitions in Vukovar and Vinkovci.[2] In addition to the artworks, the donor also donates 97 glass negatives,[3] the majority of which are negatives from the photographer's series "Old Slavonian Oak Trees.": once an obligation of sellers of Spačva oak and other high-quality timber, it has multiple values: artistic, documentary, and historical. There are also numerous documents and letters from the photographer Körner, reflecting his life in a turbulent time. We can say that we can paraphrase the words from the cover of the novel "Vošicki" by Croatian writer Marko Gregur for Körner:

> *"photography and art were the pulse of his life, while women and politics were his veins."*

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[1] This year's thematic issue of Informatica Museologica (55/24) will focus precisely on donors by examining their motives for donating collections to museums, as well as the potential for setting conditions for the assurance and the possibility of the donor or members of their family controlling the collection.

[2] Rudolf Švagel Lešić (1911-1975), born in Županja, enrolled at the Royal Academy of Arts and Crafts. After completing the first year of his studies, he received a scholarship in 1930 to continue his sculptural education at the École Nationale des Beaux-Arts in Paris. During his time in Paris, he participated in the World Colonial Exhibition in 1931. The same year, he returned to Zagreb and continued his studies at the Academy but did not complete them. After leaving sculpture studies in 1934, he returned to Županja. He began working as a freelance artist and held two exhibitions, in Vinkovci and Vukovar, introducing himself to the Slavonian public. The most prolific sculptural and artistic period lasted from 1935 to 1945, during which he created the majority of his sculptural oeuvre. He arrived in Osijek in 1939 and worked there until 1945 when he was sentenced and imprisoned. From 1953, he worked as a professor of art education, first in Lepoglava and then in Jasenovac and Bosanska Dubica. In 1960, he came to Vodnjan. (Zec, 2014) Available at https://www.mlu.hr/index.php/component/content/article?id=522

[3] "The term glass negative encompasses several types of plates distinguished by their emulsion or binder: albumin, collodion, and gelatin plates. (…) Compared to previous paper negatives, glass negatives provided a sharper image and remained in wider use until the introduction of plastic substrates. "(Gamulin and Kiseljak Meter, 2016, 300)

2. Franjo Körner, photographer

2.1. The Apprenticeship

He was born as the first child in the family of Ivan and Helena Kerner on April 30, 1901. It is unknown when or under what conditions the family came to Vinkovci. However, judging by preserved family photographs, even as a boy, he was portrayed by the prominent Vinkovci photographer Dragutin Alkier. His apprenticeship begins with him: a certificate from 1917 confirms that he "learned as an apprentice from October 15, 1914, to April 15, 1917."[4] A document vividly illustrating the acquisition of his professional experience is The Business Book of Franjo Körner, a photographer's assistant[5]. At the beginning of the book, Dubrovnik's location is readable over the stamped photograph, followed by detailed personal data and information about physical appearance.

The booklet consists of printed tables with predefined categories about the day of entry and exit from service, occupation as an apprentice (factory worker), salary, and employer's handwritten signature. Thus, Körner began training in Vinkovci on June 1, 1917, with the same photographer who photographed him as a boy with a trumpet. However, Dragutin Alkier changed his name to Karl.[6] The employer, with whom he stayed for six months, recorded in the Business Book that his occupation was "for everything" and that he had "everything free" along with a salary of 60 kr. The next stop of his professional training was Pécs: he spent from February 1 to August 1, 1918, with Károly Zelesny. However, he stayed longer in the Budapest district of Soroksár, from September 9, 1918, to March 15, 1920, learning from Árpád Templer. He returns to Vinkovci, where he works as a photographic assistant for all tasks at the First-Class Photo Studio of Zdenko Zeman from October 1, 1920, to December 31, 1921, for 800 Dinars per month. Master Zeman praises him: his behaviour is perfect, and he is diligent in his work. Recently, as an independent manager in my branch in Valpovo, and being very honest, I can recommend him. The next city where he learns the trade is Dubrovnik[7] – he apprentices at the Photo Atelier "Slavia" from May 2, 1922, to October 1, 1922, and with a salary of 1000 Dinars and 5%, he deserves another fine recommendation from his employer Josip Berner: his conduct is satisfactory, particularly trustworthy and diligent in his work; I can recommend him to anyone. Then, his path to acquiring photographic knowledge leads him to Sarajevo, where at the Photographic Atelier "Helios" in Sarajevo, under M. D. Papa, from October 1, 1922, to March 31, 1923, he works as a photographic assistant, retoucher for negatives and positives. Master Papa shares the opinion of his predecessor, so such recommendations open the doors to Zagreb's studios for Körner. First, he works at the Institute for Photography and Special Image Enlargement "Foto rapid" on Preradović Square. Although Körner stays there briefly (May 1 - June 15, 1923), he is accompanied by a recommendation stating that he is diligent, reliable, trustworthy, and courteous. It led him to the prestigious Atelier Tonka[8], where he was a retoucher for negatives and positives from June 1 to December 15, 1923 (Photo 1). Antonija Kulčar (1887 - 1971), better known as Tonka, is one of the most significant Croatian photographers, the leading chronicler of the social and cultural life of interwar Zagreb, a

[4] A document from the private family archive
[5] A document from the private family archive
[6] The Germanization and Croatization of names is evident in numerous documents from the life of Franjo Körner: from Körner to Kerner and vice versa, depending on changes in government.
[7] Franjo later bought a premises for his brother Felix (Srećko), known as Puba, and his wife Jozefina to set up a photographic studio on Stradun, which would become a cult place in Dubrovnik. In 2015, late MD Mario Kerner, the grandson, donated seven items on behalf of the family to the Dubrovnik Museums, including equipment from the former photographic studio. More details can be found at: https://www.dumus.hr/print.aspx?id=53&itemId=84
[8] http://gkd.hr/izlozba/foto-tonka/

prominent portraitist of the then elite, a photographer of the royal family, and a great artist. Her name has been synonymous with quality portrait photography for decades, and mentioning it still evokes nostalgia as many family heirlooms contain portraits bearing the signature of the famous Foto Tonka studio. Master Kulčar did not bid farewell to Franjo Körner from her studio, only with selected words of recommendation in the Business Book. There is a separate recommendation from Mrs. Tonka stating that Franjo was diligent and honest during that time and could be warmly recommended to colleagues.[9] This assessment is desirable, especially when considering the popularity and historical significance. He completed his training in January 1924 at Foto Pax, in Zagreb, Ilica 35, where he worked only a month as an assistant for all tasks. After that, he went to serve his military service.

Photo 1: Franjo Körner at the "Foto Tonka" studio in Zagreb (in the middle)

Source: Private family archive

2.2. Professional and Artistic Activity

The municipal authorities in Vinkovci issued him a permit for conducting a photographic business on April 6, 1927, and the city mayor of Vinkovci issued the trade license two weeks later. He was granted local status in Vinkovci by a decree of the City Council on June 2, 1928.

As a member of the Croatian Peasant Party, he participated in the celebration of the 100th anniversary (1835-1935) of the Croatian anthem in Slakovci.[10] It is also the year when the cultural public of Slavonia had the opportunity to see the results of a very fruitful artistic collaboration between the sculptor Rudolf Švagel Lešić and Franjo Körner. At the exhibition held in Vinkovci that year, "Körner photographed Švagel Lešić's sculptures. The sculptor repaid him by making a plaster portrait (bust). Franjo Körner was photographed with this sculpture

[9] A document from the private family archive
[10] A document from the private family archive

(Photo 2).[11] The photograph is preserved in the Museum of Fine Arts in Osijek. As mentioned above, the museum keeps an invitation to the Vinkovci exhibition with a list of exhibited works by R. Švagel-Lešić. Among thirty-three exhibits, mention is made of the plaster portrait of the photographer ("Mr. Körner" portrait). It is significant that the list of works also includes a portrait of his wife ("Mrs. Körner" portrait). Another exhibition, presumably of the same or similar content, was held in Vukovar in 1937. According to Zec, this was a time when Švagel-Lešić made very significant contacts with Slavonian noble families - the counts Eltz from Vukovar and Khuen Belassi from Nuštar, and he executed several sculptural commissions for them. His acquaintance with Franjo Körner undoubtedly influenced his connection with the noble family from Nuštar. Namely, in June 1933, Körner married An(kic)a Nágy, nee Gérard, one of the granddaughters of Franjo Gérard, a very influential and well-known Nuštar resident, close to the Khuen Belassi family.

Photo 2: F. Körner with his bust and the invitation for the exhibition (1935)

Source: Museum of Fine Arts in Osijek

2.3. Körner's Negatives and Švagel Lešić's Works

Art history experts believed that, along with numerous others, these works had disappeared and/or been destroyed. The reason for this is found in the fact that in April 1945, partisans entered his studio in the Franciscan monastery in Tvrđa and destroyed everything they saw while the sculptor was taken into custody.

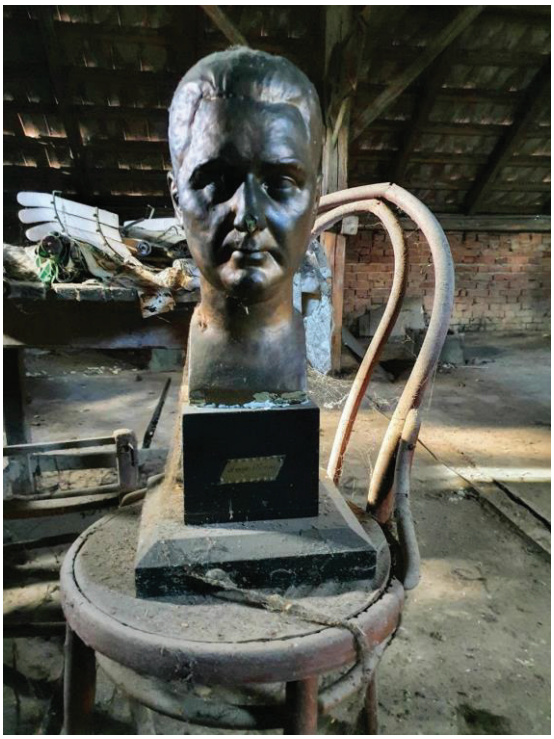
HAsry 20, 2020, in the attic of an abandoned family house in Vinkovci on Zagrebačka Street 2, whose owner until recently was Franjo Körner's daughter, Hedviga (Heda) Štanfel, the author of the paper discovered Körner's bust and relief of his wife, which were mentioned in the invitation to Švagel Lešić's exhibition in Vinkovci in 1935. The bust was in perfect condition,[12] considering how and where it was kept in the attic: it was made of plaster, painted over, and placed on a square wooden base. A plaque with the engraved text Franjo Körner 1935. is

[11] The photograph of the reproduction of the bust by Švagel-Lešić was published in the monograph "Osijek Sculptors of the First Half of the 20th Century: Leović, Živić, Nemon, Švagel-Lešić" by D. Zec, published by the Museum of Fine Arts, Osijek, 2014, page 247.

[12] The family left the house during the Homeland War.

attached to the front. Parts of the right ear, the front of the bust, and the tip of the nose are chipped off. In addition, a relief portrait of Ankica Körner was found in the house, which was also made of plaster and painted over. However, more significant marginal parts are broken, but the sides of the rectangular base can still be discerned. The author signed the relief at the bottom, but part of the surname - "Lešić" - is missing.

Photo 3: The bust in the condition in which it was discovered in the attic (2020)



Source: Authors' private family collection

The attic not only concealed Švagel Lešić's artworks: in one of the large boxes covered with old newspapers, there were five smaller boxes with carefully arranged glass negatives in protective foils from Körner's series "Old Slavonian Oak Trees." Two boxes were labeled Negatives, Old Slavonian Oak Trees, Format 130x70, and the number of negatives with descriptions written in pencil. The number of negatives corresponds to the number of photographs from the album, which became available to the public in 2019 with the exhibition "Slavonian Oak Trees" at the Meraja Photography Gallery. The exhibition included 97 photographs of Slavonian forests from an unpublished album between 1934 and 1940. According to the catalog author, Tomo Šalić, Körner continued the photography after the retirement of his predecessor, Stjepan Kirschweng (Budapest, 1865 - Vinkovci, 1935), who photographed forests from the 1880s to the 1930s. The photographs were made to meet the needs of the Brodsko Property Municipality. Namely, a regulation required photographing all sold oak trees, especially those sold on foreign markets.[13] In the exhibition catalog, Šalić details:

> He mostly traveled by bicycle, sometimes assisted by the scientist Letilović or others. The photographs are precious and the only professional recordings of Slavonian forests from the mentioned period. The motifs include the appearance of stands, assessment before cutting, processed logs with logging workers and buyers, making barrel staves, housing for forestry workers, log transportation, and more. Photographs with

[13] The exhibition catalog "Slavonski hrastici" (2019)

handwritten data on the back were taken in the forests of Boljkovo, Čunjevci, Ilijanska, Jošava, Kragujna, Kunjevci, Merolino, Paovo, Radiševo, Rastovo, Ripača, Smogva, Surduk, Varcaga, and Varoš. The buyers were companies and entrepreneurs: "Deutsch," "Domovinsko," "Grossmann," "Slaveks," "Šipad," and "Timber." Some donated photographs have been identified, while others were taken at currently unknown locations."[14]

The names of locations are also recorded on some of the discovered glass negatives.[15]

Photos 4: Glass plate negatives with the inscriptions (1935-1936)

Source: Authors

2.4. World War II

The turbulence of World War II didn't spare F. Körner in his private or professional life. It is not known under what circumstances Franjo Körner was arrested in February 1945, from where Franjo wrote love poems to his wife. One of them, titled "My Confession," bears the dedication "To my beloved wife" in parentheses next to the title. At the end of the poem, Körner notes the place and time of its creation - written in the investigative prison on a gloomy Friday, February 15, 1945, in the last cell, No. 4. On the second sheet of paper, the next day (temporary prison, February 16, 1945), Körner writes new poems dedicated to Ankica - "My Dreams" and "Prisoner," signing them as "Your devoted husband, Francek."[16]

To avoid the sound of machine guns during the execution in May 1945, the Partisans gathered local butchers who had not been conscripted during the war and ordered them, under threat of death, to slaughter the prisoners at the Kuman Brickworks. The family later learned of the event and went to the site of the execution, but by then, animals had scattered the human remains. It was only in 1949 that the County Court issued a decision declaring Franjo Kerner dead, with "May 31, 1945" as the date of his death.[17] A memorial was erected at the site of his death.[18]

[14] The exhibition catalogue "Slavonski hrastici" (2019)
[15] Further details can be found in Kuharić, Darija (2023): Cultural Geography: Old Slavonian Oak Trees.
[16] A document from the private family archive
[17] A document from the private family archive
[18] Detailed presentation of Körner's life and work in Kuharić, D. (2023): *Štih i šmek. Se,mantika privatnog*.

3. Marketing

Changes in socio-economic society have also affected cultural institutions, leading to the need and increasing demands for branding and marketing and continuous digital development. In a significant amount of literature on marketing in museums, key authors are Neil Kotler from the Smithsonian Institution and Philip Kotler, a leading authority in interpreting modern marketing strategy. Their book "Museum Marketing and Strategy: Designing Missions, Building Audiences, Generating Revenue and Resources" (2008) provides a comprehensive insight into marketing strategies and museum management. In addition to reviewing fundamental marketing concepts and techniques, focusing on their application in the museum context, the authors provide an overview of strategies for attracting diverse audiences to museums, including audience segmentation, development of educational programs and audience engagement, and promotion of museum content. They also extensively describe marketing strategies applicable in the museum context (branding, promotion, public relations, and market and audience research), including recommendations for successful museum management and promotion.

According to Meler (2006), "Marketing in culture is fundamentally concerned with determining the products, services, and ideas of culture that are offered or sought in their specific market, based on which specific, measurable marketing objectives are set, appropriate cultural products for which demand is established are developed, cultural products are communicated and distributed, and ways in which marketing objectives will be achieved are determined."

Sladojević Šola (2011) shares Fourteau's (1995) conception of marketing in museums: the museum is a "cultural project," visitors represent "experiencing culture." The purpose of marketing is for the museum to become a "meeting place." He also emphasizes that the museum and its activities centre where "academic interests, establishment interests, public interests, media interests, and sponsorship interests" converge. Although he mentions several skeptical experts regarding the values of marketing, he is determined to assert that marketing needs to be understood and adapted to its specifics:

> "Understood correctly, marketing is a natural process that arises from the real communication nature of the museum institution. And museum products are useful parts of this obvious whole that must be well understood..." Sladojević Šola (2011).

4. Branding

Frequent and rapid changes in business today affect all stakeholders, including museums. Museums must adapt to increasingly common economic and user challenges, which necessitate necessary adjustments at the organizational and content levels. Integrating cultural products into the concept of branding is one of the critical challenges for information institutions. Museum branding involves defining its mission, vision, and values and creating a recognizable identity that stands out in the market.

Referring to Frey and Meier (2014), Mavrin and Slukan (2021) emphasize that in the first decade of the 21st century, the museum world has changed significantly and become more critical from an economic perspective, with an increase in the number of visitors in the USA and Europe, where museum visits have become one of the key tourist attractions. At the same time, they point out that some museums, including those in the Republic of Croatia, still need help reaching a wider audience. These reasons emphasize the importance of museum branding

as part of their future successful business model. In museums, a brand's value lies in its presentation's specificity. In contrast, the way the public perceives such a brand depends solely on the communication messages sent to the public (Holt, 2004). Referring to Espiritu (2018), Božić and Vukelić (2022) recognize branding in museums in several elements:

1. as a response to the challenges of financing museum activities,
2. as a response to increasing competition,
3. as a way to recognize changes in museology related to visitors and the audience, and
4. as a way to explore the impacts of profitable approaches in museum management.

According to Mavrin and Slukan by Devis (2021), a successful brand must possess critical characteristics such as story, context, style, tone, and name. The story implies a clear, understandable message, while the context emphasizes that the brand operates within a broader social environment. Style refers to the outward appearance that the brand conveys, while tone denotes how messages are sent to the public. The brand name can have an extremely emotional impact on communicating with the audience.

The importance of branding in museums has also been recognized in the Republic of Croatia and described using examples from the City Museum of Karlovac (Božić, Vukelić, 2022), the Museum of Vučedol Culture, and the Museum of Krapina Neanderthals. Gajski has written about museums' importance and adaptation to the present. For example, the author mentions that museums, with their collections, carry an invaluable creative and informative potential that attracts visitors, but only if presented professionally and appealingly and in line with the expectations of contemporary society. Furthermore, he emphasizes the importance of partnerships, not only with related institutions but also with society in the environment. (Gajski et al, 2011). It is supported by author Lovrić Plantić, who believes that museums can achieve increased visibility through the conception and realization of complex cultural projects, exhibitions, book promotions, concerts, lectures, workshops, designing specific exhibitions, and similar activities (Lovrić Plantić, 2001).

"Today, museums are required not only to justify their existence but also to redefine their role in society – their survival depends more than ever on an active dialogue with potential and existing audiences, special interest groups, and partnerships with society as a whole." (Gajski et al, 2011).

5. Donations as a Form of Partnership

Brstilo and Jelavić emphasize the importance of partnerships with museums. The authors believe connecting or partnering is particularly effective in the state, institutional, and civil cooperation model when potentials are united, and culture should not be an exception. Combining different social contributions creates a more efficient network between the community and institutions. (Brstilo and Jelavić, 2010). Sladojević Šola (2001) provides a detailed explanation, stating that partnership should include the following forms of collaboration: sponsorship, patronage, patronage, donation, societies of friends, and museum volunteers. Raingeard's (1993) viewpoint that partnership is the "convergence of museum needs and philanthropic traits of citizens" is also mentioned in this context.

Through the donation of family-inherited artworks, glass negatives, and documents by donor Melita Rendić from Zagreb, the importance of partnerships with museums and civil society is

contributed, as promoted by numerous authors, but also to increase the visibility of the hidden part of Slavonian history. Presenting the donated items will highlight an essential part (before and during World War II). For many, it will refresh old memories and provide others with new knowledge and insights from the past. Furthermore, a part of the donation can be digitized, enabling access to more users while following all social and digital trends.

The paper also considers the importance of museums as guardians of cultural heritage and spaces for education and societal reflection. Through the analysis of the role of private donations to museums, it is evident that such contributions not only ensure the survival and progress of cultural institutions but also deepen the connection between the community and museums, creating lasting bonds and engagement. Private donations to museums help enhance branding and visibility. Through active donor participation in the life of museums, museums become a place that is not just a passive observer but an interactive hub of the community. The significance of donations is also reflected in the term "localness," which is defined as "Rules governing the relationship between an administrative unit and a citizen from that unit [...]" (Croatian Linguistic Portal). Although "localness" can be viewed from several aspects, semantically, it refers to a place whose customs we have adopted and which have become part of our habits and behaviour. Consequently, localities in Croatia are abundant, with significant localities in the formation and recording of local history. The importance of private donations is recognized insofar as they raise awareness about museums and their importance in society. Donors often act as ambassadors for museums in their circles, spreading positive perceptions and encouraging others to support the cultural scene. This type of support plays a crucial role in strengthening the reputation of museums and expanding their influence. Through intelligent management and transparency, museums can harness the potential of private donations to advance their mission, improve their brand, and become a vital part of the community's cultural identity.

6. Museum of Slavonia

The decision of Mrs. Melita Rendić, a native of Vinkovci who spent most of her life in Zagreb, to donate her family collection to the Museum of Slavonia is a great honour, as it is one of the oldest and, in terms of collection size, one of the most significant museum institutions in Croatia, founded as the "Museum of the Free and Royal City of Osijek" in 1877. The Museum of Slavonia in Osijek is eastern Croatia's leading regional museum institution. At the same time, the museum is of national importance as it actively engages with the community in which it operates, and its mission is to collect, study, and protect the natural and cultural heritage of eastern Croatia. Jasenka Ricl, the Department of Education and Promotion head, and a museum educator, wrote about donations to the Museum of Slavonia. "Family heritage or items from private collections often arrive at the museum for permanent preservation, evaluation, study, and exhibition. Donations – a selection from the collections of the Museum of Slavonia 1994–2019" is the exhibition title, which, in addition to presenting museum objects, describes the relationship between heritage institutions, local communities, and individuals." (Ricl, 2021). Namely, museums with a respectable reputation inspire individuals and communities to trust that their artworks will be adequately cared for and processed. Consequently, collectors and owners of private collections decide to donate them to national museum institutions. (Kreševac, 2021).

It is indisputable that the family donation from Melita Rendić will enrich the collections of the Museum of Slavonia, especially its Historical Department. In terms of content, origin, and

material significance, this department primarily relates to the history of Osijek and Slavonia (16th-20th century). Significantly, the majority of the material in this department was donated by individuals, professionals, civic associations, and institutions, with occasional acquisitions.

The collection of glass negatives and a portion of photographs taken by the Vinkovci photographer Franjo Körner will not only quantitatively but also qualitatively enhance the Photography Collection of this Department. Maroević (2000) believes that collections of such photographs as museum objects bear the character and significance of reflections of earlier events. Photographs that carry such meanings will be collected and preserved primarily in historical and city museums, architecture and social history museums, and museums of specific events or occurrences in contemporary history. Specifically regarding the Photography Collection, its manager, Marko Grgur Ivanković, emphasizes: "The collection is evolving by filling the fund through purchase or donation, with the priority being the acquisition of photographs, negatives, and albums of Osijek and Slavonian photographers, as well as photographs of people and places from the mentioned area, as well as photo albums of families, institutions, and events in the historical Slavonian region and cultural circle."

Smokvina (2000) warns that efforts to preserve existing collections of photographs need to be intensified for two main reasons: all modern photographic techniques (and materials) will eventually fall out of everyday use, so they need to be protected and preserved for the future. In addition, the "intensive proliferation" of new photographs will threaten existing collections. As a "document of reality," photography reveals or assumes special features of museality. The authenticity of a picture and its presence in certain past situations, such as Körner's oak trees, carry significant documentary meaning in terms of museum objects as documents of reality, thus carrying a high degree of museality regardless of some of the later established or perpetually changing contemporary criteria of value (Maroević, 2000).

Furthermore, the patinated bust of Franjo Körner and the relief of his wife Ankica with the signature of Slavonian sculptor Rudolf Švagel Lešić are valuable contributions to the Collection of Sculptures and Inscriptions. The value of artworks created in 1935 is reflected in the fact that Švagel Lešić's works were found in the artist's studio in Osijek's Tvrđa and destroyed upon the arrival of the partisans in 1945. It is supported by the fact that the Museum of Slavonia possesses only one Švagel Lešić relief from 1941. Ivanković, who is also the manager of this collection, perceives the future work of the "Collection in the making by filling the fund through purchase or donation; the priority is the acquisition of works by contemporary Osijek and Slavonian authors, as well as works originating from the Osijek and Slavonian regions."

In line with this, Marvin and Slukan (2021) suggest that "creativity in creating a collection, or museum content, also involves active involvement of the audience, where the increasingly important and relevant concept of audience development should not be neglected, extremely popular as a topic at the level of European and national cultural policies. In museums where the audience is a co-author in creating a new exhibition, **new perspectives for old stories are opened, where the museum can use its collections to tell diverse stories, and reinterpretation of museum objects opens the possibility of creating stories that will present the past in a new way and enable understanding by today's audience.** (Antoš, 2018).

7. Cultural Tourism

Today, tourist destinations find themselves in a challenging situation where it is necessary to continuously provide sophisticated and attractive locations and facilities and innovate to stand out and establish themselves as a unique offering compared to the competition. Dujmović (2019) argues that tourism is primarily still conventional and mass-based and will continue to be so, although trends in leisure tourism and destination selection are constantly changing. He also believes that it is necessary to convey emotion to tourists and engage their senses; therefore, there is a need to change awareness and mentality. Referring to the research of Marušić and colleagues (2018), he claims that cultural heritage is not at the top of the list of tourist motives when visiting a destination in Croatia, and there are almost no tourists here who could be called intentional cultural tourists. Dujmović's position is that it is necessary to develop selective forms of tourism, so-called particular interest tourism. Specific forms of tourism encourage and enable the acquaintance with other environments, intensive monitoring of current events, acquisition of new knowledge, and adoption of cultural values. In that way, they also help individuals to take a more defined stance towards themselves and others and move from a passive attitude to a more active relationship. One of them is cultural tourism.

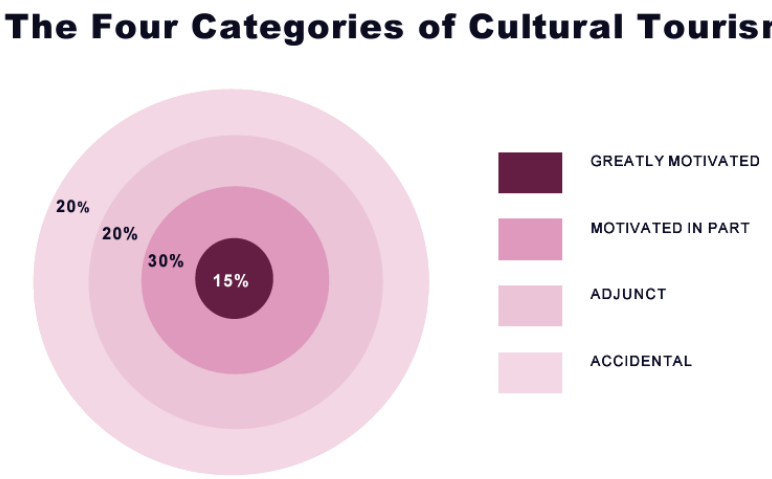
According to Lord (2002), "cultural tourism" is a phenomenon that has gained wide currency in recent decades. A product of demographic, social, and cultural trends, cultural tourism has been identified as a growing and lucrative sector of the tourism industry.

To attract cultural tourists, museums must understand their motivation to travel. Not every cultural offering can draw in tourists, but not everyone is inclined toward cultural pursuits. Various levels of consumer motivation for cultural tourism have often been overlooked in tourism studies. A comprehensive understanding of cultural tourism encompasses individuals partially motivated by culture.

Lord (2002) illustrates cultural tourism and museums (Figure 1), in which the concentric circles demonstrate the phenomenon of varying motivations for culture. At the centre, the smallest circle, are persons "greatly motivated" by culture (the people who travel to a city precisely because of its theatre opportunities, museums, and cultural festivals). The second circle represents persons motivated "in part" by culture (persons who travel to a particular destination because of cultural opportunities and unrelated reasons). The third circle, which represents about 20% of both markets, involves people for whom culture is an "adjunct" to another primary motivation (the primary motivation for visiting the destination might be non-cultural, but the visitors will plan to include cultural opportunities). Finally, the outer circle refers to the "accidental cultural tourist," which is about 20% of residents and tourist markets. These people travel to a destination and intend to avoid visiting a cultural attraction or event but may accidentally see it. Outside the circles, 15% of tourists would not attend a cultural attraction or event under any circumstances.

Therefore, developing a cultural tourism destination requires strategic planning grounded in recognizing that consumer motivations for culture vary and that travellers typically seek diverse activities during their trips. In that sense, a well-developed network between museums and the tourism industry is a necessary step toward a more vigorous promotion of cultural tourism. Joint efforts of the marketing and public relations departments are essential for affirming a particular cultural institution and maintaining communication channels with diverse audiences across multiple areas (Mavrin and Slukan, 2021).

Figure 1: The four categories of cultural tourism



Source: Lord B. (2002), Cultural Tourism and Museums (available at: www.lord.ca/Media/Artcl_CltTourismMSeoulKorea_2002.pdf)

8. Conclusion

In today's world, inherited private collections donated to museums represent a valuable contribution to preserving and promoting cultural heritage. These donations not only enrich museum collections but also provide an opportunity for museums to increase their visibility and brand. Accepting private collections as donations enables museums to create deeper connections between the museum, donors, and the community. This partnership encourages dialogue and collaboration within the community while providing resources for preserving and researching art and local history. Through active participation of donors in the life of the museum, such as organizing events, exhibitions, or educational programs, museums become gathering places and hubs of interaction, connecting people with cultural heritage personally and meaningfully.

Based on the analysis of recent domestic and foreign literature, the benefits of donations to museums and the connections between donations and museum marketing, i.e., branding, have been presented. The donation of glass negatives, busts, and reliefs to the Museum of Slavonia can ensure increased visibility and branding of the museum through several key elements:

- Donations can inspire others to consider their contribution to the community, raising awareness of the importance of preserving cultural heritage and heritage.
- Donations contribute to the cultural and artistic wealth of the region and enable access to a broader audience. It can stimulate interest in heritage and culture and contribute to the education and inspiration of society.
- Donated items in the museum can be presented by creating a story about the history of the items, their owners, and the artists who created them, emphasizing the significance of these items for cultural heritage and the museum's identity. Through exhibitions, the event can be promoted via social media and platforms, local media, and Internet marketing. Additionally, the exhibition can be accompanied by interactive content, such as touch screens or applications that enable visitors to gain a deeper understanding and

participate in the historical narrative. Educational programs and workshops can be developed based on the donated items, focusing on the donated objects. Programs and workshops can also be created on digital platforms, including virtual tours, viewing negatives in digital form, and accessing all metadata contained in the photographs. Metadata from pictures can serve as a basis for further historical and cultural research by scientists and curators specializing in local heritage.

In conclusion, collaboration between the community and museums and preserving cultural heritage through donations of private collections represent critical steps in ensuring that our cultural heritage remains alive and inspiring for future generations. Through continuous support and engagement of all stakeholders, a prosperous cultural scene can be built together, shaping society and identity in the years to come.

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ENTREPRENURSHIP

A scientific paper

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THE ROLE OF ORGANIZATIONAL CULTURE IN BUILDING THE ENTREPRENEURIAL ORIENTATION OF HIGHER EDUCATION INSTITUTIONS IN MONTENEGRO

ABSTRACT

This research paper explores the role of organizational culture in shaping the entrepreneurial orientation (EO) of Higher Education Institutions (HEIs) in Montenegro. The study aims to understand how the prevailing organizational culture archetype influences the dimensions of entrepreneurial orientation, encompassing innovativeness, proactiveness, and risk-taking. Utilizing a sample of 3,922 participants from private and public Montenegrin HEIs, the study employs the ENTRE-U framework for entrepreneurial orientation and the Competing Values Framework (CVF) to define organizational culture. The methodology includes a quantitative analysis using ANOVA and correlation analysis to examine the relationship between organizational culture and entrepreneurial orientation.

The results indicate significant differences in entrepreneurial orientation dimensions across different cultural archetypes. Further, the study compares entrepreneurial orientation in private and public HEIs, finding that private institutions demonstrate a slightly higher entrepreneurial orientation, particularly in the areas of research mobilization and university policy. This implies that private HEIs may have cultures more conducive to entrepreneurial activities.

The research contributes to the understanding of internal organizational attributes in HEIs and their impact on entrepreneurial orientation. It highlights the need for HEIs, especially in Montenegro, to foster cultures that support entrepreneurial behaviors and strategies. These findings are valuable for HEI administrators and policymakers seeking to enhance the entrepreneurial capabilities of their institutions. The study also suggests the need for further research across different regions and educational systems to understand the broader applicability of these findings.

Key words: *Competing Values Framework, ENTRE-U, entrepreneurial university, entrepreneurial orientation, Montenegro.*

1. Introduction

The 21st century heralds a new era for Higher Education Institutions (HEIs) with regards to their role and responsibility for sustainably improving the quality of life. The demands placed on HEIs are becoming ever more challenging, and universities are taking on a responsibility that goes far beyond the traditional teaching and research missions. The shift from public knowledge domains to a more capitalistic approach emphasizes the value of knowledge as a resource. In that context, the HEIs are expected to act as catalysts in advancing the agenda of the United Nation Sustainable Development Goals, combining education, research, community involvement, and operational practices towards a more sustainable future (Amoros Molina et al., 2023). This emerging academic entrepreneurship positions HEIs as strategic partners of industry and government, aligned to broader societal and economic goals (Mori Junior, Fien & Horne, 2019). Moreover, this ongoing transformation process, which affects all HEIs worldwide, requires them to both modify the way they interact with external stakeholders and build their internal capacity for change and innovative behavior. It is against this backdrop that the concept of entrepreneurial orientation has emerged.

Entrepreneurial Orientation (EO) captures the processes, practices and decision-making activities of an organization that are entrepreneurial in nature. This strategic orientation comprises three core dimensions: innovativeness, proactiveness, and risk-taking, which are derived from Danny Miller's early work on firm's strategy development (Miller, 2011). Most of the research on EO has been conducted in the context of for-profit organizations. However, regardless of the context or research sample, the concept of EO has two fundamental characteristics: it is an expression of a unique, identifiable strategy and is based on entrepreneurial behavior that is consistent over time.

The importance of EO for HEIs lies in its potential to influence their performance, particularly in terms of commercialization of research, quality of academic outputs, and efficacy in creating spin-offs. Academic entrepreneurship has so far been studied predominantly from a market-oriented perspective (Mars & Rios-Aguilar, 2010), focusing on knowledge commercialization, though recent studies have started to explore other aspects like innovative teaching and research impacts on university rankings. Much more effort needs to be made to broaden our understanding of the specific nature of EO within the higher education landscape, particularly with regard to its connection to internal organizational attributes such as organizational structure and culture (da Cruz, Ferreira & Kraus, 2021; Feola, Parente & Cucino, 2021; Balasubramanian, Yang & Tello, 2020).

The aim of this study is to explore the relationship between the dominant archetype of organizational culture and the entrepreneurial orientation of HEIs. The study is based on a sample of respondents from private and public HEIs in Montenegro (N=3922). Based on the research gap from previous studies, the following research questions are posed:

1. Is there a significant difference in the dimensions of EO with regard to the dominant archetype of organizational culture at HEIs in Montenegro?
2. What is the relationship between the type of ownership (private and public HEIs) and HEI's EO (with regard to the dominant archetype of organizational culture)?

2. Entrepreneurial Orientation in Academic Settings

In today's knowledge-driven economy, HEIs are increasingly expected to adopt an entrepreneurial approach, transforming their research outcomes into commercial ventures and launching new enterprises rooted in knowledge. Similar to many large organizations, especially those in the public sector, these institutions are not inherently designed for such entrepreneurial roles. According to Kirby (2006), the reasons for the lack of entrepreneurial spirit within HEIs are numerous: the impersonal nature of relationships, the need for control and the adherence to the rules and procedures, compensation system that does not promote the entrepreneurial behavior, the lack of entrepreneurial talent, hierarchical structure with many levels of approval, and conservative organizational culture. Therefore, efforts to create more entrepreneurial university should be directed in various directions and initiatives, promoting and supporting an adequate organizational culture being one of them (Rip, 2002).

Entrepreneurial orientation is conceptualized in the strategic management literature as the strategic orientation of a company and encompasses entrepreneurial decision-making styles and practices (Wiklund, 1999). Initially, the term incorporated risk taking, innovativeness and proactiveness (Miller, 1983), but later it has been expanded by two additional dimensions – competitive aggressiveness and autonomy (Lumpkin & Dess, 1996). Studies generally find a positive relationship between EO and firm performance (Wiklund, 1999), influenced by varying factors like environmental conditions (Wiklund & Shepherd, 2003) and internal and external configurations (Wiklund & Shepherd, 2005). EO is considered a valuable resource and capability, contributing to firm strategies and behaviors that enhance competitive advantage and performance.

Studies exploring EO in the academic environment are much rarer, but the empirical evidence gathered so far points to various benefits that HEIs can derive from fostering EO. Balasubramanian et al. (2020) conducted a research on EO using a sample of universities from the United States and found a positive impact of university EO on a wide array of performance measures like technological commercialization outcomes and university ranking. Moreover, their study indicates that the effectiveness of the EO and performance link is significantly influenced by inherent organizational traits, specifically size and a focus on Science, Technology, Engineering, and Mathematics (STEM). When universities aim to boost their reputation, both their size and a strong emphasis on STEM disciplines contribute to higher rankings. This suggests that larger institutions and those concentrating on STEM are more adept at utilizing EO to climb the rankings ladder. Positive relationship between an EO of universities and their performance has been confirmed by Feola, Parente & Cucino (2021). Their research explored the evolving role of universities in the context of science and technology-based economic development. The study finds a correlation between the EO of universities and the quality of their research, as well as the innovation capacity of the regions they're located in.

In response to the growing expectation for universities to become more entrepreneurial, Todorovic et al. (2011) developed a scale (ENTRE-U) to measure the EO of university departments and consequently accelerate empirical studies in this field. The ENTRE-U comprises four dimensions: research mobilization (e.g. external partners in research and research outcomes), unconventionality (e.g. identifying opportunities and taking unconventional approaches), industry collaboration (e.g. faculty and student involvement and department level industry cooperation), and perception of university policies (the extent to

which they support departmental aspirations). The scale represents a reliable and valid instrument to evaluate EO in public universities.

3. Linking Entrepreneurial Orientation to Organizational Culture

On the surface, EO and organizational culture may appear to be similar concepts. Culture is often explained as a set of fundamental beliefs shared by people within an organization that determine their thought processes and behavior patterns. EO, on the other hand, refers to the attitude towards entrepreneurial behavior and is more action-oriented (Wales et al., 2011). For an organization to reach its full potential, organizational culture and EO must be aligned.

Within HEIs, organizational culture reflects values and beliefs that shape the behavior of individuals and the organization. It can be considered the personality of a university as it is conveyed through stories, specific language, and institutional norms (Fralinger & Olson, 2007). It is important to note that university culture represents the values and beliefs of various stakeholders of the university: administrators, faculty members, students, board members, and support staff. In addition to a broad network of internal and external stakeholders, HEIs have specific characteristics that distinguish them from other organizations and significantly influence their culture (Bartell, 2003). First, the strategic goals of HEIs are often vague, diverse, and difficult to quantify, especially when compared to clear and measurable corporate goals. Second, there can often be a conflict between the values of professors, who value autonomy and academic freedom, and administrators, who focus on maintaining systems and procedures. Finally, as labor-intensive organizations with diverse professionals, universities face the challenge of setting and measuring standards for various outcomes.

Culture can be seen as a guiding framework that influences decision makers (Fralinger & Olson, 2007). With this in mind, managers must first assess and diagnose the type of organizational culture available to them. A popular tool used for this purpose is the Organizational Culture Assessment Instrument (OCAI) developed by Cameron & Quinn (2006). The OCAI is based on a theoretical model known as the Competing Values Framework. The framework is based on two key dimensions. The first differentiates between flexibility, discretion, and dynamism (characterizing adaptable, changing organizations) and stability, order, and control (typifying stable, predictable organizations). The second dimension contrasts an internal orientation, integration, and unity with an external orientation, differentiation, and rivalry. These dimensions organize the indicators into four main clusters, each representing a distinct type of organizational culture. The Hierarchy Culture is characterized by its emphasis on stability and control and focuses on the integration of tasks and the maintenance of uniformity of products and services. It works with a clear chain of command, standardized rules and accountability mechanisms. The Market Culture functions similarly to a market, primarily interacting with the external environment through interactions with various external entities such as suppliers and customers. It relies on monetary exchange, where competitiveness and productivity depend on a strong external positioning. The Clan Culture resembles a family-like organization where teamwork and employee development are paramount and customers are treated as partners. This culture fosters a human work environment where employees are empowered through participation and loyalty, with managers acting as mentors. Finally, the Adhocracy Culture, found in dynamic sectors such as aerospace and software development, prioritizes innovation and adaptability. There is no

centralized power, so authority can shift depending on the issues at hand, and it is characterized by individuals who are risk-takers and can anticipate change.

Previous studies have tested and applied the OCAI tool to assess organizational culture in higher education industry. The study by Caliskan & Zhu (2019) focused on identifying students' perceptions of organizational culture at four flagship Turkish public universities using the Organizational Culture Assessment Instrument (OCAI). The findings suggest that Turkish universities, which are currently more focused on hierarchy and market cultures, could benefit from incorporating more elements of clan and adhocracy cultures to enhance innovation, collaboration and adaptability in the changing educational landscape. In another study by Beyene (2010), clan culture was identified as the preferred form of organizational culture. Their study at St. Mary's University shows that a cultural shift from a hierarchical to a clan culture is necessary to achieve better alignment with the mission and values of the university and to foster an environment that is conducive to learning and growth. The same shift from a hierarchical to a clan culture is desired by the professors, students and public servants who appeared as respondents in the study by Carrillo Punina et al. (2020). However, not all universities strive for a clan culture. Rahman et al. (2021) conducted a study with the aim of assessing organizational culture as the university strives to become more productive and agile. They highlighted the need for a cultural transformation from a clan and hierarchy organizational culture to one that is more adhocracy oriented, characterized by flexibility, innovation and a focus on external dynamics. This shift is seen as crucial for adapting their higher education institution to the rapidly changing educational landscape.

Based on the theoretical framework and aforementioned research questions, the following working hypotheses have been formulated:

Hypothesis H1: There is a significant difference in the dimensions of EO at HEIs in Montenegro, depending on the dominant archetype of organizational culture.

Hypothesis H2: Differences in the dimensions of EO with respect to the dominant archetype of organizational culture appear in both public and private Montenegrin HEIs.

4. Methodology

4.1. Sample

The empirical research was carried out using a regionally balanced sample that included 3,922 participants. These participants were either students or employees at public and private HEIs in Montenegro. The majority of the sample comprised female students (65.5%), a factor that might have slightly skewed the balance of responses and is a limitation of this study. A significant portion of the respondents (75%) were affiliated with public HEIs, with the remainder at private institutions. Most of the respondents (82.5%) were undergraduate students, accounting for 75.4% of the sample. A small fraction was engaged in postgraduate (7.1%) and doctoral studies (0.9%). About half of the respondents (51.4%) had work experience, while a vast majority (95.4%) lacked entrepreneurial experience and did not come from entrepreneurial backgrounds.

4.2. Variables

The concept of EO was defined using the ENTRE-U framework, which includes four key components: research mobilization (the institution's encouragement of research activities and researcher mobility), unconventionality (the institution's openness to unconventional approaches and ideas), industry collaboration (the extent of cooperation with the business sector), and university support (the level of autonomy and entrepreneurial activities within the institution). This framework was developed by Todorovic, McNaughton, and Guild in 2011. Each aspect was assessed using a traditional 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The concept of organizational culture was defined and measured using the Competing Values Framework (CVF) model, along with the original Organizational Culture Assessment Instrument (OCAI), which was translated from English. This tool is designed to identify and measure the strength of four distinct archetypes of organizational culture (Clan Culture, Adhocracy Culture, Market Culture, Hierarchy Culture), and it determines which archetype is predominant (Cameron and Quinn, 2006). The model breaks down each organizational culture archetype into six key dimensions: a) dominant characteristics of the organization, b) leadership style and approach, c) management of employees and working environment, d) organizational glue or bonding mechanisms, e) strategic focus, and f) success metrics. Each dimension includes four statements that correspond to a specific cultural archetype. Respondents distribute 100 points across these statements within each dimension to evaluate them. The archetype that accumulates the highest total score is considered the dominant organizational culture.

5. Results

The current assessment of organizational culture strength reveals that the predominant culture in Montenegrin HEIs is the clan culture, characterized by collaboration, collectivism, and loyalty, with an average score of 26.98 (refer to Table 1). The research also indicates comparable strengths in other types of organizational cultures: hierarchy culture (also averaging 26.27), adhocracy (24.04), and market culture (25.01). However, it's important to highlight the significant variation in responses regarding the presence of hierarchy culture (standard deviation = 32.60). This suggests that while some institutions in Montenegro exhibit a strong hierarchy culture, marked by formal roles, standardized rules, and bureaucratic decision-making processes, others do not. This variation is reflected in the differing perceptions among respondents about the hierarchical orientation of individual institutions.

The determination of the dominant organizational culture type is made by aggregating the highest average scores for each of the four cultural archetypes across the HEIs, as shown in Table 2.

Table 1: Results of the descriptive analysis of the predominant type of organizational culture at HEIs in Montenegro

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Culture A (Clan)	3763	.00	653.00	26.98	14.62
Culture B (Adhocracy)	3775	.00	519.17	24.04	11.70
Culture C (Industry)	3773	.00	235.00	25.01	8.90
Culture D (Hierarchy)	3767	.00	1725.00	26.27	32.60

Source: Authors

Table 2: Assessment of the predominant type of organizational culture of HEIs in Montenegro

Variable	Frequency	Percent
Culture A (Clan)	1314	39.2
Culture B (Adhocracy)	424	12.6
Culture C (Market)	646	19.3
Culture D (Hierarchy)	968	28.9
Total	*3352*	*100.0*

Source: Authors

The average values of the components of EO were calculated and compared across the dominant types of organizational culture, as detailed in Table 3. Notably, clan culture scored the highest average in the "industry collaboration" aspect of EO, with an average value of 3.73 and a standard deviation of 0.64. This suggests that HEIs in Montenegro, particularly those with a clan culture, are actively engaged in collaborating with the business sector for knowledge and technology transfer. On the other hand, the dimension of "university policy" received the lowest average rating in institutions with a hierarchy culture, scoring an average of 3.16 and a standard deviation of 0.75. This indicates a considerable variation among Montenegrin universities in policies that facilitate research mobilization, knowledge and technology transfer with the economy, and the adoption of unconventional, innovative approaches. The data implies that universities with a pronounced hierarchical culture are perceived by respondents as being the least supportive of these activities.

Table 3: Assessment of the average values of the components of EO by forms of organizational culture at HEIs in Montenegro

	Clan culture				Adhocracy culture				Market culture				Hierarchy culture			
	RM	UC	IC	UP	RM	UC	IC	UP	RM	UC	IC	UP	RM	UC	IC	UP
N	1194	1193	1193	1193	385	385	385	385	587	587	587	587	886	886	886	886
Min	1	1.5	1.4	1.25	1	1.63	1.2	1.5	1	1.5	1.2	1	1	1	1	1
Max	5	5	5	5	5	4.88	5	5	5	5	5	5	5	5	5	5
Mean	3.70	3.56	3.73	3.59	3.65	3.56	3.71	3.55	3.46	3.40	3.60	3.33	3.25	3.26	3.42	3.16
St Dev	0.60	0.52	0.64	0.68	0.65	0.52	0.66	0.72	0.65	0.54	0.67	0.77	0.72	0.60	0.68	0.75

RM – ENTRE U Research Mobilization, UC – ENTRE U Unconventionality, IC – ENTRE U Industry Collaboration, (4) UP – ENTRE U University Policies

Source: Authors

To evaluate Hypothesis H1, we statistically analyzed the differences in dimensions of EO in relation to the organizational culture archetype at HEIs in Montenegro, employing ANOVA analysis. Additionally, Levene's test was used to check the homogeneity of variances across different groups.

The results from Levene's test revealed significant variance differences for several variables: 'Research Mobilization' showed differences across groups ($F(3, 3048) = 8.980$, $p < .001$), as did 'Unconventionality' ($F(3, 3047) = 2.645$, $p < .05$), and 'University Policy' ($F(3, 3047) = 5.142$, $p < .001$), based on the mean values. These significant findings were consistent when the Levene test was applied using the median, adjusted median, and trimmed mean, further substantiating the initial results.

Given these outcomes, it appears that the assumption of equal variances is not met, which could affect the validity of the ANOVA tests. Consequently, the analysis of differences between groups of HEIs was carried out using Welch's exact indicator. This approach is a more robust alternative for conducting ANOVA analysis when the assumption of equal variances is breached, as detailed in Table 4.

Table 4: Analysis of differences in dimensions of EO with respect to the type of organizational culture using robust ANOVA analysis (Welch's test)

	Statistica	df1	df2	Sig.
ENTRE-U Research Mobilization	83.08	3	1240.06	.000
ENTRE-U Unconventionality	56.66	3	1259.50	.000
ENTRE-U Industry Collaboration	41.36	3	1247.09	.000
ENTRE-U University Policies	66.36	3	1238.21	.000

Source: Authors

The ANOVA analysis conducted using Welch's test at a 1% significance level ($p<0.01$) facilitated the examination of the first hypothesis (H1). The results of this test, incorporating Welch's indicator, revealed significant differences between the dimensions of EO in relation to the dominant organizational culture. Consequently, hypothesis H1 is supported.

Additionally, a correlation analysis was performed to explore the direction and strength of the relationship between the perceived strength of the dominant organizational culture and the assessment of EO, as detailed in Table 5. This analysis confirmed a very weak, but positive correlation between all components of EO and both clan culture and adhocracy culture. Conversely, a weak negative correlation was observed between hierarchy culture and all dimensions of EO. These findings provide insights into how different organizational cultures within HEIs in Montenegro may be linked with their EO.

Table 5: Pearson correlation analysis

	RM	**UC**	**IC**	**UP**
Culture A (Clan)	.161**	.132**	.112**	.149**
Culture B (Adhocracy)	.215**	.209**	.165**	.217**
Culture C (Market)	-.040*	-.006	.020	-.030
Culture D (Hierarchy)	-.191**	-.160**	-.147**	-.172**

RM – ENTRE U Research Mobilization, UC – ENTRE U Unconventionality, IC – ENTRE U Industry Collaboration, (4) UP – ENTRE U University Policies

Source: Authors

The next phase of the analysis involved evaluating the dominant archetype of organizational culture with respect to the type of ownership, specifically in public and private HEIs, as shown in Table 6. The findings indicate that clan culture is the most prevalent dominant culture in both private (47.5%) and public (36.1%) HEIs in Montenegro. This culture, known for its emphasis on collaboration, community, and loyalty, appears to be a significant characteristic of the organizational environment in these institutions.

Table 6: Assessment of the dominant type of organizational culture of HEIs in Montenegro

Respondents from	**Variable**	**Frequency**	**Percent**
Private HEIs	Culture A (Clan)	347	47.5
	Culture B (Adhocracy)	133	18.2
	Culture C (Market)	118	16.2
	Culture D (Hierarchy)	132	18.1
	Total	*730*	*100.0*
Public HEIs	Culture A (Clan)	799	36.1
	Culture B (Adhocracy)	238	10.8
	Culture C (Market)	452	20.4
	Culture D (Hierarchy)	723	32.7
	Total	*2212*	*100.0*

Source: Authors

The average current strength of the dimensions of EO, considering the prevailing form of organizational culture, indicates that private institutions are, albeit slightly, more entrepreneurially oriented than public ones. Both groups of institutions are most oriented

towards the dimension of "industry collaboration" (with a mean value for private HEIs of 3.80 and for public HEIs of 3.55). This finding highlights a common focus on economic collaboration among both private and public institutions, but with private institutions showing a slightly greater inclination towards entrepreneurial activities in this regard.

Table 7: Descriptive analysis of the strength of EO by the type of ownership of the institution

Respondents from	Variable	Mean	Std. Deviation
Private HEIs (N = 844)	ENTRE-U Research Mobilization	3.72	.698
	ENTRE-U Unconventionality	3.62	.593
	ENTRE-U Industry Collaboration	3.80	.681
	ENTRE-U University Policy	3.74	.738
Public HEIs (N = 2531)	ENTRE-U Research Mobilization	3.45	.662
	ENTRE-U Unconventionality	3.39	.545
	ENTRE-U Industry Collaboration	3.55	.654
	ENTRE-U University Policy	3.31	.714

Source: Authors

The next section of the analysis focuses on the second hypothesis (H2), which explores the differences in the relationship between organizational culture and EO in private and public HEIs in Montenegro. To begin this examination, Levene's test was applied at a 5% significance level ($p<0.05$) to determine if the statistical assumption of homogeneity of variance was satisfied. The results from Levene's test indicated that the prerequisites for homogeneity of variance were not met. Consequently, Welch's indicator was employed as a robust alternative to the classical ANOVA.

The ANOVA analysis, employing the robust version based on Welch's test at a 1% significance level ($p<0.01$), was carried out separately for the subsets of private and public HEIs. The research findings, as detailed in Table 8, reveal significant differences in both subsets regarding the mean values of the dimensions of EO in relation to the dominant type of organizational culture. Therefore, it is necessary to reject hypothesis H2, which assumes that the relationship between organizational culture and EO will differ between private and public HEIs.

Table 8: Analysis of differences in dimensions of EO with respect to the type of organizational culture using robust ANOVA analysis (Welch's test) in private and public HEIs

Respondents from	Variable	Statistica	df1	df2	Sig.
Private HEIs (N = 844)	ENTRE-U Research Mobilization	26.841	3	271.561	.000
	ENTRE-U Unconventionality	16.328	3	287.517	.000
	ENTRE-U Industry Collaboration	14.881	3	288.920	.000
	ENTRE-U University Policy	15.882	3	287.766	.000
Public HEIs (N = 2531)	ENTRE-U Research Mobilization	42.408	3	846.835	.000
	ENTRE-U Unconventionality	27.529	3	854.167	.000

Respondents from	Variable	Statistica	df1	df2	Sig.
	ENTRE-U Industry Collaboration	18.316	3	840.013	.000
	ENTRE-U University Policy	33.339	3	831.604	.000

Source: Authors

A correlation analysis was carried out in order to deepen these results (see Table 9). It can be seen that the average values of the EO components for both private and public HEIs exhibit similar strength and direction of the correlation with the prevailing form of organizational culture. A positive but quite weak correlation exists between the EO components and both the Clan Culture and the Adhocracy Culture. In addition, the Market Culture has almost no correlation with the EO components. Finally, in both private and public HEIs, Hierarchy Culture has a weak and negative relationship with the EO components.

Table 9: Pearson's coefficient of linear correlation between the average scores of the components of EO with regard to the dominant form of organizational culture

Subject		RM	UC	IC	UP
Private HEIs	Culture A (Clan)	.253**	.194**	.178**	.234**
	Culture B (Adhocracy)	.208**	.205**	.168**	.214**
	Culture C (Market)	-.110*	-.065	-.025	-.077*
	Culture D (Hierarchy)	-.282**	-.232**	-.192**	-.257**
Public HEIs	Culture A (Clan)	.135**	.109**	.086**	.122**
	Culture B (Adhocracy)	.200**	.192**	.143**	.195**
	Culture C (Market)	-.013	.020	.036	-.006
	Culture D (Hierarchy)	-.156**	-.127**	-.124**	-.135**

RM – ENTRE U Research Mobilization, UC – ENTRE U Unconventionality, IC – ENTRE U Industry Collaboration, (4) UP – ENTRE U University Policies

Source: Authors

6. Discussion and conclusion

Despite evident importance of EO of HEIs, a systematic literature review reveals significant gaps in understanding its impact within HEIs, particularly concerning internal and external contexts. Focusing on the internal context, this paper adds to the general understanding of the relationship between entrepreneurial behavior and organizational culture in the context the specific nature of HE institutions.

The results of the quantitative research have shown that there is a significant difference in the dimensions of EO with respect to the prevailing archetype of organizational culture in HEIs in Montenegro. It was found that two archetypes of organizational culture, clan culture and adhocracy culture, are positively related to the components, i.e. dimensions of EO, where this strength being strongest in the dimension of research mobilization. Clan culture is characteristic of an environment that encourages collaboration, sharing of knowledge and ideas, a sense of belonging to a group and striving for common goals. On the other hand, the adhocracy culture is characterized by flexibility, adaptability, teamwork, innovation, employee autonomy, risk-taking and openness to change, which means that universities that foster both archetypes of culture create an environment that is conducive to entrepreneurial initiatives and ideas and are thus more entrepreneurial. Moreover, the analysis of the

relationship between the strength of culture and the strength of EO through correlation analysis shows that adhocracy culture has stronger relationship to the achievement of EO than clan culture, especially in the dimensions of research mobilization, research unconventionality and university policies. The results also show that market and hierarchical cultures are negatively related to the dimensions of EO, suggesting that an overly competitive orientation as well as a rigid administrative approach can inhibit entrepreneurial initiatives within the academic community. Correlation coefficients are low in all results, which indicates the weakness of the relationship between the observed variables.

Our research design follows the theoretical perspective on organizational culture as outlined by Guerrero & Urbano (2012), who assume that organizational culture plays an important role in fostering innovation, risk-taking and proactive entrepreneurship in HEIs. With this in mind, it is reasonable to expect private HEIs to demonstrate a more pronounced entrepreneurial commitment as their cultural and incentive structures are more closely aligned with the wider ethos of the private sector. Organizational culture not only influences and motivates the behavior of individual employees, but also shapes the institution's overall approach to technology transfer, commercialization and becoming a more entrepreneurial entity. The cultural differences between the private and public sectors suggest that there will be significant differences in both the culture and entrepreneurial focus of HEIs.

The results for assessing the predominant archetype of organizational culture from an ownership perspective (at private versus public HEIs) are comparable to previous findings and show that clan culture is predominant at both public and private universities (36.1% - public and 47.5% - private). It should also be noted that there are differences between the other defined archetypes of culture in terms of the type of ownership, i.e. in private and public HEIs in Montenegro. Private institutions accept almost equally the adhocracy culture as well as the hierarchy culture and to a lesser extent the market culture, which is unexpected considering that they are for-profit institutions. Public institutions, on the other hand, tend almost equally towards clan and hierarchy cultures, followed by market culture in third place. As expected, very few organizations accept the adhocracy culture.

Further analysis found significant differences in all dimensions of EO with respect to cultural affiliation, appearing equally in both private and public HEIs in Montenegro. When considering the strength of the relationship, i.e., conducting a correlation analysis, it is shown that the strength of the connection between EO and dominant organizational culture is stronger for private HEIs, where this strength is most pronounced in the dimensions of “research mobilization” and “university policy.” This could be expected, considering that private HEIs are oriented towards profit-making and are less burdened by high levels of bureaucratization and other restrictions on EO, characteristic of the public sector.

Organizational culture, conceptualized using the CVF theoretical framework, has also been shown to be an important influencing factor in previous empirical research on the orientation of Croatian institutions towards social values (Garbin Praničević, Alfirević & Rendulić, 2023). In this sense, significant results of the empirical analysis on the influence of culture on the EO of HEIs could be expected. Research of this type has not been conducted on a large scale in the academic sector, but mainly on samples of small and medium-sized enterprises. Analyzing empirical research on the same topic on a sample of small and medium enterprises, Rostain (2021) concludes that different forms of dominant culture based on the theoretical framework of CVF (clan, market and adhocracy) positively influence EO, and that their effects vary across the different dimensions of EO. These results can be related to similar

findings from the academic sector in Montenegro, where the insufficient relationship between market culture and EO is probably a consequence of the specific socio-economic environment in the region. This argument is also supported by the findings of Lee, Lim & Pathak (2009), who point to the dependence of the relationship between culture and EO on the national socio-cultural environment.

This study is limited in several ways. The empirical research of this model is limited to the area of Montenegro, and for the objectivity of the results, the research should be conducted or expanded to other countries that have different educational systems or cultural differences, in order to more objectively determine the cause-and-effect relationship and the relationship between the two observed constructs and their elements. Furthermore, the research suggests that subjective assessment may be subject to bias in expressing attitudes and contain elements of social desirability, i.e., presenting HEIs in the best possible light. It is worth noting that the majority of respondents in the sample are undergraduate students, therefore the data should be taken with some reservation as students may not necessarily be deeply familiar with the culture of their institution. In view of the bias in the responses, the following suggestions for further research are made. First, it would be desirable to conduct longitudinal studies to better understand how universities foster different archetypes of organizational culture that influence their EO. In addition, it is necessary to determine the relationship between culture and the constructs of EO as well as students' entrepreneurial intentions, as Chienwattanasook et al. (2019) found that culture serves as a moderating factor between universities' EO and students' entrepreneurial intentions.

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A scientific paper

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ASSESSING THE EFFICIENCY OF CROATIAN ICT COMPANIES– WINDOW DATA ENVELOPMENT ANALYSIS APPROACH

ABSTRACT

One of the biggest challenges facing all companies today is improving the efficiency of their operations. The Information-Communication Technology (ICT) sector is experiencing continuous growth in Croatia and is a strong driver of economic development. The aim of this paper is to evaluate the relative efficiency of Croatian ICT companies in the period between 2016 and 2022 using DEA window analysis, which allows benchmarking the efficiency of different Decision Making Unis (DMUs) over time. The analysis is conducted for 44 large and very large Croatian companies operating under the Nace Rev 2 code 62 - Computer programming, consultancy and related activities - over a seven-year period. Three inputs (costs of employees, total assets and material costs) and one output (operating revenues) are used in an output-oriented DEA model with a 3-year window to evaluate technical efficiency (TE) as well as its main components, pure technical efficiency (PTE) and scale efficiency (SE), to assess the sources of inefficiency. The results show that large and very large Croatian ICT companies have suffered a loss of efficiency during the pandemic, despite being among the most resilient sector during this period. When analysing the sources of inefficiency, the SE is overall higher than the PTE until 2018, which indicates that the main source of inefficiency is the non-optimal production size. From 2019, PTE became the main source of inefficiency as a measure of management performance and external factors.

Key words: *Efficiency evaluation, computer companies, Window Data Envelopment Analysis, financial data, ICT.*

1. Introduction

Efficiency in the ICT sector is crucial as it has a significant impact on productivity, innovation and economic growth. According to the European Commission (2018), 40% of the European population is insufficiently trained in IT. Therefore, the EU continuously conducts research, technology development and application programs by promoting cooperation with companies, research centres and universities. It also disseminates and exploits the results of research, technology and application activities and promotes the training and mobility of researchers in the EU. Efficiency in the ICT sector is about maximizing the value generated from technology investments while minimizing resource consumption and operating costs. This requires a

combination of technological innovation, strategic planning and management practices to achieve optimal performance and competitiveness in the digital economy. The ICT sector enhances economic resilience by facilitating remote work, online education, e-commerce, and the delivery of digital services, especially in times of crises like the COVID-19 pandemic.

As for the ICT sector in Croatia in general, the number of employees in this sector is increasing and the share of the ICT sector in total GDP is growing. Croatia is currently at the European average, and the share of the ICT sector (2015-2020) in total GDP is 5% (Eurostat, 2022). The countries that are leaders in the use of ICT (Cyprus, Malta, Bulgaria, and Sweden) have a more favourable national environment for the diffusion of new technologies and invest in education, the implementation of IT and e-business to achieve a higher return on investment. On the other hand, companies in countries with low ICT intensity generally lack essential additional resources such as suitable infrastructure and a knowledge base, which are necessary for the efficient use of ICT. (Babić, 2021).

Although the evaluation of business process efficiency has become a standard in research worldwide, the literature dealing with the issue of evaluating the efficiency of Croatian ICT companies is limited, given the importance of the results obtained in this way for decision-making in individual companies and organizations. There is a lack of research on the definition of criteria for a comprehensive procedure for evaluating the efficiency of ICT business activities, especially using the example of Croatian companies. With Covid 19, the importance of the ICT sector became even more pronounced when many companies began to make extensive use of ICT technology in their day-to-day business. Accordingly, one of the aims of this paper was to investigate how the efficiency of ICT companies was affected by the pandemic.

For this reason, a procedure for evaluating the efficiency of business activities of large and very large Croatian ICT companies was proposed in this paper. As far as the authors are aware, there is no comprehensive research on assessing the dynamic efficiency of Croatian companies in the ICT sector.

The paper uses Window Data Envelopment Analysis (WDEA), a mathematical, non-parametric dynamic method for measuring the relative efficiency of large and very large Croatian companies operating under Nace Rev 2 code 62 - Computer programming, consultancy and related activities - in the period from 2016 to 2022. The analysis is carried out at company level using financial data and selected input and output variables are collected from the Orbis Europe van Dijk database.

The paper consists of six interconnected parts. After the introduction, the second part provides an overview of previous research on the evaluation of efficiency in the ICT sector. The third part explains the methodology used, in particular the Data Envelopment Analysis (DEA) and the WDEA as its extension, while the fourth part explains the selection of input and output variables. Section 5 presents and explains the research results obtained. The final sixth part contains the conclusion of the paper.

2. Literature review

The idea of sustainable development, which is based on three pillars, namely economic growth, environmental protection and social development is supported by numerous organizations, including the United Nations and the European Union. Each pillar must be equally significant and long-lasting. The ICT sector is not only an important driver of digital transformation, but is also held responsible for promoting innovation in society. One of the most important drivers of economic growth is the labor force in the ICT industry, which increases worker productivity

and global competitiveness through creative ICT development. ICT literacy is also associated with highly developed information management skills, effective communication skills and logical and critical thinking (Babić et al., 2015).

Researchers agree that innovation must be encouraged in order to systematically influence the development of this sector. Hilty et al. (2011), for instance, argue that one of the best methods to encourage innovation is to combine efficiency techniques with adequate ICT. Continuous innovation in the ICT industry is key to remaining competitive while facing the challenge of maximizing the value of the company and overcoming other issues, especially those related to continuous investment and workforce. The effect of ICT on economic growth in OECD member states and the European Economic Community was studied by Fernández-Portillo et al. (2020). The main conclusion of the paper is that ICT, in particular computer use and broadband connections, is the primary driver of economic growth in European economies. Ceccobelli et al. (2012) carried out a similar study for the period 1995 to 2002. They measured the impact of ICT on the increase in labor productivity in 14 OECD member states using the DEA. The findings support the position of ICT as a general-purpose technology that requires changes in organizational structure and business processes in order to fully reach its development potential. Jeong (2014) measured the productivity and efficiency of the ICT manufacturing and service sectors between 2007 and 2011. The author employed non-parametric techniques such as technical efficiency, the DEA/window model, and the Malmquist Productivity Index (MPI). During the observation period, the technical efficiency of the manufacturing sector was between 0.34 and 0.39, while that of the ICT services industry was between 0.16 and 0.20. According to the Malmquist TFP index, average productivity in the ICT manufacturing industry rose by 8.3%. Hawash and Lang (2020) used panel data to assess the impact of ICT on total factor productivity (TFP) in 76 developing countries from 1991 to 2014, relying on capacity and ICT utilization. They estimate that developing countries can improve their TFP growth rates by around 0.1–0.3% per year if they increase their ICT investments and expand their fixed networks.

Čalopa et al. (2011) measured the resilience of 28 Croatian companies in the period from 2006 to 2009 and found that the crisis caused by the great recession had no negative impact on the work of ICT companies. Ben and Mouelhi (2009) examined the extent and variation of the impact of ICT use on efficiency in Tunisian manufacturing firms based on the role that technology plays in different industries. The findings showed that additional investments and adjustments in human capital are needed to maximize the returns from ICT. Zhang et al. (2023) used a three-stage DEA model to assess the innovation efficiency of 80 Chinese software and information technology service enterprises between 2017 and 2018. The empirical findings demonstrate that environmental variables have varying influence on innovation efficiency. Low innovation efficiency is caused mostly by pure technical efficiency, followed by scale efficiency.

Kim and Kim (2021) conducted a research using DEA and Tobit regression to evaluate the value of Korean ICT manufacturing and service companies and analyse how capital structure affects their profitability. They found that small and medium-sized firms (SMEs) had the highest profitability efficiency in both industries and that the liquidity ratio had a positive impact on the profitability efficiency of SMEs in the manufacturing sector. In the service sector, the debt ratio also had a positive impact on the efficiency of SMEs. Kim et al. (2023) have extended this research and argue that capital structures play a crucial role in determining firm value (FV). They conducted a study that focused on evaluating the FV of ICT firms in terms of profitability efficiency using DEA. The results show that small and medium-sized enterprises (SMEs) in the ICT sector generally have higher profitability than companies of other sizes. In addition, the current ratio was found to have a positive impact on the profitability specifically

of SMEs in ICT manufacturing, while the debt ratio had a positive impact on the profitability of medium-sized service companies.
As can be seen, there are not many studies that evaluate the efficiency of ICT companies at the company level, especially Croatian ICT companies. For this reason, this paper evaluates the efficiency of business activities of large and very large Croatian ICT companies and draws conclusions for the Croatian ICT sector.

3. Methodology

Data Envelopment Analysis (DEA) is a non-parametric mathematical method used to evaluate the relative efficiency of homogeneous decision making units (DMUs). For this reason, it does not provide standard errors and hypothesis testing is not possible. In the context of DEA, any deviation from the efficiency frontier means inefficiency (Ray, 2004). DEA was originally proposed by Charnes, Cooper and Rhodes (1978) and has since become a widely used technique for evaluating efficiency in various fields such as banking (Milenković et al., 2022, Nhan, 2021), healthcare (Dukić Samaržija, Arbula Blecich and Najdek, 2018; Kočišová, and Sopko, 2020; Koltai, T., Dénes, R. V., and Dénes, Z. (2023), education (Arbula Blecich, 2020; Daultani, Dwivedi, and Pratap, 2021; Ersoy, 2021), research and development (Arbula Blecich, 2021; Halaskova, Gavurova, and Kocisova, 2020) and many other fields. When conducting DEA at the company level, it is common to use financial data. However, there are not many studies that evaluate the efficiency of ICT companies and use financial data as input and output variables. Goto (2010) examined the financial performance of 44 telecommunications companies from around the world using DEA–DA (discriminant analysis), whose model is related to Altman's Z-score. The variables used are financial variables, i.e. financial ratios. Martinez-Nunez and Perez-Aguiar (2014) evaluated the efficiency of Spanish telecommunications companies using the DEA. Among other variables, they also used financial variables. They chose employees, assets, equity, tweets, following tweets and post as inputs and outputs sales, profits, followers, fans and comments as outputs. Mathur (2007) used DEA MPI to analyze the performance of the Indian IT industry using mainly financial data. Total costs and years in business were used for inputs, and sales and net exports were used for outputs. Due to the lack of efficiency assessments within the DEA framework for ICT companies at company level, especially for Croatian ICT companies, this paper attempts to fill this gap.
The efficiency can vary between 0 and 1, where 1 means that the DMU is relatively efficient, while a result below 1 means that the DMU is relatively inefficient (Arbula Blecich, 2021). DEA is particularly useful in situations where traditional econometric methods may not applicable due to data limitations or complex relationships between multiple inputs and multiple outputs. Rather than relying on explicit functional forms or assumptions about the underlying production process, DEA assesses efficiency based on the relationship between input and output variables (Banker and Natarajan, 2011).
Within the DEA framework, technical efficiency (TE), pure technical efficiency (PTE) and scale efficiency (SE) are the main concepts used to analyse relative efficiency in order to assess the relative performance of DMUs (Abel and Bara, 2017). TE, often referred to as overall efficiency, evaluates the ability of a DMU to produce the highest possible output with a given set of inputs. A DMU achieves TE when it operates at the production frontier, i.e. when it achieves the highest possible level of output given its inputs and technology (Squires and Tabor, 1991). Benedetti et al. (2019) argue that assessing dynamic TE and measuring TE fluctuations can help DMUs and policy makers to improve the use of input resources. TE is calculated as the ratio between the weighted sum of inputs and the weighted sum of outputs for each DMU. This implies that scarce resources are used efficiently when ICT companies achieve the highest

achievable output with the technology available to them within a certain time frame and make optimal use of all available inputs and resources (Cossani et al., 2022). TE assumes constant returns to scale (CRS) and, in addition to pure technical efficiency, also evaluates the efficiency loss that occurs when a DMU operates at a scale that is not its most productive. On this basis, we can decompose TE down into its basic components, PTE and SE. PTE implies variable returns to scale (VRS) and is considered a measure of management performance as it is influenced by management, technology and other exogenous factors. SE assesses whether a DMU is operating at the optimal scale in relation to its size. It measures the extent to which the size of a DMU contributes to its overall efficiency. Scale efficiency is calculated as the ratio of PTE and SE of a DMU. A DMU is scale efficient when it operates at optimal scale, i.e. when it achieves the highest level of output relative to its size (Kumar, Gulati, 2008).
Window DEA (WDEA) is an extension of traditional DEA designed for processing panel data with observations over multiple time periods. In standard DEA, each observation is treated independently, ignoring time-related dynamics or trends. However, in many situations it's crucial to consider the temporal aspect of the data. The WDEA approaches this problem by enabling the analysis of dynamic efficiency changes over time. It creates time windows based on a moving average and analyses the observations within each window (Nailah and Rusydiana, 2020). By shifting this window over time, the WDEA can capture changes in efficiency across different time periods. Understanding the dynamics of efficiency over time can be crucial for decision-making and policy formulation.

4. Model specification, variable selection

This paper used data from large and very large Croatian ICT companies operating under Nace Rev 2 code 62 - Computer programming, consultancy and related activities. The data is collected for the period 2016 - 2022 from the Orbis Europe van Dijk database. After excluding the data of all companies whose data on selected inputs or outputs are incomplete and therefore unsuitable for the analysis, the final number of DMUs amounted to 44.
The most important factors included in the production function are labor, capital and materials. Accordingly, the following three inputs were selected in this analysis based on the relevant literature: costs of employees (Chou, Shao and Lin, 2012; Shao and Lin, 2002); Wu et al. (2006), total assets (Chen and Ali, 2004; Gökgöz, and Güvercin, 2018) and material costs (Chiang, Cheng, and Leu, 2017; Wu et al., 2006). Although the main objective of any company is to maximize profit, modern management theories suggest a shift in control from owners to managers, extending the scope beyond profit alone. In this context, profit is no longer seen as the only objective. From a management perspective, revenue maximization should also be considered a fundamental corporate objective in addition to profit maximization. For this reason, operating revenue (turnover) was chosen as the output variable in this paper (Calabrese, Campisi, and Mancuso, 2002; Chen and Ali, 2004; Chiang, Cheng, and Leu, 2017; Gökgöz, and Güvercin, 2018; Mathur, 2007; Wang et al., 2020). The list of selected inputs and outputs is shown in Table 1.

Table 1: Inputs and outputs selected

Inputs	Output
Costs of employees,th EUR	Operating revenue (Turnover), th EUR
Total assets, th EUR	
Material costs, th EUR	

Source: Authors

In addition to the selection of input and output variables, it is important to choose the orientation of the model, i.e. whether it is an input or an output model. This choice depends on the objective of the DMU observed. Since the main objective of most companies, including those in the ICT sector, is to maximize output for a given set of inputs, the output orientation is chosen in this paper. The analysis is performed with DEA Solver Pro 11.0. The descriptive statistics per each year are shown in the following table.

Table 2: Descriptive statistics

		Max	Min	Average	SD
2016	Costs of employees,th EUR	10519,9	5,96	2019,415	2764,99
	Total assets, th EUR	59993,44	64,09	7129,899	12705,85
	Material costs, th EUR	61215,67	3,5	6686,144	12934,24
	Operating revenue (Turnover), th EUR	77992,02	18,58	10222,43	16074,77
2017	Costs of employees,th EUR	10606,36	7,13	2298,635	2807,643
	Total assets, th EUR	49544,67	147,48	7029,979	11464,99
	Material costs, th EUR	66955,44	32,56	7371,617	14092,6
	Operating revenue (Turnover), th EUR	84872,72	49,16	11434,72	17495,39
2018	Costs of employees,th EUR	11616,41	36,29	2613,674	2954,499
	Total assets, th EUR	49413,01	271,95	7364,652	11025,7
	Material costs, th EUR	89903,84	63,04	8419,408	16635,05
	Operating revenue (Turnover), th EUR	108043,9	195,36	12983,56	20028,68
2019	Costs of employees,th EUR	12371,26	86,62	3015,205	3105,743
	Total assets, th EUR	58574,63	459,78	8881,051	12700,99
	Material costs, th EUR	79473,27	438,56	9388,226	15973,5
	Operating revenue (Turnover), th EUR	99705,22	668,83	14873,58	20052,97
2020	Costs of employees,th EUR	13754,67	188,56	3439,763	3206,68
	Total assets, th EUR	62548,78	678,03	10272,23	14293,88
	Material costs, th EUR	83388,08	526,04	9862,246	15746,69
	Operating revenue (Turnover), th EUR	102880	2792,86	16029,74	19760,51
2021	Costs of employees,th EUR	15771,58	364,24	4035,319	3397,342
	Total assets, th EUR	61889,52	777,13	11723,89	13563,43
	Material costs, th EUR	67416,42	747,2	10980,29	14007,38
	Operating revenue (Turnover), th EUR	95532,15	3394,95	18216,07	17628,79
2022	Costs of employees,th EUR	18363,73	619,17	5025,31	3919,028
	Total assets, th EUR	69246,6	1125,43	14044,99	14607,58
	Material costs, th EUR	73498,8	832,1	12649,39	15141,44
	Operating revenue (Turnover), th EUR	104697	3788,19	21340,22	18678,05

Source: Authors

One of the prerequisites for the application of DEA analysis is the fulfilment of the condition of isotonicity (Wang, Nguyen and Tran, 2015), which states that all input and output variables are positively correlated, meaning that output increases with the increase in input. The correlations of all variables are positive and high in all observed years, which fulfils the condition of isotonicity associated with the data. Another important prerequisite for the application of DEA is, according to the rule of thumb, that the total number of DMUs is at least three to four times greater than the sum of the inputs and outputs. The use of WDEA, a dynamic method that uses panel data, improves discrimination power, especially in situations with a

limited number of DMUs (Halkos, Tzeremes, 2009). Since the same DMUs are considered as different units over different time periods, a relatively large number of inputs and outputs can be used compared to conventional DEA models (Arbula Blecich, 2020). This study uses WDEA to analyze a 7-year long dataset containing information from 44 large and very large Croatian ICT companies. The aim was to determine trends in efficiency and to identify the causes of inefficiency over this period. Cullinane et al. (2004) point out that there is no established theoretical framework for determining the optimal window size. Asmild et al. (2004) suggest that the window width should strike a balance: it should be narrow enough to ensure fair comparisons over time, but also wide enough to obtain a sufficiently large sample. In this paper, the results are reported on the basis of a 3-year window, resulting in five different windows: window 1 (2016, 2017, 2018), window 2 (2017, 2018, 2019), window 3 (2018, 2019, 2020), window 4 (2019, 2020, 2021) and window 5 (2020, 2021, 2022). The number of different data points (different DMUs) in this study is 660, calculated according to the formula $n*p*w$, where n is the number of DMUs (number of Croatian ICT companies), p is the length of the window and w is the number of windows ($w=k-p+1$; where k is the number of periods) (Cooper, Seiford, and Tone, 2007). Since the sum of the inputs and outputs is 4, we can conclude that the second prerequisite is also fulfilled, and the application of the DEA is justified.

As our aim is to draw conclusions for the Croatian ICT sector, i.e. for companies operating under Nace Rev. 2 code 62 - Computer programming, consultancy and related activities, the results are presented at an aggregated level based on average values.

5. Empirical research results and discussion

We used WDEA to track dynamic efficiency of Croatian large and very large ICT companies over a seven-year period. The average results of TE (overall efficiency) and PTE and SE as its main components are shown in Table 3. The results presented are C-averages, i.e. the averages of all five windows for each ICT company are aggregated. Efficiency scores equal to 1 indicate relatively efficient DMU, while scores below 1 indicate relatively inefficient DMUs.

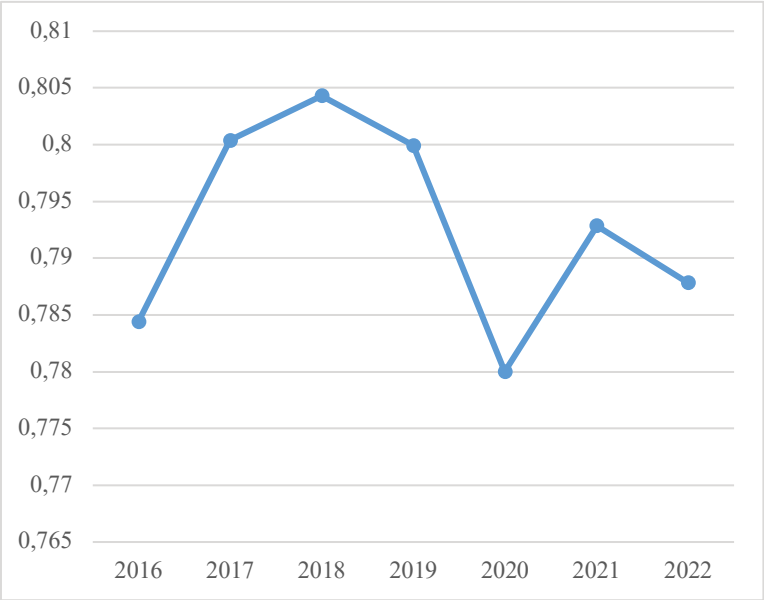
Table 3: Average TE, PTE and SE of Croatian large and very large ICT companies

	TE	PTE	SE
2016	0,784412	0,89683	0,87911
2017	0,800389	0,89397	0,89679
2018	0,804301	0,90359	0,89088
2019	0,799942	0,89251	0,89563
2020	0,780009	0,87542	0,89194
2021	0,792857	0,88518	0,89633
2022	0,787834	0,88521	0,89185

Source: Authors

To better illustrate the results, Graph 1 and 2 are shown below. Graph 1 shows the dynamics of the average TE.

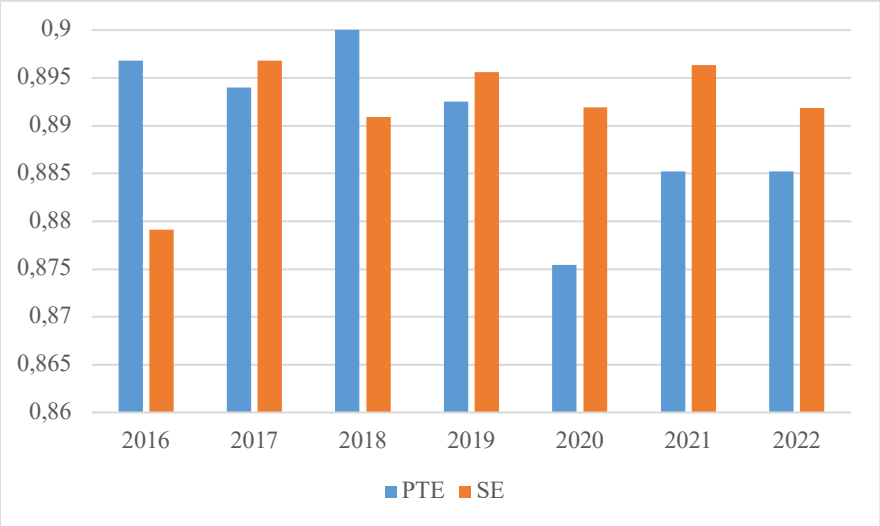
Graph 1: Dynamics of average TE (overall efficiency) of Croatian large and very large ICT companies



Source: Authors

The TE is based on the assumption that the operation takes place under CRS and, in addition, the evaluation includes the determination of the efficiency loss that occurs when a DMU operates below its optimal production scale. On average, the large and very large Croatian ICT companies recorded a sharp increase in TE after 2016 due to higher increase of output relatively to increase in inputs, followed by a significant decline in 2020 due to not adequate increase in output compared to increase in inputs. All variables experienced rise compared to a previous year, but what makes difference is their relative relationship. The ICT industry is one of the most dynamic and propulsive sectors, the importance of which has become even more apparent during the Covid 19 pandemic in 2020, when many companies began to make extensive use of ICT technology and move their day-to-day business online. On this basis, we can assume that ICT companies have experienced an increase in efficiency during the pandemic. The results presented in Graph 1 show that this assumption is not correct. Like many other sectors, the ICT sector has experienced a sharp decline in efficiency. The reasons for this lie in the link between the ICT sector and other sectors such as tourism or the financial sector, which have suffered from the restrictions imposed by the pandemic. Since the subject of this paper are Croatian companies operating under Nace Rev 2 code 62 - Computer programming, consultancy and related activities, which is highly dependent on other sectors for which ICT companies provide consultancy, computer programming and other related services, this decrease makes more sense. The decline in economic activity, which led to a reduction in efficiency in other sectors, was transferred to the ICT sector through lower demand for the services offered by ICT companies. To analyse the sources of inefficiency, Graph 2 shows the dynamics of average PTE and SE as components of the TE of large and very large Croatian ICT companies.

Graph 2: Dynamics of average PTE and SE (causes of inefficiency) of Croatian large and very large ICT companies



Source: Authors

PTE is influenced by management practices, technological advances and various external factors and is therefore a measure of management efficiency. The PTE assumes that the company operates within the VRS. SE is determined as the ratio of TE and PTE and provides information on the ideal allocation of resources and the optimal scale of production. We can conclude that the main cause of inefficiency varies over the years. Nevertheless, it is clear that since 2020 and the outbreak of the pandemic, the main cause of inefficiency is management practices and other external factors rather than the fact that operations are not implemented to the optimal scale. The following year, the sector's efficiency recovered, albeit not to pre-pandemic levels, but the causes of inefficiency remained the same.

6. Conclusions

One of the biggest challenges facing all companies today is improving the efficiency of their processes. This paper aims to assess the relative efficiency of Croatian ICT companies in the period from 2016 to 2022 using DEA window analysis, which enables a comparison of the efficiency of different decision-making units (DMUs) over time. The analysis was conducted on a sample of 44 large and very large Croatian companies operating under code 62 NACE Rev. 2 - Data processing, consulting and databases - over a seven-year period. An output-oriented DEA model with a window length of 3 years was used, and three inputs (personnel costs, total assets and material costs) and one output (operating profit) were used. The analysis was carried out with the aim of evaluating technical efficiency (TE) as well as its main components, pure technical efficiency (PTE) and scale efficiency (SE), which provide information on the sources of inefficiency. The results show that large and very large Croatian ICT companies suffered a loss of efficiency during the pandemic, despite being one of the most resilient sectors during this period. When analyzing the sources of inefficiency, SE is overall higher than PTE until 2018, indicating that the main source of inefficiency is the suboptimal production size. Since 2019, PTE has been the main source of inefficiency as a measure of management performance and the influence of external factors. The TE as a measure of overall efficiency experienced a drastic decline in 2020 with the outbreak of Covid 19, as output did not increase sufficiently compared to the increase in input. Looking at PTE and SE as the main

components of TE, which provide insight into the causes of inefficiency, it becomes clear that after 2020 the main cause of inefficiency is management and other exogenous factors rather than non-optimal scale of operations.

As the ICT sector in the Republic of Croatia has a positive relationship with the growth of this industry, further initiatives are needed to ensure that as many employees as possible acquire advanced digital skills. This will help Croatia to develop even more towards a digital economy and become even more resilient to various crises. Croatia faces numerous challenges in terms of infrastructure, funding and strategy for incentive programs, promotion of more professionalism, curriculum guidelines, expertise and implementation of standardization in order to catch up with the leading countries in the ICT sector. The most important limitation derives from the available data. In addition to financial and quantitative data, it would be beneficial for future studies to include qualitative variables. Furthermore, future studies should include a second stage in the analysis, in which the impact of macroeconomic factors on efficiency should be examined. In addition to efficiency analysis, future research should also address the assessment of productivity.

The results obtained provide information on the relative efficiency of large and very large Croatian ICT companies and help to identify best practices and potential areas for optimization. The results are presented at the sector level in order to determine the dynamics of the Croatian ICT sector as a whole. In addition to looking at the results as a whole, this approach also enables a comparison with the competition. It helps managers to make informed decisions about adapting business strategies and resources to operate efficiently and competitively in order to survive in a business environment.

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A scientific paper

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UNVEILING STUDENT INNOVATION: EXPLORING FUNDAMENTAL BEHAVIORS

ABSTRACT

In today's rapidly evolving business landscape, organizational agility is crucial for staying competitive. Human resources play a vital role in achieving organizational objectives as they are difficult to replicate. Therefore, it is imperative to foster innovative behavior among employees. This study aims to identify and validate the essential components that promote innovative behavior among management students in an academic environment. It also intends to explore how education in entrepreneurship and innovation can enhance these factors and use Higher Education Institutions to cultivate innovative behaviors. Lastly, it aims to provide recommendations to encourage and reinforce innovative behavior among students and teachers from diverse disciplinary domains. Through a survey conducted in a Portuguese Higher Education, the study emphasizes the importance of integrating creative and innovative supervision alongside innovative methodological practices in educational settings. This approach enables students to understand the profound influence of soft skills on fostering innovative behavior within organizations. This is crucial for Higher Education Institutions that are preparing future leaders and companies that want to promote innovative behavior among employees.

Key words: *innovation, creativity, soft skills, innovative behavior, higher education.*

1. Introduction

Organizations agree that Human Resources can provide a competitive advantage that is unique and difficult to replicate (Dimple & Tripathi, 2024). Companies must understand that the stakes are high, and they must equip themselves with the necessary tools to attract, retain, and motivate their employees (Alves et al., 2019). However, companies face the challenge of managing, at the same time, four generations of workers, each with different expectations,

behaviors, skills, and motivations (Dieguez et al., 2024). To design sustainable strategies and contribute to the growth and development of the business, companies need to be innovative in their value propositions. This innovation can be achieved by developing and implementing new products and services, processes, marketing strategies, organizational structures, and business models (Sivam et al., 2019).

However, this whole complex dynamic is influenced by the culture of innovation itself, with leadership playing a crucial role in its development (Dieguez, 2023). The importance of fostering an entrepreneurial mindset, stimulating learning, effective communication and collaborative efforts is relevant (Dieguez et al., 2022b). In this sense, Higher Education, as the partner responsible for promoting intellectual knowledge and preparing students, future leaders, for the labor market, plays a fundamental role (Dieguez et al., 2022a). The more able it is to motivate its students to learn and develop innovative behaviors, the more successful it will be in their professional life (Dieguez et al., 2021).

This study aims to identify and validate relevant components that promote innovative behavior among management students in an academic environment. Additionally, it intends to explore how education in entrepreneurship and/or innovation can enhance these factors and utilize Higher Education Institutions to cultivate innovative behaviors. Lastly, it aims to provide recommendations to encourage and reinforce innovative behavior among students and teachers from diverse disciplinary domains.

The research starts with a literature review, followed by the presentation of the methodology and empirical findings. Finally, the conclusions are discussed in detail, along with the limitations of the study and suggestions for future research.

2. Literature Review

Creativity and innovation are essential drivers of organizational success in today's economy. According to a study by Hussain et al. (2023), innovative behavior plays a mediating role in the relationship between employee creativity and organizational innovation. Creativity serves as the foundation for generating fresh ideas for innovative products, services, solutions, and procedures, as noted by Sawyer and Henriksen (2024). Meanwhile, innovation thrives when organizations nurture and support these creative ideas with attentive care and support, according to Venkat (2023). Scholars are increasingly focusing on the attitudinal factors that drive innovation, recognizing that innovative actions arise not only from inherent individual traits but also from job-related attitudes, as highlighted by Kim et al. (2023). Employee engagement is one such factor, defined as the level and direction of cognitive, emotional, and behavioral energy invested in work tasks, as all three forms of energy are crucial for individuals undertaking the challenging process of innovation, according to Boccolli et al. (2023). However, scholars note the lack of comprehensive study on the diverse individual and situational factors influencing employee engagement specifically in the context of innovative behavior, as observed by Liu et al. (2023). While existing findings offer insights, they provide only a partial view as they remain confined within their respective research domains without being integrated holistically. Therefore, understanding the variables, their interrelationships, and the underlying theories collectively is essential for a more comprehensive understanding, as emphasized by Rattanawichai et al. (2023).

The following skills have also been identified as important for individuals to possess: Critical thinking and problem-solving abilities (Is'ad & Sukarmin, 2022; Ogbeibu et al., 2021; Shanta & Wells, 2022), problem-solving skills (Purwanto et al., 2021; Treffinger et al., 2023), and leadership and responsibility skills (Lee et al., 2021; Liao & Zhang, 2020). Finally,

entrepreneurship, as is fundamental for behavioral innovation is also considered (Allameh & Khalilakbar, 2018; Makhloufi et al., 2021).
Previous studies emphasized these components. Table 1 presents some of the researchers who deeply studied these topics.

Table 1: Some previous studies related to crucial components that promote innovative behavior

Budur et al., 2024	Knowledge-sharing-giving: It was discovered that knowledge sharing has direct and significant positive effects on innovative culture, quality of work life and innovative behaviors.
Alt et al., 2023	Knowledge-sharing-giving: The results revealed that participants' awareness of future challenges, their confidence in generating creative ideas, and their perceived innovative behavior all showed significant improvement by the conclusion of the future problem-solving program, as compared to its initiation.
Alenezi, 2023	Learning culture: The digital transformation in higher education goes beyond technological advancement. It involves cultural, procedural, and pedagogical adjustments. Current studies have approached this transformation in a fragmented manner, lacking comprehensive methods.
Zinchenko et al., 2023	Learning culture: The research revealed that an inclusive digital educational environment could significantly enhance the efficacy of future education, equipping learners to tackle the diverse challenges of an information-driven society.
Ma et al., 2023	General self-efficacy: The study's findings suggest that the creative self-efficacy of postgraduate students is bolstered through collaborative efforts across multiple subjects. The integrated cultivation model is designed to foster a transformative tutor team, while also establishing a mentoring community.
Gkontelos et al., 2023	General self-efficacy: The direct influence of self-efficacy, in conjunction with the effects of irrational beliefs and burnout as mediators, illustrates the complexity of innovative work behavior and the multitude of factors that determine teachers' performance.
Patiño et al., 2023	Active methodological support: The research results are pertinent to trainers, academics, researchers, and decision-makers with an interest in open education. When designing open education initiatives, training and development interventions should prioritize promoting all types of open education practices, including use, production, dissemination, and mobilization.
Imbaquingo, & Cárdenas, 2023	The findings indicate that educators play a crucial role in promoting the development of reading skills, particularly for students at the early stages of their education. Project-Based Learning (PBL) provides an active and innovative method to enhance student involvement and enhance reading and comprehension abilities. Thus, this research illustrates that the implementation of PBL can have a positive influence on students' English language reading skills.
Akbari et al., 2021	Executive leadership: The findings suggest that entrepreneurial leadership has a substantial and beneficial impact on the innovative work behavior (IWB) of employees within small and medium-sized ICT companies. Moreover, the creative self-efficacy of employees and the encouragement of innovation from leaders act as mediators in the correlation between entrepreneurial leadership and IWB.
Moraes et al., 2023	Executive Leadership: The research indicates that managerial support is essential for fostering an organizational culture that promotes innovation and corporate entrepreneurship. Interestingly, in academic settings with a heavy emphasis on entrepreneurship, it was discovered that the perception of rewards does not significantly impact the innovative behavior of university professors.
Musenze, & Mayende, 2023	Executive Leadership: The latest findings indicate that ethical leadership is correlated with innovative work behavior (IWB) through perceived organizational support. In practical terms, fostering enhanced IWB necessitates the implementation

	of diverse and integrated techniques rooted in ethical leadership principles and perceived organizational support among employees.
Dzimińska, 2023	Innovation culture: The findings highlight that academics envision an ideal-type university as The research findings emphasize that academics envision an ideal university as a place that creates an environment favorable to innovation. This kind of university promotes an organizational culture that values openness, diversity, creativity, and constructive dialogue, leading to collaborations across different disciplines that go beyond traditional boundaries. The model of their ideal university encourages a culture of innovation, aiming to unleash the potential of academic staff by promoting their abilities, initiative, self-confidence, and entrepreneurial spirit.
Zhang et al., 2023	Innovation culture: In summary, organizational culture plays a critical role as an intangible asset within an organization and can be leveraged to achieve strategic objectives related to innovation. The soft social context within an organization can be utilized to shape the atmosphere for innovation, ultimately enhancing its innovation performance. A well-designed governance system, sufficient resources for innovation, and a culture that promotes psychological safety and encourages innovation can contribute to increased innovation efficiency and improved innovation performance.

Source: Authors

3. Methodology

The chosen methodology and methods were developed with the main objective of identifying and validating the crucial components that promote innovative behavior among students of management in an academic environment. Quantitative and descriptive research was chosen because of its ability to facilitate precise measurement, exhaustive description, replicability, generalization, and objectivity, thus reinforcing the methodological rigor of the study (Osuagwu, 2020). It uses a questionnaire to collect data, guided by the constructivist research paradigm (Pilarska, 2021). The assumption is that students act to create a future they believe in by developing and creating opportunities in line with their convictions and dreams (Dieguez et al., 2021). Students' subjective choices for being motivated in classes are based on their emotions, perceptions of reality, and their ability to understand the potential effects of these choices, which are triggered by the situations they have already experienced (Jääskä & Aaltonen, 2022). The population studied in this research is composed of students from the Polytechnic University of Cávado and Ave (IPCA), Portugal, Higher School of Management.
To achieve the research objectives, a mixed approach was utilized which involved convenience sampling. A quantitative methodology was employed through a survey conducted among students from the fields of "Business Management", "Finance", "Public Administration", "E-Commerce", Insurance Management, Taxation, and "Touristic Activities Management". The final version of the data collection is divided into four major groups, namely: (i) sociodemographic data, (ii) Fundamental Factors for Promoting Student Innovation (iii) Soft Skills, and (iv) Entrepreneurship. There are 78 questions in total, all of which are closed. The final questionnaire was previously validated by three academics and two students.

4. Data Collection and Results

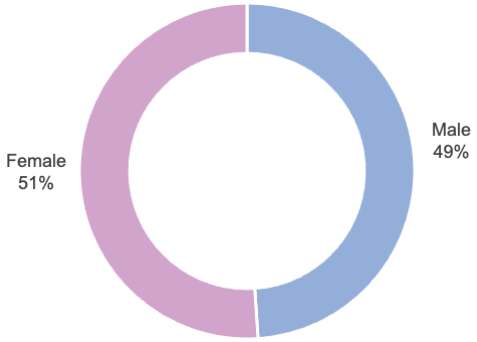
Between January 2024 and March 2024, a questionnaire survey was conducted online to examine the success factors related to innovative behavior in organizations worldwide. The study utilized a quantitative research method and collected 183 valid responses. To identify

the success factors, a literature review was conducted by selecting systematic reviews. The survey questionnaire consisted of 33 questions that rated the perceived importance level of the success factors using a five-point Likert scale, ranging from 1 (least important) to 5 (most important). The success factors included Knowledge sharing - giving (KSg), Knowledge sharing - asking (KSa), Learning culture (LC), General self-efficacy (GSE), Active methodological support (AMS), Executive leadership (EL), and Innovation culture (IC). The scale was based on the study of Rattanawichai et al. (2022). In addition to these factors, some of the soft skills based on the UNESCO Framework for Transversal Competencies were also included in the survey, namely: Innovative & Creative (ICR), Critical thinker & Problem solver (CTh), Problem-solving (PS), Leader & Responsible (LR), and Collaborative skills (CS). A predictive/explanatory PLS (partial least squares) model was utilized to analyze the data.

4.1. Socio-demographic data

Most of the respondents were female, accounting for 51% of the sample (Figure 1).

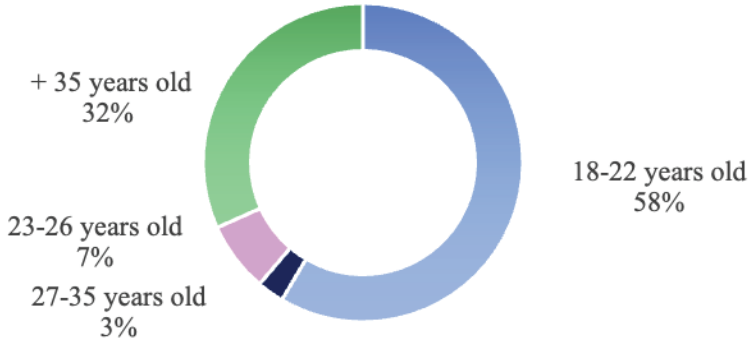
Figure 1: Gender of respondents



Source: Authors

Many respondents are between 18 and 22 years old (58%), followed by respondents aged more than 36 years old (32%) (Figure 2).

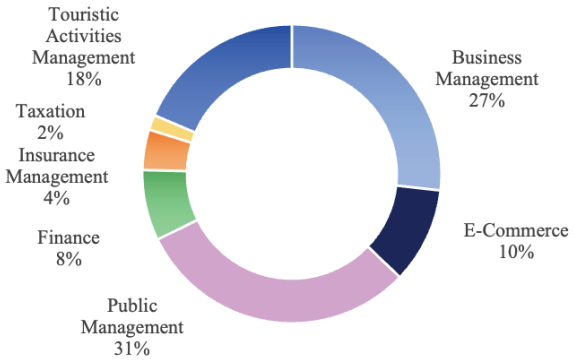
Figure 2: Age of respondents



Source: Authors

Among the respondents, 45% belonged to the management field, followed by engineering (33%), tourism (11%), and design (5%) (Figure 3).

Figure 3: Courses attended by respondents



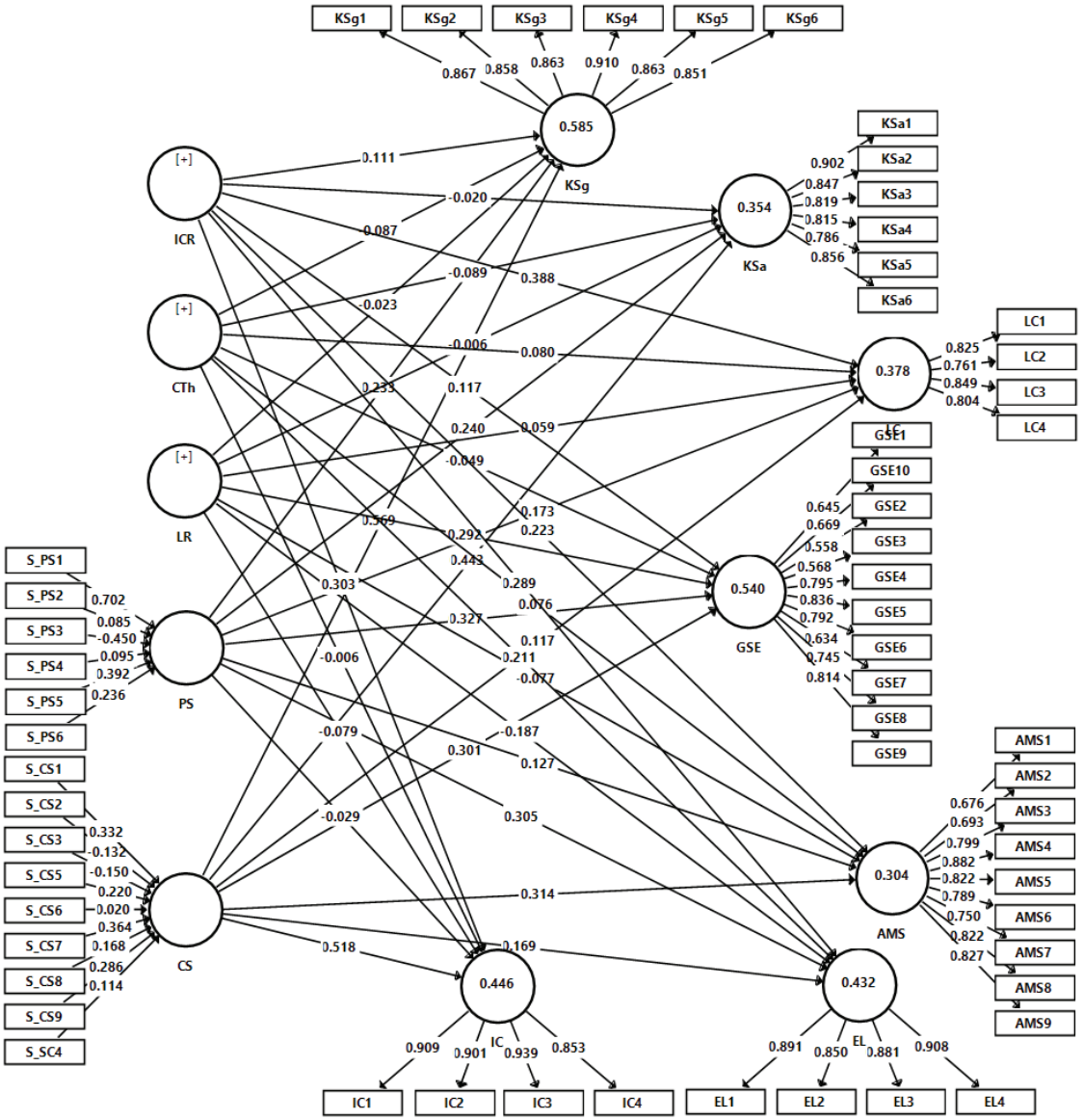
Source: Authors

Of the total respondents, 51% had no professional experience, while 45% had work experience of less than 1 year, 25% ranging from 1 to 2 years, and 22% ranging from 2 to 5 years Only 7% of the respondents had work experience of more than 5 years.

4.2. Success Factors and soft skills

A quantitative research method was chosen to identify and validate the essential components that promote innovative behavior among management students in an academic environment. The research involved a literature review of systematic reviews to identify these success factors. Based on the findings, a survey questionnaire consisting of 33 questions related to the perceived importance level of the success factors was created. The questionnaire items were rated on a five-point Likert scale ranging from 1 (least important) to 5 (most important) for factors such as Knowledge sharing - giving (KSg), Knowledge sharing - asking (KSa), Learning culture (LC), General self-efficacy (GSE), Active methodological support (AMS), Executive leadership (EL), and Innovation culture (IC). These factors were based on the study conducted by Rattanawichai et al. (2022). Additionally, some of the soft skills based on the UNESCO Framework for Transversal Competencies were included in the survey, namely: Innovative & Creative (ICR), Critical thinker & Problem solver (CTh), Problem-solving (PS), Leader & Responsible (LR), and Collaborative skills (CS).
To validate the seven factors (reflective latent variables) measuring students' perception of the importance/weight of their innovative behaviors in the academic context, and the influence of five soft skills on this perception of innovation, a predictive/explanatory PLS (partial least squares) model was used. Two of the soft skills were measured as formative latent variables. The result is shown in Figure 4.

Figure 4: PLS model with loading values, impact coefficients, and R^2 values



Source: Authors

All loading values from the measurement model had quite overwhelming values. Cronbach's alpha values varied between 0.827 and 0.935 and the composite reliability index between 0.884 and 0.949, which were very good values (values greater than 0.8). These results point to very good reliability of the factors and support their convergent validity.

Likewise, AVE (average variance extracted), Fornell-Larcker classifications (Fornell &Larcker, 1981) and the heterotrait-monotrait (HTMT) correlation ratio (Henseler et al., 2015) support good discriminant validity of the factors. The AVE (average variance extracted) presented values between 0.508 and 0.812 (values must be greater than 0.5), supporting the discriminant validity of the factors. Fornell-Larcker classifications were provided for all seven factors (the square ratio of the AVE value proved to be superior to the cross-correlations), being yet another indicator that supports good discriminant validity. The heterotrait-monotrait (HTMT) correlation ratio (Henseler et al. 2015) should be less than 0.9 or according to other authors, less than 0.85. The values varied between 0.311 and 0.821, all values below 0.85.

The significance of the model was estimated by bootstrapping with 5000 subsamples. The significant impact coefficients for a 5% level are in bold in Table 1. The effect size f^2 measures, for each exogenous variable, its relative contribution to the value of R^2 (Hair et al. 2014). Values greater than 0.35 are high, between 0.15 and 0.35 moderate, and between 0.02 and 0.15 weak, with the remaining values being very weak (Cohen, 1988; Hair et al., 2014). In the same Table 2, moderate to high values are in bold. Non-significant impact factors at 5% and whose effect size proved to be very weak are not tabulated.

Table 2: Structural model coefficients, bootstrap p-values and f^2

	Path coefficient	**P value**	**f square**
CS -> AMS	0.314	**0.001**	0.071
CS -> EL	0.169	0.058	0.025
CS -> GSE	0.301	**0.000**	0.099
CS -> IC	0.518	**0.000**	**0.244**
CS -> KSa	0.443	**0.000**	**0.153**
CS -> KSg	0.569	**0.000**	**0.392**
CTh -> EL	0.211	**0.031**	0.062
ICR -> AMS	0.223	**0.007**	0.041
ICR -> EL	0.289	**0.000**	0.085
ICR -> IC	0.303	**0.000**	0.096
ICR -> LC	0.388	**0.000**	0.140
LR -> EL	-0.187	**0.003**	0.043
LR -> GSE	0.292	**0.002**	0.129
PS -> EL	0.305	**0.001**	0.097
PS -> GSE	0.327	**0.003**	0.138
PS -> KSa	0.240	**0.023**	0.053
PS -> KSg	0.233	**0.002**	0.077

Source: Authors

It is worth highlighting the negative and significant impact of LR (Leader & Responsible) on EL (Executive leadership). However, the effect size turned out to be weak ($f^2 = 0.043$). The only variable independent of soft skills that has a moderate to high effect in explaining innovation factors is CS (Collaborative skills).

4.3. Success Factors, soft skills, and entrepreneurship

To find out to what extent everything is or is not related to entrepreneurship, represented by the dichotomous variable "Do you see yourself as your own boss in the future? i.e. with your own business?" (145 students answered yes and 38 no) a logistic regression was carried out, where the predictor variables were the seven innovation factors, the five soft skills and having or not professional experience. The response variable identified three significant predictor variables (Table 3): "executive leadership", "critical thinker & problem solver" and "leader & responsible". For each additional unit of importance attributed to the "executive leadership" factor, the chances of a student intending to become an entrepreneur reduce on average by around 70%. For every additional unit that a student feels like a "critical thinker & problem solver", the chances of intending to become an entrepreneur increase by an average of around 4.8 times. For every additional unit that a student feels "leader & responsible", the chances of

intending to become an entrepreneur increase by an average of around 2.7 times. The other variables do not have a significant impact on entrepreneurship.

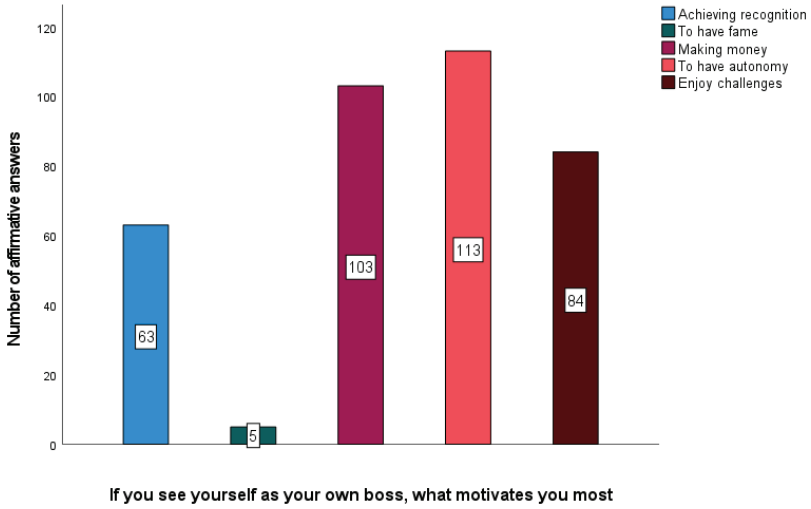
Table 3: Coefficients, p-values and odds ratios in logistic regression

	Beta	p-value	Exp(Beta)
EL	-1.212	< 0.001	0.298
CTh	1.579	< 0.001	4.850
LR	1.004	0.002	2.730

Source: Authors

The reasons why 145 students want to work for themselves are represented in Figure 5, where each bar represents the number of affirmative answers for each of the five reasons that were included in the questionnaire.

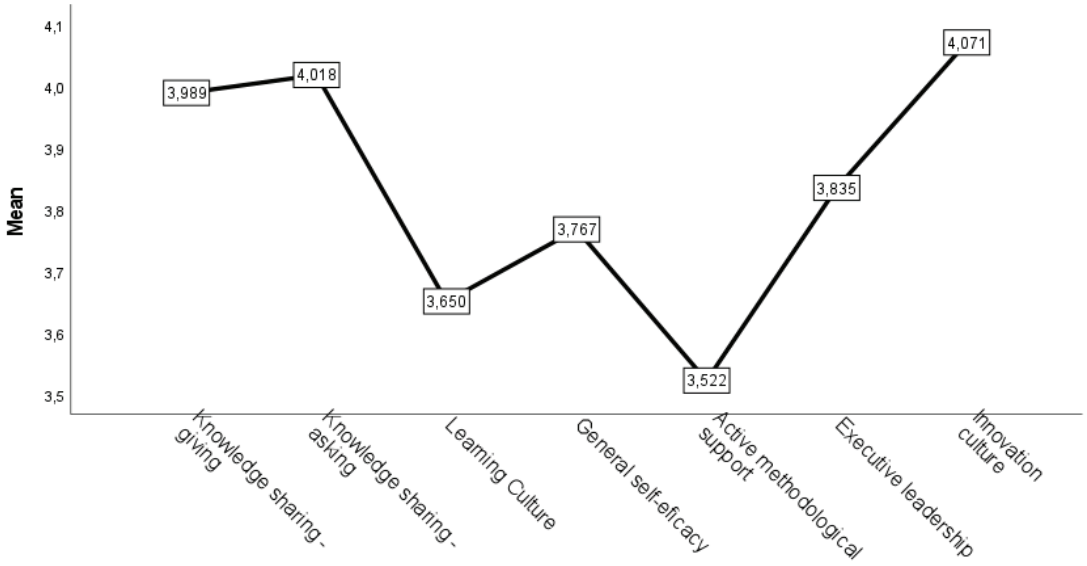
Figure 5: Reasons why students want to work for themselves



Source: Authors

Overall, the seven factors are perceived differently by respondents. Figure 6 compares their average values (range from 1 to 5).

Figure 6: Average innovation factors



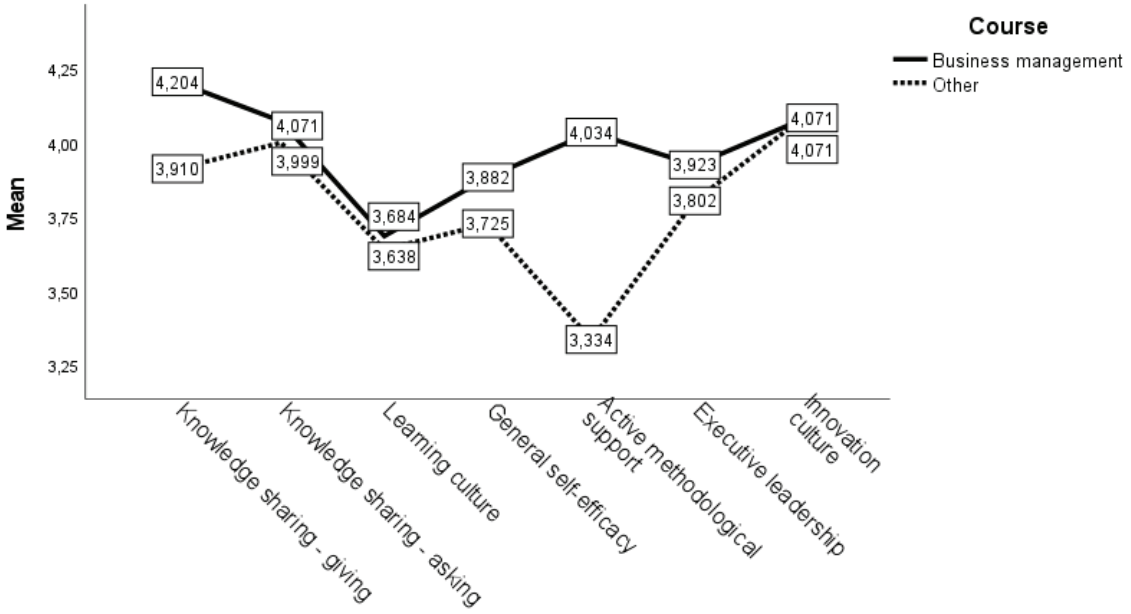
Source: Authors

All survey participants considered seven factors crucial in promoting innovative behavior among students. The most important factor was innovation culture, with an average score of 4.071, followed by knowledge sharing-asking with a score of 4.018 and knowledge sharing-giving with a score of 3.989. The least important factor was active methodological support, which received an average score of 3.522.

By correlating the average values with the courses of the respective respondents, we can conduct another analysis to explore how education in entrepreneurship and innovation can improve these factors. This will help us utilize Higher Education Institutions to instill innovative behaviors in individuals.

Figure 7 compares the average values obtained by business management students with those obtained by students from other courses. The average values were higher for business management students for all seven factors, with "innovation culture" values almost identical in both groups. Isolated significant differences only for the variables "knowledge sharing - giving" (p-value = 0.026) and "active methodological support" (p-value < 0.001). Using the Bonferroni correction for multiple comparisons, only "active methodological support" was significant.

Figure 7: Average innovation factors by course

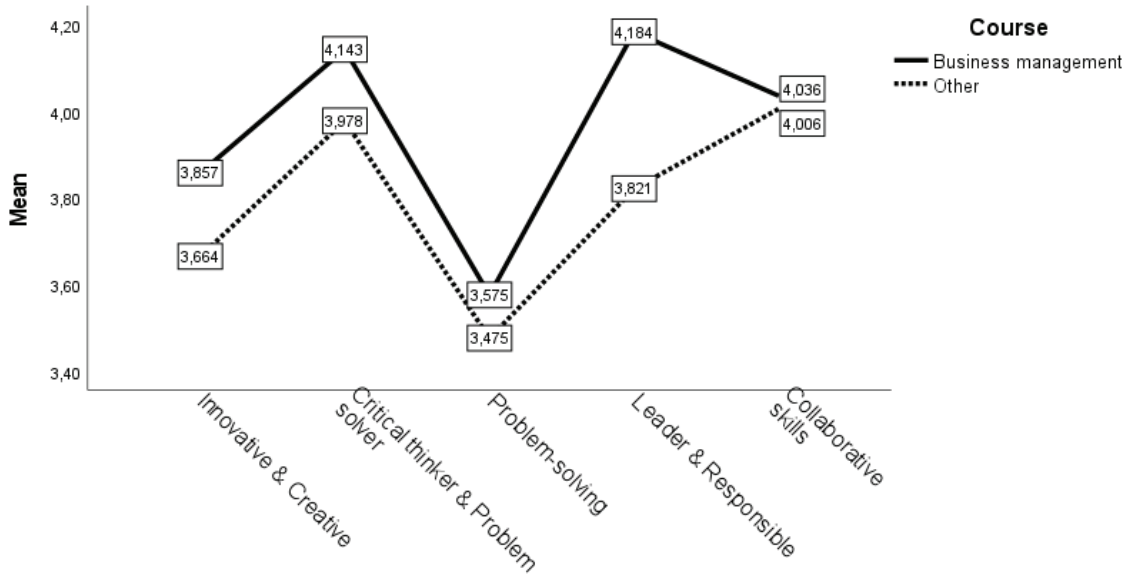


Source: Authors

According to the study, students studying business management consider knowledge sharing-giving as the most significant factor (with a score of 4.204), while students from other courses value innovation culture (with a score of 4.071). The study also reveals that the most significant differences are in active methodological support and knowledge sharing-giving. Perhaps these results are attributable to the curriculum of the business management course, which includes a Creativity and Business Innovation unit, where creativity, problem-solving, critical thinking, collaboration, and teamwork are emphasized. The course also uses digital platforms, co-creation projects, design thinking, collaborative learning, and peer learning to promote active learning methodologies.

In what concerns soft skills and their impact on innovative behavior, also overall, the five soft skills are perceived differently by respondents. Figure 8 compares their average values (range from 1 to 5).

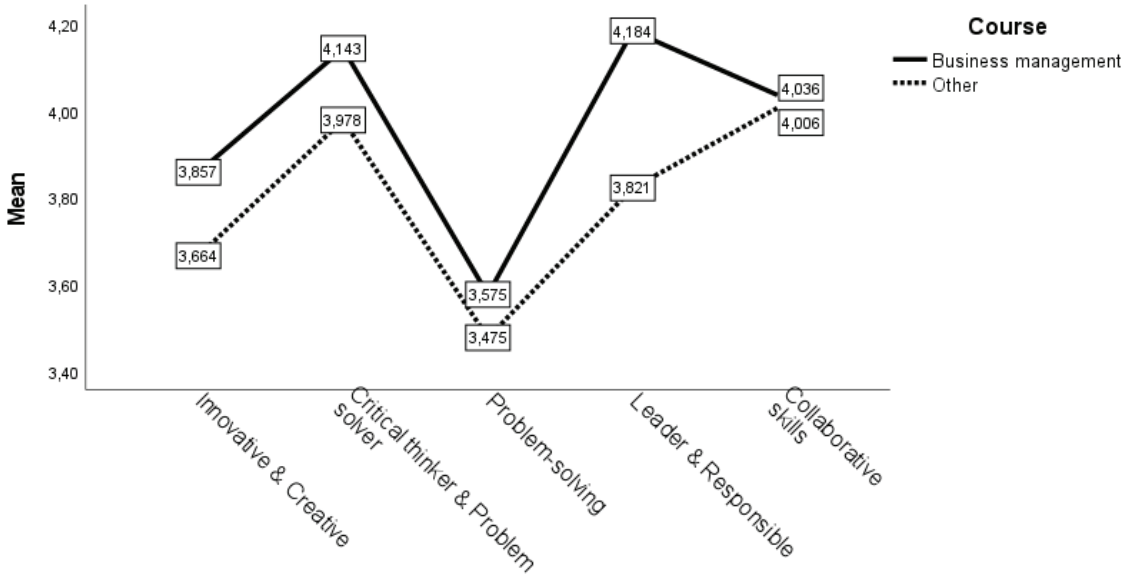
Figure 8: Soft skills averages



Source: Authors

Figure 9 compares the average values obtained by business management students with those obtained by students from other courses. The average values were higher for business management students for all five soft skills. Significant differences only for the variable "leader & responsible" (p-value = 0.007). The Bonferroni correction does not change the conclusions.

Figure 9: Soft skills averages by course



Source: Authors

5. Conclusion

In today's fast-paced world, change is frequent and rapid. For organizations to stay competitive, they must be agile and have the right resources to achieve their objectives. Among these resources, human resources are the most challenging assets to imitate. Therefore, promoting innovative behavior is crucial and requires special attention. According to a recent study, collaborative skills have a positive impact on various factors such as active methodological supports, executive leadership, general self-efficacy, innovation culture, and knowledge sharing - both giving and asking. The research shows that critical thinking and problem-solving skills have a positive impact on executive leadership. Similarly, innovative and creative skills positively impact active methodological support, executive leadership, innovation culture, and learning culture. On the other hand, leadership and responsible skills negatively impact executive leadership but positively impact general self-efficacy. Furthermore, problem-solving has a positive impact on general self-efficacy, executive leadership, and knowledge sharing (giving and asking). The research also concludes that students who receive creative and innovation supervision, supported by innovative methodological practices, better understand the impact of soft skills on innovative behavior.
Encouraging innovative behavior is essential and can effectively support innovative behavior and maintain competitiveness Practical implications include promoting collaboration, developing critical thinking and problem-solving skills, fostering creativity, providing balanced leadership training, integrating innovation education, and expanding research to explore the applicability of findings across different fields.
However, some limitations are presented, namely sample size and methodology that even if can be replicated, it could be more informative if some interviews were done to deep understand results.
To strengthen the results and gain a better understanding of what works best for business management students, further research should be conducted on factors such as teachers' profiles, course content, and specific teaching methodologies. Additionally, it would be beneficial to investigate whether similar results are obtained in other areas of expertise or knowledge.

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A scientific paper

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YOUTH ETHNIC ENTREPRENEURSHIP: SUCCESS FACTORS IN BUSINESS

ABSTRACT

Youth entrepreneurship is a "hot" topic that has focused the attention of various institutions and researchers in recent years. At the same time, there is a lack of sufficient knowledge about the entrepreneurial intentions of young people from different minority groups. In the research and the political decisions, young people are often seen as a homogeneous group and not enough attention is paid to the differences between them. For this reason, the purpose of the article is to analyze the assessment given by young people of Roma origin to some factors that are associated with success in entrepreneurial activity. A survey is conducted among 442 pupils and students of Roma ethnicity. Data were analyzed using cross-tables. The statistically significant differences found between the factors are discussed. The research establishes the assessment of the influence of the ambition and personal qualities of the entrepreneur, self-confidence, the need for adequate support from the state and from close people, as well as the expectations of the role of luck for success in entrepreneurship according to the respondents. The paper contains three parts. In the first – a literature review is made about the main questions related to the topic of the factors that influence young people from different backgrounds about starting and developing their own business. In the second part, the main methodological aspects are described. In the last part, data are presented and the obtained results are discussed. The results show that the structure and the content of the curricula and the entrepreneurship classes are important for the formation of knowledge and positive attitudes among young people regarding the creation and development of one's own business. The location is also to a certain extent a prerequisite for building certain ideas about entrepreneurship and the factors that have an impact on successful business development.

Key words: *youth entrepreneurship, ethnic entrepreneurship, Roma entrepreneurship.*

1. Introduction

The power of entrepreneurship to solve certain socio-economic problems is a main motive for state and international institutions and organizations to formulate policies aimed at promoting initiative among different social groups to start their own business activities. Its importance for generating new ideas, creating new jobs and sometimes new professions is key. Entrepreneurs are a driving force for the development of innovation and contribute to the higher level of integration of people and regions in an economic and social context (CM, 2000). The largest minority on the old continent (EC, 2020) and the third ethnic group (after Bulgarian and Turkish) in Bulgaria are the Roma (NSI, 2021). They settled in Europe centuries ago and not a little is known about their way of life, traditions, culture, as well as

about the labor activities performed by them, such as practicing various crafts on the Bulgarian lands (Nunev, 2023) or being peddlers and craftsmen in other countries (Anttonen, 2008, 125). Due to some unique traditions, way of life and especially the lower level of education (NSI, 2021), they are often placed in a disadvantageous position on the labor market and faced with a number of challenges such as low employment rates and the associated with them poverty, not good health care, housing problems (EU, 2020; CM, 2022). An alternative to deal with unemployment, prejudice and social exclusion in some cases is the creation and development of one's own business. If not a little is known about the work activities of the Roma, there is still insufficient data about their entrepreneurial initiatives. This raises many questions related to the assessment that especially young people of this ethnicity give to some influential factors having influence for success in entrepreneurship. Based on all this, the purpose of the publication is to study and analyze the assessments of young people of Roma origin regarding some factors for success in entrepreneurial activity in our country. The object of the conducted research are young people who are part of the secondary education course or studying in a higher school. The publication contains three parts. In the first part, a literature review is made on the subject under consideration. It briefly examines the development of entrepreneurship in different contexts, some types of entrepreneurship, including ethnic entrepreneurship, as well as the specifics, employment and entrepreneurial activities of the Roma ethnic group. In the second part, the main methodological elements of the study are described. In the third part, data are presented and the obtained results are discussed. Finally, some brief summaries are made and the highlights of the conducted research are pointed out. The main results show that, depending on the availability of entrepreneurship learning, a statistically significant difference is reported regarding the factors influencing the expectations of achieving success in business, namely: self-confidence, personal ambition and personal qualities of the entrepreneur and support from close people. Young people who study entrepreneurship at school demonstrate greater awareness and are more categorical in their answers. In addition, according to location, a statistically significant difference was also found regarding self-confidence and the importance of luck.

2. Literature overview

2.1. Entrepreneurship. A brief overview of entrepreneurship in different geographical and national contexts

Evidence of economic life and individual entrepreneurial activity can be found in different geographical areas. This means that the emergence and development of entrepreneurship is an achievement of societies and individuals of different nationality, ethnicity, educational level, social status, religion, cultural identity, gender, origin. Although activities somewhat similar to our understanding of entrepreneurial initiatives today were carried out in ancient times (Todorov, 2015), it should be noted that, in general, in the economics in the eastern part of the world centralization is established, which limits the realization of completely independent individual activities (Dimitrov, 2010). In contrast, the economic life of Ancient Greece and Ancient Rome was dominated by private initiatives (Dimitrov, 2010). The specific historical experience of different societies, nations and ethnic groups is one of the prerequisites for building an entrepreneurial culture and forming, to varying degrees, aspiration in people to take risks and take responsibility for their future by setting up their own businesses. National economies and individual entrepreneurial activities undergo changes over time, under the influence of various factors. During the Middle Ages, the discovery of new continents, the

increase in the scale and scope of trade resulted in various changes, including in the organizational forms of manufacturing activity (Nikolov, Kyoseva, 1999). The entrepreneur begins to play an increasingly essential role in the social development of separate nations and communities. In Bulgaria, during the First Bulgarian State (681-1018), trade relations with other countries were formed, and crafts developed in the towns that had already emerged. During the period of the Second Bulgarian State (from 1185-1396), the presence of foreign traders increased, and except the Bulgarians, who are the main ethnic group, people from other ethnicities, such as Armenians and Jews, settled and developed commercial activities in the country (Kolarov, 2022). During this period, there was a development in trade, crafts and industrial relations, which had a number of social and economic consequences (Petrova, 2002). The emergence of capitalist relations in the country was established during the Revival period (Penchev, 2020).
During the time of socialism and the planned economy (1945-1989) there was no opportunity for the development of entrepreneurship, but after the socio-political and economic changes since the beginning of the 90s of the 20th century, the entrepreneurial initiative has been a possible career path for everyone living in Bulgaria. regardless of their ethnicity, gender, education, location, etc.

2.2. Typology of entrepreneurship. Ethnic entrepreneurship. The Roma - labor and entrepreneurial activities

The dynamic development, expansion of the scope and scale of entrepreneurial initiatives determine their heterogeneity and the need for classification. Some types of entrepreneurship that are of research interest are the following:

(1) Youth entrepreneurship: setting up and development of one's own business by young people. According to the current legislation in Bulgaria, they are between the ages of fifteen years and twenty-nine years (NA, 2012, §1(1). Although young people show serious interest in entrepreneurship and the support for their initiatives is increasing, still only a small proportion of them start their own business (OECD/EC, 2023).
(2) Female entrepreneurship: it is an expression of the ambition of women to found and run their own company. This entrepreneurship in Bulgaria is relatively above the average level compared to that in the EU (BSMEPA, 2020). Businesses founded and managed by women in the Bulgarian economy have been researched in different contexts - their competitiveness (Georgieva, 2021a, 200), specifics and equality (Georgieva, 2021b), segmentation according to different characteristics (Georgieva, 2022).
(3) Social entrepreneurship: according to the current legislation in Bulgaria, its manifestation is the social and solidarity economy, which aims to contribute to the realization of social activities or goals by producing products or offering services separately or in partnership with bodies of the authorities at various levels (NA, 2019). In social entrepreneurship, people's needs come first and market opportunities are used to realize causes in a social aspect (CM, 2012).
(4) Cultural entrepreneurship: includes entrepreneurial initiatives in the cultural and creative industries. It represents a new approach to thinking about culture through the prism of economic results and entrepreneurial activities (Dobreva, 2018). Here the cultural heritage, considered as a resource for development by local communities is included (Vladimirov, 2023), as well as the creation of a "new heritage" (Slavova, Vladimirov, Todorova, Denisova, 2021), its digitalization as a source of innovation (Stoyanova, 2024), the intellectual property and the competitiveness of digital companies (Markova, 2022).

(5) Family entrepreneurship: represents entrepreneurship as a family value and joint family activity. Their importance and specifics are reported in numerous studies. Analyses are made of the differences between family and non-family companies, as well as of practices in Bulgarian business management (Yordanova, Vladimirov, Simeonova-Ganeva, 2015).
(6) Ethnic entrepreneurship: comprises individuals from ethnic minorities who, for various reasons, decide to choose entrepreneurship as their career path. Often, problems related to the labor market and/or the acquisition of certain resources are the basis for founding and managing one's own business (Gold, 2016). Resources can be considered in a broader sense: financial, material assets, knowledge, skills, experience, etc. Within the scope of ethnic entrepreneurship is the initiation and management of one's own economic activity by individuals from the Roma ethnic community. Entrepreneurs are not a homogeneous group and have their own characteristics, challenges, history, perspectives. For these reasons, their specifics, motives, expectations and factors that influence the entrepreneurial intentions of young people from different communities should be researched and known.
Although there are hypotheses about the origin, path and reasons for the Roma to seek their new life in foreign lands, it is a fact that they have been part of the population of the European continent for centuries (Metodieva, Braykova-Tomova, Pamporov, Kolev, Krumova, Yordanov, 2008). In Bulgaria in terms of number, they are the third, after the Bulgarian and Turkish ethnic groups, but in first place according to the sign of the youngest ethnic group. At the same time, of the three main ethnic groups, the Roma have the most unfavorable indicators in terms of completed education. Among the consequences of this is their lower economic activity in both youth and adulthood. In addition to the already mentioned, the most unemployed are among the Roma ethnic group, which in some regions of the country is a serious challenge with economic and social dimensions (NSI, 2021). It should be noted that the Roma are the largest ethnic minority on the old continent, who often suffer from misunderstanding and prejudice leading to discrimination and social exclusion (EC, 2020).
Historically, the labor activity of the Roma is mainly associated with craftsmanship within the Ottoman Empire, part of which the Bulgarian lands were also for five centuries. Among the commonly practiced crafts by them are blacksmithing, basket making, etc. (Metodieva, Braykova-Tomova, Pamporov, Kolev, Krumova, Yordanov, 2008). In fact, the Roma ethnic group is heterogeneous in its composition. It consists of different community groups, and in some of them the names are related to the occupation they practice (Nunev, 2023). For a comparison with the labor activities of the Roma in another European country such as Finland, for example, it can be noted that they mainly earned their living as peddlers. Women were engaged in needlework, and men in horse breeding, tinsmith services, etc. (Antonen, 2008).
The policies of national governments, as well as European institutions, are aimed at solving the most pressing problems faced by the Roma ethnic group. These are mainly raising the educational level, active inclusion in paid employment, as well as solving the problems with accommodation and providing health care (EC, 2020; CM, 2022). Considering the lower level of employment as part of the main challenges raises the question of finding alternatives to solve it. By promoting entrepreneurial initiatives, higher and sustainable employment, social inclusion and successful integration, increasing the trust and self-assessment of people from the community, and last but not least, creating good behavioral role models among adolescents could be achieved.
The analysis of research in the field of both youth entrepreneurship and ethnic entrepreneurship shows that there are still unexplained issues related to entrepreneurial activity among the Roma ethnic group, as well as the factors, motives and barriers to starting one's own business. A key question is young people's assessments of the factors that determine the success of entrepreneurial undertakings and can be a starting point for

analyzing their motivation and decision to set up their own business in the future. The conducted studies on the state of entrepreneurship among Roma provide an opportunity to illuminate the challenges they face in the context of modern hard-to-predict and dynamic business environment. It is found that among the problems they most often confront are the following: discrimination at the market, the lack of capital or the difficulties associated with its provision, the insufficient skills necessary to to run an independent business (OECD, 2021). Another point of view on this subject, viewed through the prism of entrepreneurs of Roma origin, shows that they have encountered certain prejudice when carrying out their activities. Such an attitude was felt when working with the tax offices, as well as in centers engaged with employment and economic development, municipalities, banks, insurance companies. In addition, entrepreneurs of Roma origin have experienced difficulties in working with some of the partners who supply them with certain raw materials, materials or services; in the process of working with customers and carrying out retail transactions, as well as sometimes in a competitive struggle with other direct competitors on the market (Anttonen, 2008). A comparison of these results highlights several areas where more attention needs to be paid. Discrimination and prejudice hinder entrepreneurial initiatives in several areas - access and provision of financing for business starting and development, effectiveness of working with institutions at the national and local level; the created relationships with other market participants, as well as acquiring and upgrading knowledge and skills related to the establishing of one's own company (OECD, 2021 Anttonen, 2008). Entrepreneurial initiatives among women of Roma origin is also a subject that deserves special attention. There are still a number of research issues that need to be scrutinised. Entrepreneurial activity of an informal nature carried out by women of Roma ethnicity shows their motivation, obstacles and available opportunities (Mikić, 2019). In general, women from the Roma community are faced with a number of challenges related to their work. Along with low education, one can add the tradition of early marriages and the negative attitude to work outside the home are serious obstacles to their employment and to starting and developing their own business (CE, 2024).

In some European countries, good practices for promoting entrepreneurship among Roma can be identified. Such ones, for example, are the Kiútprogram implemented in Hungary to provide micro-credits for establishing a company (OECD/EC, 2013). The multiplication of good practices and the implementation of policies for the growth of entrepreneurial activity among young people from different ethnic groups requires a good knowledge of their motivation, driving forces and expectations from the development of their own business. Of particular interest is the question of how to evaluate some factors that directly affect business success.

3. Methodology

3.1. Purpose and object of the study

The purpose of this publication is to investigate and analyze the assessments given by the respondents to some factors affecting the success of entrepreneurial activities. The object of the study are young people who study in secondary or higher schools and are of Roma ethnicity. 442 pupils and students were surveyed through a structured questionnaire. The research was conducted in the spring of 2023. The methods used for data processing and analysis are two-dimensional distributions - cross-tables and identified statistically significant differences. The interest in the subject was aroused both from the demographic trends in society, as well as from the findings about the level of entrepreneurial activity among young

people, insufficient knowledge about expectations, attitudes and factors influencing the decision to set up one's own business.
The research, the results of which are presented in the publication, was conducted in Bulgaria. The educational institutions included in the study are located in different parts of the country. Different sized settlements are covered. Young people studying at a secondary school located in a Bulgarian village were interviewed. In the study are also included their peers from both a small Bulgarian town, which is a municipal centre, and ones from a big Bulgarian city, which is a regional centre. The largest share of the surveyed youth is from Sofia, the capital of Bulgaria. Among the reasons for this are demographic trends, Roma migration, urbanization.

3.2. Research questions

The research questions asked, which derive from the studied literature and the results of conducted research, are aimed at revealing to what extent the respondents consider that success in business is influenced by: (1) self-confidence; (2) ambition and personal qualities; (3) the support from close people; (4) state support; (5) having luck.
The influencing factors could be broadly classified into two groups. The first group are "internal", which can be developed and controlled by the person himself/herself. Although the environment has an influence on them, they are to no small extent within the zone of influence of the individual. They include personal qualities, ambition, self-confidence, which each person builds and develops. The second group of factors, called "external", covers those ones that are not within the control of individuals, but rather are provided by the environment such as the support provided by the state and close people, as well as luck, i.e. lucky coincidence from which a person without certain "merits" can benefit.

4. Results and discussion

The analysis of the assessments given by the young people surveyed about the factors that influence them to achieve success in business shows that there are statistically significant differences according to the location regarding self-confidence and the importance of luck in starting and successfully managing one's own business.
The respondents' answers about self-confidence as a factor for success in business show that there is a statistically significant difference depending on the place where young people live and study (table 1).

Table 1: Do you agree that success in business depends on self-confidence? / Location (%) (Cramer's V = 0, 164; Approximate Significance = 0,000)

Do you agree that success in business depends on self-confidence?	**Location**			
	village	**municipal centre (town)**	**district centre (town)**	**Sofia**
absolutely true	32	58	56	33
true	63	16	29	51
neither true nor false	4	21	6	11
false	0	5	3	2
absolutely false	1	0	6	3

Source: Author

Respondents from a municipal centre and a district centre in the country show the greatest certainty about the influence of self-confidence on the successful start-up and management of entrepreneurial undertakings, reporting that this statement is "absolutely true". More than half of the respondents who live and study in places that are district or municipal centres express such an opinion. The largest share regarding hesitations about the credibility of this statement is among young people who study in educational institutions in a municipal center and the capital. However, it is found that their share is significantly lower compared to their peers who consider that self-confidence in the different phases of the entrepreneurial process is a necessary prerequisite for achieving the goals in business. These results can be explained by the possibility, on the one hand, to know entrepreneurs personally, as well as the way in which successful people are presented in the media and social networks, and understandably, young people indirectly form their opinion about them.

A large dispersion in the answers received from the respondents was found regarding the importance of lucky coincidence for success in entrepreneurial undertakings (Table 2). Almost half of the young people who live and study in the country accept as "true" the statement that luck is "important" in the activities of entrepreneurs. The share of students in a municipal centre who cannot answer categorically is the largest. In general, they are the most skeptical about the importance of lucky coincidence in achieving success in their own business. Young people who live and study in a district centre are divided on their assessment of this statement. In the capital, slightly more than a third of those surveyed believe that this statement is "true", those who cannot consider whether this is true or not are 6 % less.

Table 2: Do you agree that success in business depends on luck? / Location
(Cramer's V = 0, 146; Approximate Significance = 0,005)

Do you agree that success in business depends on luck?	**Location**			
	village	**municipal centre (town)**	**district centre (town)**	**Sofia**
absolutely true	11	11	27	19
true	48	11	33	35
neither true nor false	19	42	15	29
false	16	21	11	8
absolutely false	6	15	14	9

Source: Author

Probably the reasons for this dispersion in judgments are differences in personal, subjective experience, upbringing, the relatives' opinion on the reasons for achieving success, popular examples of successful entrepreneurs in society.

The location determines to a certain extent the social environment, the building and development of social capital, access to quality education and employment. The opportunity to receive an education that provides the knowledge necessary for professional and personal growth and forms key skills is a condition for the successful development of young people as individuals and, accordingly, of society as a whole. The curricula of the different stages in the educational system include entrepreneurship learning. The assessment of some factors of success in business by young people who study entrepreneurship and those who do not have such intensive learning show some specific differences. A statistically significant difference was found in the perception of the statements that business success depends on self-confidence; ambition and personal qualities and support from close people. There is no

statistically significant difference in terms of assessment that the significant results in entrepreneurial activity depend on the support provided by the state and having luck. To sum up, the opinion of young people who study entrepreneurship shows that they are more categorical and believe that self-confidence is important for success in business (table 3).

Table 3: Do you agree that success in business depends on self-confidence? / Entrepreneurship learning (%) (Cramer's V = 0,195; Approximate Significance = 0,002)

Do you agree that success in business depends on self-confidence?	Entrepreneurship learning	
	no	yes
absolutely true	36	37
true	44	49
neither true nor false	14	8
false	6	1
absolutely false	0	5

Source: Author

In fact, starting and running one's own business is about taking risks, which is why every entrepreneur must undoubtedly be confident about their capability. Often, this includes having certain knowledge and abilities, skills for quick and adequate reaction in critical situations, working in a team and making sometimes difficult decisions, willpower to overcome the challenges that every entrepreneur is faced with in their daily life.

Similar is the situation with regard to the statement that the success of entrepreneurs is directly related to the qualities they possess and their ambition to achieve high results (table 4).

Again, the young people who learn entrepreneurship were more categorical in their overall assessment - "absolutely true" and "true".

Table 4: Do you agree that success in business depends on ambition and personal qualities? / Entrepreneurship learning (%) (Cramer's V = 0,233; Approximate Significance = 0,000)

Do you agree that success in business depends on ambition and personal qualities?	Entrepreneurship learning	
	no	yes
absolutely true	35	35
true	36	52
neither true nor false	21	8
false	7	2
absolutely false	1	3

Source: Author

This is probably due to the better understanding of the nature of this activity and the need for the entrepreneur to possess certain personal qualities such as courage, responsibility, initiative, creativity and others, which are necessary to successfully realize their goals. In addition, the pursuit of meaningful goals is directly related to the final result of business activity.

Young people who do not learn entrepreneurship are less categorical in their support for the statement that help from close people is important for success in establishing and managing their own business (table 5).

Table 5. Do you agree that success in business depends on the support of close people? / Entrepreneurship learning (%)
(Cramer's V = 0,236; Approximate Significance = 0,000)

Do you agree that success in business depends on the support of close people?	Entrepreneurship learning	
	no	yes
absolutely true	17	29
true	38	49
neither true nor false	33	14
false	6	4
absolutely false	6	4

Source: Author

This difference in opinions can be explained by the fact that knowledge provides clarity about the difficulties and challenges that anyone is faced with when takes the step to start their own business, then passes through the survival phase of the business and develops it by building a large company. Especially in the context of youth entrepreneurship, some barriers are established, such as lack of experience, both life and professional; insufficient knowledge, abilities, contacts; the limitations in the provision of resources, the overcoming of which is also related to the help that the people close to the young entrepreneur can provide. Perhaps, the knowledge of the nature of entrepreneurship thanks to classes in educational institutions leads to a greater awareness on the part of young people of the support that close people can provide and its valuable role in the success of establishing their own business.

There is no statistically significant difference regarding the statement that the success of entrepreneurs depends on state support. This is probably due to the lack of experience and ignorance of the specifics of the policies and tools to promote entrepreneurship, as well as the importance of institutions in building a business environment that favors starting a company also by young people. There is also no statistically significant difference about the statement that the success of entrepreneurs depends on the support of the state regarding the entrepreneurship learning. To a certain extent, the fact that young people would not rely on random lucky coincidence as well as state support for success in their possible future business undertakings is satisfying.

Another striking result is that the assessments given by young people who do not study entrepreneurship fluctuate more compared to the group of entrepreneurship learners. Respondents who do not study entrepreneurship more often state that they cannot say whether the reported statements are true or not. This is probably due to insufficient knowledge and confidence in assessing the factors that influence entrepreneurial success.

Cross-table data showed that there were no statistically significant differences by the "age" in the answers given about factors such as: self-confidence, personality traits and personal ambition, the support provided by close people and state policy, the lucky coincidence, which provide favorable opportunities for the development of entrepreneurial activities. Probably, among the reasons for this, is the respondents' belonging to a generation that has a similar lifestyle and socio-cultural identity, as well as the same environmental factors and shared values.

The main summaries of the results of the conducted research are the following:

A statistically significant difference is found depending on the presence of entrepreneurship as part of the training regarding the assessment of the statements that business success depends on self-confidence; ambition and personal qualities and support from close people. There is no statistically significant difference regarding the state support and luck. The analysis of these results draws attention to the content and the structure of the entrepreneurship curricula, which should contribute to the formation of positive attitudes towards the starting and development of business in the future by young people, including those of different ethnic origins.

A statistically significant difference is found depending on the location regarding self-confidence and the importance of luck in the entrepreneurial process from the emergence of the idea, creation of business and its management. This finding shows that location is a prerequisite for the formation of attitudes about entrepreneurship and the factors that determine the success of business initiatives.

The results show a higher degree of fluctuations on the part of respondents who do not learn entrepreneurship, in respect to business success factors. This indicates that entrepreneurship students have formed a clearer understanding of the nature of entrepreneurial activity and the factors influencing success.

Statistically significant differences by "age" regarding the assessment of the statements that success depends on: self-confidence; ambition and personal qualities; the support from close people and the state, as well as having luck, are not found. These results can be explained by the respondents' belonging to a generation that has some similar understandings.

5. Conclusion

Entrepreneurship provides an opportunity to realize the ideas and potential of anyone who has the courage and determination to start and run their own business. The interest in the creation and development of business initiatives is significant, since one’s own economic activity provides benefits both for the entrepreneur and the society as a whole. Development of entrepreneurial activities can be found both in different historical periods and in different geographical contexts. Entrepreneurial individuals are distinguished from each other by a number of characteristics such as: education, gender, national identity, social status, cultural and social identity, etc. Its dynamic development is the reason for defining different types of entrepreneurship. Along with youth, women's, social, cultural and others, ethnic entrepreneurship is also being developed. In Europe, the largest ethnic minority is the Roma (EC, 2020), and in Bulgaria they are the third largest ethnic group after the Bulgarian and Turkish ones (NSI, 2021). The lack of sufficient knowledge about the nature and specifics of entrepreneurial activities among the Roma, as well as their attitudes towards the creation and development of their own business, is the reason for the research interest in this issue. The publication examines and analyzes the assessments given by the respondents to some factors that affect the attitudes and plans of young people to set up and manage their own business. 442 pupils and students were surveyed through a structured questionnaire. The data are processed through cross-tables. The assessment of the participants in the research were analyzed regarding the statements that success in entrepreneurial activity depends on self-confidence; the ambition and personal qualities of entrepreneurs; the support from people

close to the entrepreneur and the state, as well as the role of luck. The answers to these statements were crossed with the following indicators: location, entrepreneurship learning and age. The results show that there is a statistically significant difference in the statements that business success depends on self-confidence; ambition and personal qualities and support from close people depending on the presence or absence of entrepreneurship learning. There is no statistically significant difference regarding the state support and having luck. A statistically significant difference was found regarding the statements that self-confidence and the role of luck depend on the location. No statistically significant difference was found in the assessments given to the formulated statements according the age. An interesting finding is that youth who do not learn entrepreneurship show a higher degree of hesitation in their answers. The obtained results show that the content of the curricula and the methods of learning entrepreneurship, in addition to providing knowledge, have a role in shaping the attitudes about the factors that have influence on success in business and possibly on the decision to start and develop one's own business activity in future. The location is important in shaping attitudes, as well as the opportunities provided for access to quality education, building social capital and a favorable environment for development - in professional and personal terms.

The limitations of the research are related to the fact that the surveyed young people are learners - pupils and students. For this reason, the results cannot be assumed to be representative of young people who have dropped out of the education system.

Future research in this area could focus on specific issues related to the attitudes of Roma youth about their entrepreneurial plans and initiatives. Among the issues that need to be considered in depth are the necessary knowledge, skills and abilities, which are required to gain confidence and make a decision to start one's own business, as well as the confidence-building approaches at all stages of the entrepreneurial process and encouraging the aspiration to achieve high results in business.

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A scientific paper

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PRIVATE EQUITY AS A FORM OF FINANCING THE DEVELOPMENT OF ENTERPRISES AND KNOWLEDGE ABOUT IT AMONG STUDENTS

ABSTRACT

An important problem in the area of economic development is supporting initiatives with high growth potential that are at an early stage of development, i.e. in the pre-seed, seed or start-up phase. One of the sources of financing the development of such ideas are Private Equity and VC funds. The basic problems in shaping this type of support in developing countries are - firstly - the availability of this type of funds, and secondly - knowledge of how to use them.
The aim of the article is to present the basic principles of financing the development of enterprises through PE/VC and to determine the actual knowledge about PE funds in Poland. The sample was limited to university students. The research tool was an online survey, which was made available to economics faculties at four universities in Poland.
The obtained results do not confirm high knowledge about PE/VC among students in Poland. Knowledge about the resources and support that can be obtained at various stages of development of business ventures in Poland is very low. This indicates the need to take actions in the area of promotion and education that may contribute to improving the entrepreneurial ecosystem and the functioning of the PE market in Poland.

Key words: *private equity, venture capital, PE promotion, entrepreneurial ecosystem, the role of universities in shaping EE.*

1. Introduction

Private equity (PE) funds invest in private companies by means of a non-traded equity stake for a multiyear period, with the aim to make a return by improving the investee companies' performance and exiting them at a profit. Private equity involves investing in unlisted companies and ranges from early-stage venture capital to later-stage buyouts. These investments can take the form of both equity and hybrid financing, combining equity and debt. In addition to financial contributions, private equity investors may also provide various types of management support to the company, such as legal, tax, and organizational advice.

The basic division divides PE funds into venture funds (venture capitals, VC), which are formal and have a fund structure that obtains capital from other investors, and angel investors' funds, which are informal and involve investing investors' own funds.

PE, i.e. a venture capital funds and angel investors' funds are treated as investments in young, privately held companies, in the start-up phase or in the early stages of its development and its expansion (Naqi, Hettihewa, 2007; Howaniec, Madyda, 2019). The capital is provided by

external investors to entities that have an innovative product, method of production or service that has not yet been verified by the market and therefore poses a high risk of investment failure. These investments are very risky, because it's about such phases of enterprise development, or it would be more appropriate to say - economic ventures development, where funds are necessary, e.g. for financing industrial research and development, initial assessment of the project's potential, analysis of the competitive environment, defining a research plan and the first milestones for project (Proof-of-Principle), for verification of the business idea, i.e. conducting research leading to the development of a prototype of a new solution/demonstration version/MVP (Minimum Viable Product), the results of which (if positive) in typical situations will enable a full patent application or a transition to the international phase of the application priority in the PCT mode (Proof-of-concept), or - finally - developing a business model and developing product and sales (start-up). These investments are therefore very risky because they are not investments in companies that have an established position on the market, but in ideas that have a chance to become a profitable business and are therefore burdened with a high risk of failure. Many supported companies remain small and do not achieve spectacular profits. However, in the case of a successful venture supported by investors, they provide a significant increase in the value of the invested capital (Cochrane, 2001, 3-52). This industry relies on blockbusters that generate huge profits through explosive growth, achieving high valuations. The best of them are called "unicorns". In finance, it means a private start-up company with a current valuation of $1 billion or more (Aldrich and Ruef, 2018, 458). An investor in VC funds usually acts as a director, advisor, or even manager of the company (Romain and Pottelsberghe, 2004, 4; Dai, 2007, 538-563). It is necessary, among other things, finding a business model for a verified idea that would guarantee its development. This kind of capital is offered by investors who are willing to take high risks, but in exchange for a potentially higher than average return on invested capital. According to National Venture Capital Association (NVCA) venture capital supports new ideas that (NVCA, 2024):

- could not be financed with traditional bank financing,
- threaten established products and services in a corporation or industry, and
- typically require five to eight years (or longer) to reach maturity.

NVCA is highlighting also that VC funds make equity investments in a companies whose stock is essentially illiquid and worthless until they mature five to eight years down the road. Follow on investment provides additional funding as the company grows. However, unless a company is acquired or goes public, there is little actual value (NVCA, 2024).

The importance of private equity investments in the ecosystem of ventures at an early and very early stage of their development is essential for the long-term success of start-ups. An important element in their development is also the knowledge of potential originators who have verified or not yet verified business ideas regarding the support they can receive. Private equity investors can help start-ups grow faster by offering cash, industry knowledge, management support and networking opportunities, but for all this to happen, the person with the idea must connect with an investor willing to support it. For this market to function properly, it is necessary to create an appropriate ecosystem that will support investments in enterprises at an early and very early stage of development.

2. Literature review

Numerous confirmations that PE investments in start-ups carry significant risk, but can bring significant profits, have resulted in an increase in interest in PE/VC funds not only from

investors, but also from government agencies interested in developing this type of support, as well as from scientists analysing the PE market.

Although the VC and PE industries have gained popularity in recent studies conducted in both European and Asian markets, most empirical work is still based on US data (Tykvová, 2018). The main ‘‘hot’’ topics in VC and PE research are: heterogeneity (e.g., in affiliation, experience, reputation) within the VC and PE industries and its effects, the causal link between VC and PE financing and various aspects of company performance, such as growth or innovation, the performance of VC and PE funds and how to measure it properly (see: Tykvová, 2018).

Researchers discuss, among others: the structure and operation of PE funds (Sahlman, 1990; Gompers and Lerner 2001; Stein, 2005; Kaplan and Strömberg, 2009; Schoenmaker and Schramade, 2024), the performance of VC or PE funds (Kaplan and Schoar, 2005; Kaplan and Strömberg, 2009; Axelson et al. 2009; Phalippou and Gottschalg, 2009; Metrick and Yasuda, 2010; Axelson et al. 2013; Sensoy, Wang and Weisbach, 2014; Phalippou, 2014; Kaplan and Sensoy, 2015; Gemson and Rajan, 2023), the sources, magnitude and assessment of risk (Driessen et al. 2012; Hochberg and Rauh, 2013; Sorensen et al. 2014; Jegadeesh et al. 2015; Fang et al. 2015; Korteweg and Nagel, 2016), the added value of PE/VC (Bertoni et al. 2011; Puri and Zarutskie, 2012; Grilli and Murtinu, 2014; Paglia and Harjoto, 2014; Davis et al. 2014; Bhattacharya et al. 2015).

Research on PE/VC funds highlights their importance not only for the start-up ecosystem, but also for innovation, competitiveness and regional development within entrepreneurial ecosystems (EEs) (cf. Popov and Roosenboom, 2012; Sandhu et al. 2024). However, also for their development, attention is paid to shaping the EE, including an ecosystem beneficial for PE and VC, considering the role of various actors, including: governments and science (see: Fuerlinger et al. 2015; Howaniec and Okrzesik, 2015). The importance of the local entrepreneurial ecosystem for the development of PE/VC funds is indicated by, among others: Kolympiris et al. (2011), Radinger-Peer et al. (2018) and Frimanslund et al. (2023).

The concept of EEs is widely discussed in the literature (Stam, 2015; Isenberg and Onyemah, 2016; Spigel 2017; Alvedalen and Boschma, 2017, Fernandes and Ferreira, 2022). An entrepreneurial ecosystem is understood to be a conceptual model or strategy designed to support economic development by promoting entrepreneurship, small business development, and innovation (Mazzarol, 2014). The tacit existence of several factors such as politics, finance, market, culture, human capital and support required to build a sustainable entrepreneurial ecosystem (Isenberg and Onyemah, 2016) is taken for granted. One of the elements that shapes this ecosystem is financial capital and funding available for entrepreneurs. The financial capital necessary to initiate a young company requires private equity funds, venture capital funds, public capital markets, microloans, angels’ investors, debt financing, which could be available at the pre-sale stage (zero stage) (Maroufkhani et al. 2018).

Governments can certify the quality of PE/VC funds, for example through government contracts (Paglia and Harjoto, 2014) or through direct government VC investments (Guerini and Quas, 2016), create regulatory and legal aspects, such as securities laws and governance structures, which also play a key role in shaping these investments. However, the definition of the entrepreneurship ecosystem also emphasizes the role of promoting entrepreneurship, the development of small enterprises and innovation. For example, Fuerlinger et al. (2015) write:

"Germany already features a dynamic entrepreneurship ecosystem and has a distinct political agenda to promote entrepreneurship. Improvements have been made in the regulatory environment and in entrepreneurship education, especially tertiary education, and publicly funded programs support the early stages of new ventures." The problem of promotion in shaping favourable conditions for the development of enterprises is also discussed by, among others, Cicchiello (2019) and Santos (2022). The effectiveness of PE/VC funds depends not only on applicable legal regulations or interest on the part of investors, but also on the knowledge about this form of financing business ventures among society, i.e. also potential innovators.

Based on the above, this study raised the following research questions:
RQ1 - Do students know what PE funds are?
RQ2 - Do students know the forms of support offered by PE/VC, i.e. support for business ventures at very early and early stages of development?
RQ3 - Do students know how to use available forms of support for business ventures at very early and early stages of development?
RQ4 - Do students know entities from the PE market that provide support for business ventures at very early and early stages of development?
RQ5 - How is the availability of support for business ventures at very early and early stages of development perceived?

3. Knowledge about private equity among students - research results

3.1. Objectives and methodology

Shaping an ecosystem conducive to the dynamics of the PE market is not easy. Silicon Valley continues to be a role model, boasting a dynamically developing community of VC investors willing to support promising start-ups, offering unprecedented opportunities for development and networking, while creating an ecosystem supporting innovation and entrepreneurship. The countries that are still building the PE funds market are Central European countries, including Poland. The Polish PE fund market is not yet as mature as the global one. Polish companies still have a lot to do in the context of technological transformation. In the area of technology, PE funds have the potential, primarily capital, to enable appropriate technological investments and this transformation. However, there are no activities in the area of promoting the solutions offered by this market or activities in the area of education that will increase knowledge about the opportunities offered by PE funds. The aim of this article is to try to verify whether the above-mentioned observations are justified and to determine what the actual knowledge about PE funds in Poland is.

To conduct the study, empirical data were collected in the form of a questionnaire-based survey-CAWI (Computer Assisted Web Interview) technique. The survey was prepared in Polish. Online surveys were available on the Google platform and made available via MsTeams. The research process lasted from January to March 2024. The questionnaire-based survey had the nature of scientific intelligence and was not aimed at substantiating the representativeness of the sample. The survey covered 95 students.

The aim of the study was to examine knowledge about funds from the Private Equity market and their availability for ventures at various stages of development in Poland. The selection of the sample was purposeful. Only university students of economics took part in the research.

Basic information about the research is presented in Table 1. The characteristics of the sample are presented in Table 2.

Table 1: Basic information about the research

Specification	**Research**
Research method	Survey
Research technique	CAWI (computer-assisted web interview)
Research tool	Electronic questionnaire
Sample selection	Targeted
Sample size	Total: 95
Research date	January – March 2024

Source: Author

Table 2: The sample characteristics (%)

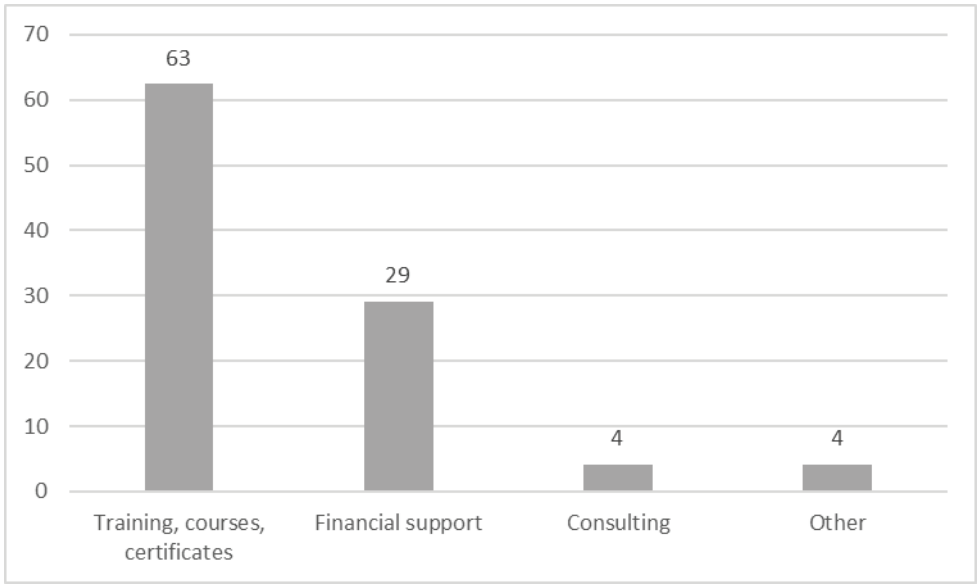
Gender	**Female**		**Male**
(%)	67		33
Type of study	Full-time studies		Part-time study
(%)	72		23
Type of study	Bachelor's study		Master's study
(%)	35		65
Domicile	City up to 100 thousand inhabitants	City with over 100,000 inhabitants	The countryside
(%)	17	29	54
Professional status	Unemployed	Running own business	Employed (employment contract, civil law contract)
(%)	40	3	57
Intention to start a business	Yes		No
(%)	49		51
An attempt was made to obtain funds to start/develop a business	Yes		No
(%)	3		97

Source: Author

3.2. Results

To the question: "Have you ever used training/financial support from any institutions?" the vast majority of respondents answered in the negative. Only 23% of respondents confirmed that they were beneficiaries of external support in the form of training or finance. Of the students who received support, 63% indicated that it was training, courses, certificates, 29% of respondents received financial support and 4% each indicated that it was consulting or other support (Graph 1).

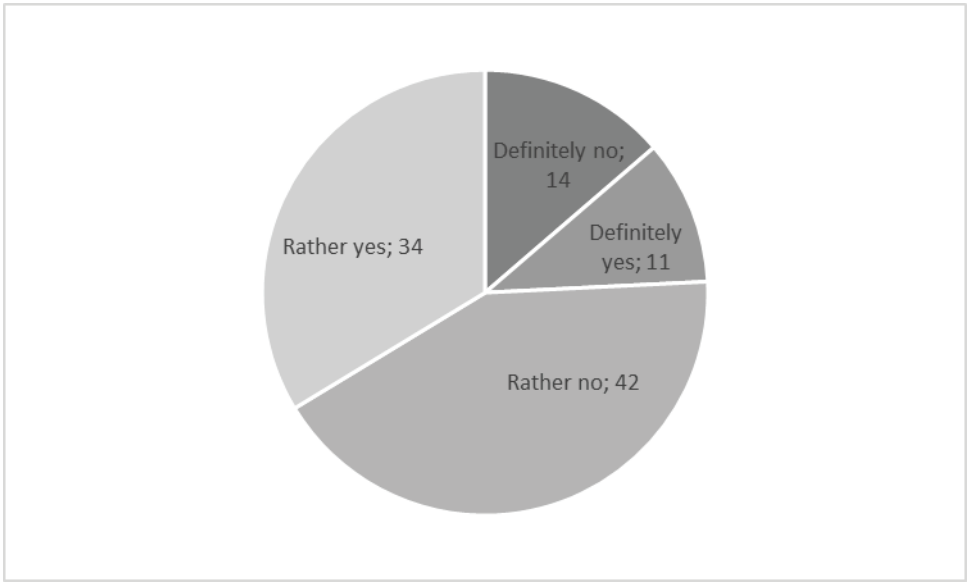
Graph 1: Type of support used by respondents



Source: Author

To the question: "Have you heard of private equity funds?" the majority of respondents responded negatively. As many as 14% of respondents answered that they had definitely not encountered the concept of private equity, and 42% believed that they had probably never encountered this concept (56% of respondents in total). A total of 44% of respondents gave a positive answer, but only 10% of respondents said they had definitely encountered this concept, and 34% said they had probably encountered this concept (Graph 2).

Graph 2: Answers to the question: "Have you heard of Private Equity Funds?"

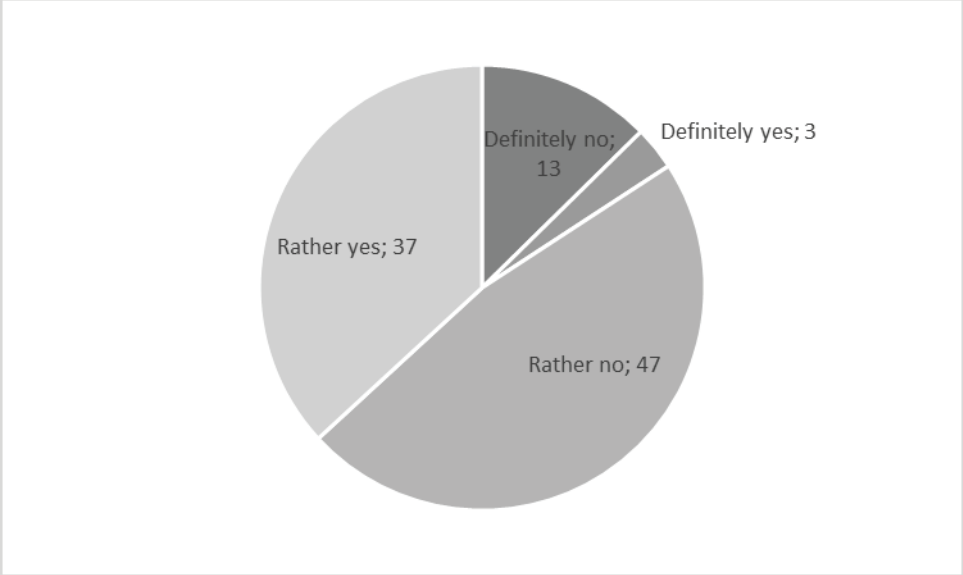


Source: Author

The answers regarding the ability to define the concept of Private Equity show that this concept is not widely known. 13% of respondents definitely cannot define the concept of Private Equity and as many as 47% of respondents answered that they probably cannot define

it (60% in total). Only 3% of respondents could definitely define the concept of Private Equity, and 37% answered that they rather could define it (Graph 3).

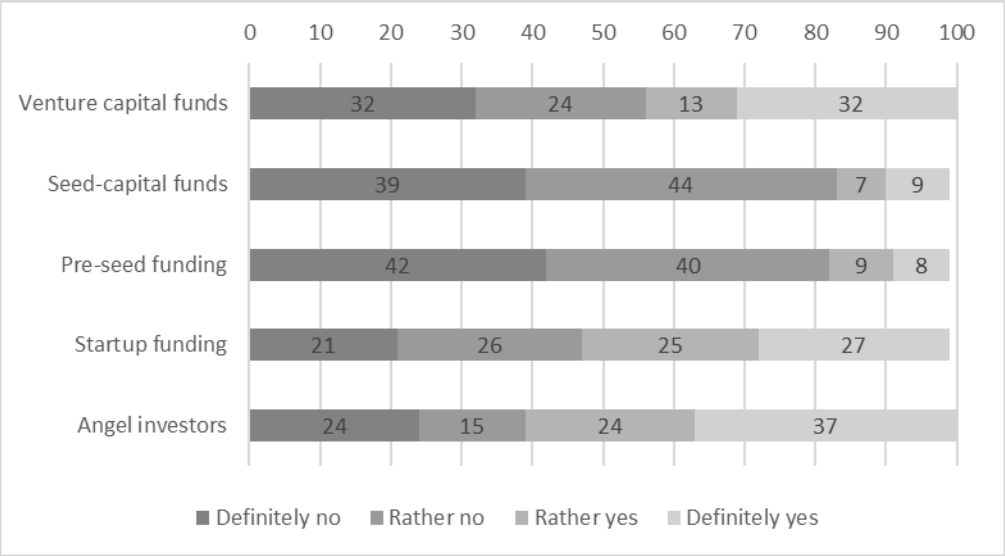
Graph 3: Declared ability to define the concept of Private Equity



Source: Author

The respondents were also asked about their knowledge of funds related to Private Equity. Business Angel funds are the most popular. As many as 37% of respondents confirmed that they definitely knew this concept, 24% - that they rather knew it. However, as many as 24% answered that they had definitely not encountered the concept of Business Angels, and 15% said they had probably never encountered it. Venture funds are in second place in terms of the number of students who definitely confirmed that they have encountered this concept. As many as 32% of respondents gave this answer. Unfortunately, the same number of respondents indicated that they had definitely not encountered the concept of Venture Capital. 13% of respondents have rather encountered this concept and as many as 24% have probably not encountered this concept. Funding for start-ups can be considered relatively well-known. 27% of respondents have definitely encountered this concept, and 24% said they have probably encountered it. Unfortunately, a similar number of respondents indicated that they had not encountered the concept of support for start-ups, i.e. 21% of respondents indicated that they had definitely not encountered the concept of start-ups' funding, and 26% had probably not encountered this concept. However, seed capital and pre-seed funding are unknown. In the case of seed funds, only 9% of respondents said they had heard this term, and 7% had probably encountered it. The vast majority have not heard of the concept of seed capital funds. As many as 39% of respondents indicated that they had definitely never encountered this concept, and 44% answered that they had probably never encountered this concept. Even less known is the financing of pre-seed projects. Only 8% of respondents answered that they had encountered this term and 9% of respondents answered that they had probably encountered it. The vast majority have not heard the concept of pre-seed funds. As many as 42% of respondents indicated that they had definitely never encountered this concept, and 44% replied that they had probably never encountered this concept (Graph 4).

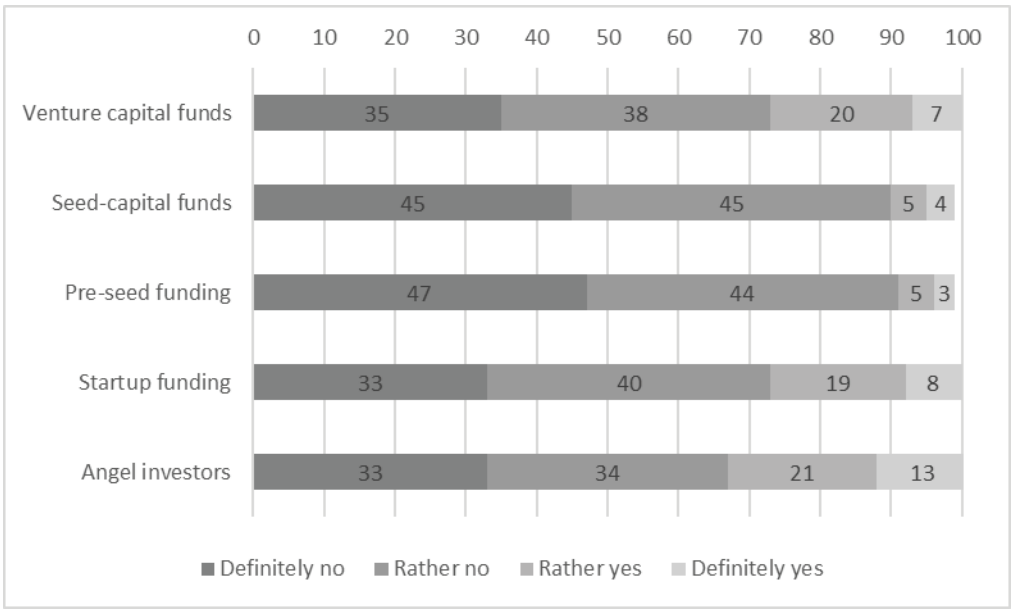
Graph 4: Declared knowledge of various forms of financing in the area of Private Equity



Source: Author

The respondents were also asked whether they knew how to use various forms of project financing. The answers do not confirm that this is common knowledge. Moreover, the results confirm that the vast majority have no idea how to use various types of funds. In this case, business angel funds are also the best among the funds examined, but this does not mean that their use is well known. Only 13% answered that they definitely knew what this financing was and how to use it, and 21% indicated that they rather had such knowledge. Unfortunately, as many as 33% of respondents indicated that they definitely did not know how to use such financing, and 34% replied that they probably did not have such knowledge. Knowledge about how to use start-up financing is poor. Only 8% of respondents answered that they knew how to use them, and 19% believed that they rather knew. Unfortunately, as many as 33% of respondents answered that they definitely did not know how to use such financing, and 40% answered that they probably did not know. Knowledge about how to use venture funds in general is shaped similarly. Only 7% of respondents answered that they knew how to use them, and 20% believed that they rather knew. The vast majority, as many as 35% of respondents, answered that they definitely did not know how to use such financing, and 38% answered that they probably did not have such knowledge. Financing projects at a very early stage of development is almost completely unknown. Pre-seed funding is understood by only 3% of respondents, and 5% answered that they rather know how to use such support. As many as 47%, i.e. almost half of the respondents, stated that they definitely did not know how to use such financing, and only slightly fewer, 44%, indicated that they probably did not know how to use such funds. Knowledge about the use of seed funds is similar. Only 4% of respondents indicated that they definitely knew how to use such funds, and 5% indicated that they rather knew. And 45% each answered that they definitely did not have or rather did not have such knowledge (Graph 5).

Graph 5: Declared knowledge on how to use various forms of financing in the area of Private Equity

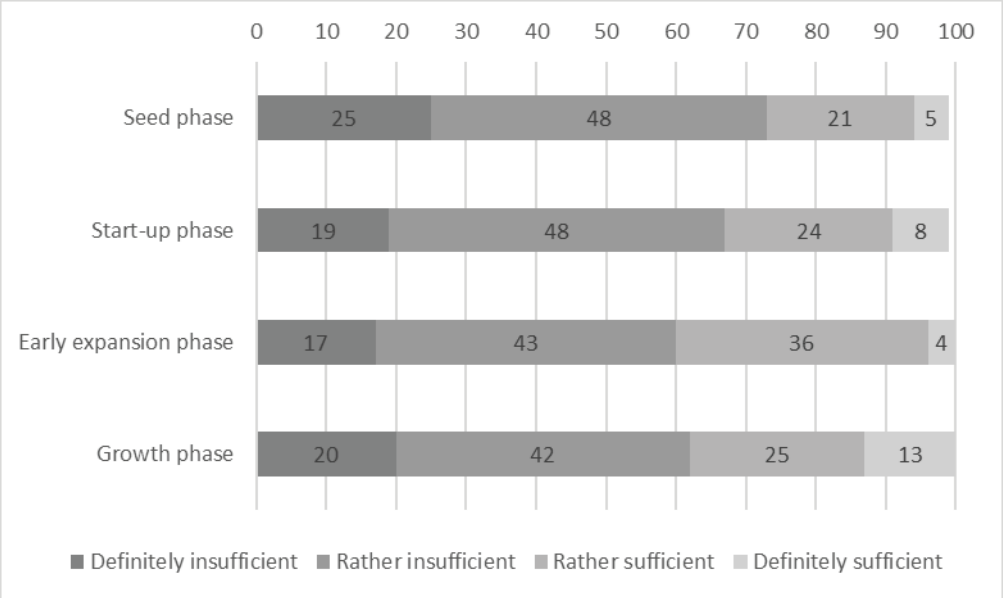


Source: Author

The vast majority of respondents do not know institutions/entities from the Private Equity market. Only 2% indicated that they definitely knew such entities, 8% of the respondents answered that they rather knew them, but as many as 19% of the respondents answered that they definitely did not know the institutions/entities that provide such financial support and as many as 71% of the respondents answered that they rather he doesn't know them. Respondents had the opportunity to indicate 3 examples of entities that provide this type of support, and such examples were provided by 6% of respondents.

The respondents were also asked how they assessed the availability of funds for SMEs at particular stages of its development. The results obtained are not optimistic. The respondents strongly indicate that the availability of funds for the development of enterprises is rather insufficient or definitely insufficient. The lowest rating was given to the availability of support in the seed phase. One quarter of respondents consider financial assistance in this phase to be definitely insufficient, and almost half - 48% - believe that it is rather insufficient. Only 21% of respondents believe that it is rather sufficient and only 5% answered that the availability of funds for this phase is definitely sufficient. The availability of funds for start-ups is rated slightly better, but also very poorly. 19% of respondents assess the support in this phase as definitely insufficient, and almost half - 48% - believe that the availability of funds for start-ups is rather insufficient. Only 24% of respondents believe that support for this phase is rather sufficient and 8% believe that it is definitely sufficient. The availability of funds for enterprises in the growth phase is also assessed poorly. 20% of respondents assess the support in this phase as definitely insufficient, and as many as 42% believe that the availability of funds in this phase is rather insufficient. However, one quarter of respondents believe that support for this phase of enterprise development is rather sufficient and 13% believe that it is definitely sufficient. The availability of funds for enterprises in the early phase of expansion is rated slightly better by respondents. 17% of respondents assess this support as definitely insufficient, and as many as 43% believe that the availability of funds in this phase is rather insufficient. But although only 4% of respondents believe that support for this phase of development is definitely sufficient, as many as 36% rated it as rather sufficient (Graph 6).

Graph 6: Assessment of the availability of financial resources for SMEs at individual stages of their development



Source: Author

4. Discussion and conclusion

As research shows, students in Poland cannot provide the definition of PE funds, and therefore do not know what PE funds are. More than half of the respondents had not even heard of them. When asked in more detail about specific types of support, they declare that they have heard about business angels, venture funds and start-up support. However, they do not know how to use such forms of support. They have definitely not heard about the possibility of financing business ventures in the very early stages of their development, i.e. in the pre-seed and seed phases, and they definitely do not know what such support would involve.

The respondents were also unable to indicate entities providing this type of support nor did they declare that they knew such entities, which confirms low practical knowledge in the researched area and lack of knowledge about entities from the PE market that provide support for business ventures at a very early and early stage of their development. Perhaps this lack of knowledge is related to the low perceived availability of support for business ventures at the very early and early stages of development.

A certain confirmation of the need to promote the PE market and the activities of government agencies and private investors, which in recent years have significantly contributed to the recapitalization of the PE market in Poland and education in this area, is the fact that the results of this study are almost the same as obtained in a very similar study conducted at the turn of 2023/2014 (Howaniec, 2014). 10 years have passed, the PE market in Poland is much more developed (OECD, 2022), and potential interested parties still do not know the support offered by PE funds.

In Poland, there are no guidelines for teaching curricula regarding alternative forms of financing business ventures such as PE/VC funds. It cannot also be said that there is a

separate promotion program aimed at introducing the activities of PE and VC funds. The current promotion is the so-called indirect promotion, i.e. through programs supporting e.g. incubation, acceleration programs or venture funds are promoted. Promotional activities are also carried out by entities that became beneficiaries of support programs through a competition and operate on these markets. However, the scope of the promotion is usually limited in time - the promotion is carried out in accordance with the declarations included in the projects and depends on the declared indicators, i.e. its intensity is most often related to the need to recruit a specific number of interested beneficiaries. Therefore, we cannot talk about broad promotion and education in the area of PE and VC funds.

The need to undertake promotional activities in creating an EEs is indicated by at least several works, including: Mazzarol (2014), Maroufkhani et al. (2018), Mubarak et al. (2019) and Donaldson (2021). The need to promote PE funding is emphasized, among others, by: Fenn et al. (1997), Wright et al. (2010), Meyer (2007). And in this respect, the conclusions of this study are consistent with the conclusions of these works. PE requires wide promotion, especially in countries where the market for this type of support is still developing. Wide promotion of the support offered, open days for potential interested parties, and information provided e.g. in the form of workshops would make the subject of PE/VC more familiar not only to the public, but above all to potential interested parties in receiving this type of support.

Meyer and Fuerlinger, Fandl and Funke further emphasize the important role of the state, i.e. government and public institutions, in promoting self-sustaining venture capital markets (Meyer, 2007; Fuerlinger et al. 2015). For example, according to Meyer, linking the VC industry with the entire economy, creating jobs and developing innovative and entrepreneurial companies is a sufficient reason to make the promotion of VC markets a goal for which large sums of public money are allocated.

Universities can and should also play an important role in the process of shaping the EE and the development of PE/VC funds. The presented research was conducted among students of several economic faculties, including management, at four universities. The research is not representative. However, the selection of the sample could suggest that the level of knowledge about the sources of financing for enterprises (PE and VC are one of the sources of financing for enterprises) in this group should be higher than average. Meanwhile, as shown the results, it is very low. It can therefore be said that certain activities in the field of education are necessary, especially at the university level, to familiarize students with the subject of PE/VC funds, because in the future they may be both innovators who will be interested in receiving such support, or investors, who can provide such support to potential interested parties. These conclusions are consistent with, among others, with the results of works such as: Etzkowitz (2002), Youtie and Shapira (2008) and Wadee and Padayachee (2017), which emphasize the importance of universities in promoting and developing the PE and VC market.

The obtained results do not provide full knowledge about shaping the ecosystem conducive to the development of PE/VC funds and this was not the aim of the article. The results obtained indicate the need to take actions in the area of education and promotion, the aim of which will be to provide knowledge about the support offered, which can be obtained at a very early or early stage of development of a business idea in Poland. The study also has direct implications for policy-making for PE market development. The guidelines provided are addressed to decision-makers dealing with activities and mechanisms supporting economic growth, including support for the PE market in Poland.

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A scientific paper

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TIPS FOR EFFECTIVE BUSINESS MEETINGS

ABSTRACT

Business communication is essential in order to successfully sell products, provide services, promote ourselves or our beliefs and achieve our goals in the business world. It takes place inside and outside the organization and is an indispensable part of business. In business communication, it is important to adhere to certain rules and norms, such as friendliness, punctuality, orderliness, respect, and others. In order to achieve our intended goal and achieve a successful outcome at the meeting, it is crucial to have a well-developed strategy. Meetings are an inevitable part of the business world and the essence of management. Conducting meetings follow simple laws, connect the team, direct them and motivate them to action. Properly conducted meetings can be extremely useful tools for decision-making, problem-solving and collaboration, so it's important to put effort into their preparation and execution to achieve maximum impact. Convening a meeting should be carefully considered and based on real need. This process helps ensure that meetings are productive, focused, and that the time of all participants is valued.
The aim of the paper is to investigate the efficiency of business meetings, who are the employees who participate in business meetings and how often they participate in them.
The hypothesis of the work is: Business meetings are always effective and contribute to the improvement of the organization's business.
The methodology in this paper uses descriptive statistics that will provide information about the variables in a given data set and highlight the relationships between the variables in the sample.
The results of the research will show how important properly conducted meetings are to employees, that is, they will express their opinion on the course of the meeting, the effectiveness of the meeting and the purpose of the meetings they participate in using a Likert scale.

Key words: *communication, meeting, direction, goal, strategy.*

1. Introduction

Communication is the process of exchanging information, feelings and ideas between individuals or groups, which arises from the needs of the participants. It is achieved through verbal and non-verbal means. It is a key factor for successful interpersonal relationships in the private and business environment. Business communication is all communication that takes place inside and outside the organization. It represents an indispensable part of business. In business communication, it is important to follow certain rules and norms to ensure effective and professional communication.
Meetings are an inevitable part of the business world and the essence of managing any organization. In order to achieve the intended goal and achieve a successful outcome at the meeting, it is crucial to have a well-developed strategy. The motivation of the participants is

also important. One should think about how they can be encouraged to participate and contribute. A good strategy helps to ensure that the meeting is productive and that the desired results are achieved in the shortest possible time. Properly conducted meetings can be extremely useful tools for decision-making, problem-solving, and collaboration, so it's important to put effort into their preparation and execution to achieve maximum impact.
The aim of this paper is to identify who and how often participates in business meetings, and their opinions regarding the course, efficiency and purpose of the business meetings they participate in.
Although there is a lot of research related to business meeting, we have not found research that studies the connection between business meetings and gender and/or age. In addition, it is necessary to explore the extent to which gender or age are related to properly conducted business meetings.

2. Literature review

„Meetings are the essence of management "(Barker, 2001). They represent the basis of any quality business, and consequently the quality of the company itself.
„A meeting is defined as the gathering of multiple people in an organization within a business context, to formally or informally discuss a certain topic to achieve a defined outcome for the organization, independent from the meeting type "(Scheithauer, 2017).

Meetings are an inevitable part of the business world. A team cannot function as a team if members do not periodically meet, discuss problems and make important decisions. Although meetings can be efficient, effective and productive, everyone knows that this is not always easy to achieve (Petar, 2013). „Meetings can inspire participants, fill them with energy, and entertain them. Some other meetings are again - depressing, uninspiring and boring to death. Unfortunately, there are too many ineffective and unproductive meetings "(Barker, 2001).

Logan Hailey, a vivacious writer, nomad and entrepreneur, who helps companies bring their brand voice to life with refreshing, science-backed content that educates, inspires, and converts said „that only 50% of the time spent in meetings is effective and engaging. Over $37 billion is wasted on unproductive meetings each year to make things worse" (https://www.scienceofpeople.com/run-a-meeting/). She gets 6 tips to run highly effective meeting. There are:
„1. Define the Meeting Objectives
2. Create an Agenda + Send Calendar Invites
3. Create a Safe Space for Collaboration
4. Strategically Choose Attendees + Appoint Important Roles
5. Best Practices to Stay on Track
6. End with Clear Actions, Owners, and Timelines "
(https://www.scienceofpeople.com/run-a-meeting/)
According to Hailey, all successful meetings have a clear purpose. If there is no an objective, there is no reason for a meeting. When you create an agenda, you should think what are your objectives. During meeting participants should feel comfortable speaking and sharing their ideas. You should know who should attend the meeting. It is necessary to keep the attention of those present.

According to Petar, conducting meetings follows simple laws: connect the team, direct them and motivate them to action. Creating unity in the team is crucial. Efforts should be made to connect participants and encourage cooperation. At the end of the day, everyone is in the same

boat and only by rowing together in the same direction can progress be made, rather than going around in circles. The team needs to stay engaged and focused on the goal of the meeting at all times in order to achieve the most productive results. Mobilizing a group in a meeting can be challenging, but it is important to ensure that all participants contribute. Conducting successful meetings requires a person who is responsible for creating a pleasant atmosphere, a quality presentation and the satisfaction of those present. Bad meetings are usually the result of poor preparation and lack of training and experience in conducting meetings (Petar, 2013).

Mithun A. Sridharan, Global Industry Advisor, Strategy & Technology Executive, Entrepreneur / Managing Director, Artificial Intelligence (AI) Evangelist, Author, and Public Speaker, creates the 4 Ps of Effective Meetings – Purpose, Product, People, Process. The purpose of the meeting should be clearly defined and determined how to achieve it. People invited to the meeting should be appropriate. It should be ensured a clear process of meeting. He wrote that: „Planning and running effective meetings requires careful thought and preparation. By using the 4Ps, you can make your meetings efficient and productive, leading to better business outcomes and a more engaged team "(Sridharan, 2024).

Kapil Ramani, a Business Development Executive at MAGNiTT[1], create something similar as Mithun A. Sridharan. He creates 5Ps of a meeting - Purpose, Participants, Process, Payoff and Preparation. He wrote that: „Ensuring every meeting invite has the 5Ps listed is one of the easiest ways to have an effective meeting and in my opinion is the best preparation anyone can do to organize an effective meeting "(Ramani, 2024).

MeetingSift's is a collaboration platform for meetings that wrote The 10 Ground Rules for Meetings. Meeting rules are:
„1. Show up on time and come prepared
2. Stay mentally and physically present
3. Contribute to meeting goals
4. Let everyone participate
5. Listen with an open mind
6. Think before speaking
7. Stay on point and on time
8. Attack the problem, not the person
9. Close decisions and follow up
10. Record outcomes and share "(http://meetingsift.com/ground-rules-for-meetings/)

Paul Axtell[2], an author, speaker, and corporate trainer, wrote in his article „Make Your Meetings a Safe Space for Honest Conversation" this: „The quest for better meetings ultimately lies in leading with mutual respect and establishing a space that is safe enough for people to speak their minds. …. you can increase the freedom, candor, and quality of conversation in your own meetings by focusing on two key areas: giving permission and creating safety. … Permission to say or ask anything is priceless. It allows us to fully express ourselves: to seek what we want, to give feedback, to speak up about issues when we find the need. … The degree to which a person feels safe in a meeting setting is largely based on their previous experiences.

[1] *MAGNiTT* is the largest online platform for venture capital data in the Emerging Markets (MENAPT).
[2] He is the author of two award-winning books: Meetings Matter and the recently released second edition of Ten Powerful Things to Say to Your Kids. He has developed a training series, Being Remarkable, which is designed to be led by managers or HR specialists.

… when people feel their comments will be listened to and treated with respect, they are more likely to be vulnerable and say exactly what they are thinking "(Axtell, 2019).

Antony Jay[3] was chairman of Video Arts, a British film production and distribution company, and a BBC Television producer and executive. He wrote the six main functions that meetings will always perform better. There are:
„1. In the simplest and most basic way, a meeting defines the team, the group, or the unit.
2. A meeting is the place where the group revises, updates, and adds to what it knows as a group.
3. A meeting helps every individual understand both the collective aim of the group and the way in which his own and everyone else's work can contribute to the group's success.
4. A meeting creates in all present a commitment to the decisions it makes and the objectives it pursues.
5. In the world of management, a meeting is very often the only occasion where the team or group actually exists and works as a group
6. A meeting is a status arena "(Jay, 1976).
He also wrote that: „Despite the fact that a meeting can perform all the foregoing main functions, there is no guarantee that it will do so in any given situation. It is all too possible that any single meeting may be a waste of time, an irritant, or a barrier to the achievement of the organization's objectives "(Jay, 1976).

„Robert Sutton, a professor of organizational behavior at Stanford University, looked at the research on group size and concluded that the most productive meetings contain only five to eight people. Smaller groups, help build a sense of intimacy that opens the floor to a candid discussion while larger groups often result in less preparation, participation, and action.
… Smaller groups, on the other hand, help build a sense of intimacy that opens the floor to a meaningful and candid discussion. Fewer people means more time to listen to and consider the perspective of each team member. Clarity and candor emerge. Alignment follows "(Axtell, 2018).

3. Elaboration

When you think about it, the meeting is often the only place where board members work together as a team, where the leader is seen as a leader and not just a person to whom reports are submitted.

When participants feel that their time in a meeting is wasted, respect is lost not only for the leader, but also for the organization that placed that person in that position. It's important to understand that meeting management is not a natural gift, but a skill that can be learned. Many may not be aware that this is a skill that can be developed.

When preparing a meeting, the organizer assumes a great responsibility because an unorganized meeting usually does not bring the desired results, and often has to be repeated, which wastes valuable time. Therefore, it is important to carefully consider whether it is necessary to organize a meeting for a specific topic or whether a different method of conveying information could be used. When organizing a meeting, it is important to follow a few key steps to ensure it is

[3] He wrote Management and Machiavelli (Holt Rinehart & Winston, 1968) and Corporation Man (Random House, 1971), and was responsible, with John Cleese of "Monty Python," for a series of comedy training films for industry and management.

efficient and productive. Is a meeting necessary, define objectives, have an agenda, have a list of meeting participants and inform the participants? To improve productivity, encourage collaboration and motivate your employees, it's important to consider setting goals for every meeting you plan. Meeting objectives represent the results to be achieved by the end of the meeting and these may vary depending on the nature of the project or the topic under consideration. All meeting objectives should be clearly highlighted in the agenda to ensure that all necessary actions are taken to achieve them during the team meeting. Working together to achieve goals will help strengthen team spirit and a shared focus on success.

When organizing a meeting, it is extremely important to carefully choose who will be present. This is not a decision that should be made without serious thought. If you want to ensure that the initial project meeting is successful in setting expectations and deadlines for all participants, or that the annual strategy meeting results in concrete and effective goals, you need to carefully select the right participants. Too many participants can result in crowding and hinder productive conversations, while too few participants can mean a lack of diverse perspectives. It is also important to think about the different personalities that will be present at the meeting. The goal is to ensure that one has the right combination of personalities to achieve a successful meeting. The different skills and perspectives of the participants can significantly contribute to the success of the meeting (https://www.ceotodaymagazine.com/2019/09/5-tips-on-selecting-the-right-meeting-attendees/).

The role of the meeting leader ensures that the meeting is productive and that the desired goals are achieved. Also, meeting participants should actively participate, ask questions and contribute to the discussion in order to make the meeting as rich and useful as possible. Convening a meeting should be carefully considered and based on real need. This process helps ensure that meetings are productive, focused, and that everyone's time is valued.
Space plays a key role in this context and can be divided into two basic aspects: psychological and physical space. Mental space refers to our perception and experience of the environment during communication with other people. In this interaction, space plays an important role, and our reactions to it are often subconscious. The space used can be divided into four main zones: intimate space, personal space, social space and public space. It is true that with different people there are different distances that are considered acceptable during communication. Each person has their own personal "comfort zone" that depends on various factors, including the relationship with the person entering that space, cultural norms and personal preferences. Subconscious defence of territory and a sense of space are present in many living things, including humans. It is an evolutionarily developed mechanism that helps preserve personal safety and intimacy. Understanding these reactions to space and consciously managing them can improve interpersonal communication and help maintain positive relationships. Choosing the right space for the meeting is crucial for the success of the meeting. A properly chosen space should be in accordance with the type of meeting and the number of participants. In addition, the technical equipment and acoustics of the space also play an important role in holding productive and efficient meetings.

A well-designed invitation plays a key role in successfully organizing a meeting, encouraging participants to participate and ensuring that all essential information is available in a clear and organized manner (https://fireflies.ai/blog/meeting-invitation-email).

The task of the leader of the meeting is to efficiently utilize the talent of the present members of the group. Their role is to provide a clear vision for the meeting, i.e. set goals to be achieved, provide guidance on how to reach those goals, and create an atmosphere of safety and

cooperation in which group members will feel they are useful and have a purpose for attending the meeting (Barker, 2001). The group achieves the greatest efficiency when the members feel responsible for the tasks and when they have a sense of ownership over them. Also, the feeling of security that everything is under control can contribute to increased productivity (Barker, 2001).

After each item on the agenda, time should be provided for the presentation of the participants' opinions and discussion. This time should be included in the total expected duration of the business meeting. Every participant should have the right to express his opinion without fear of criticism or sanctions, if he feels the need to participate in the discussion. The skill of constructive discussion may come naturally to some people, while others have to learn it. Listening plays a key role in a successful discussion. Discussion rules often include respecting the time and order of each participant's speech.

Closing a meeting is just as important as opening it. The participants will soon go their separate ways, so it is important to present what has been achieved in terms of tasks and goals. Distributing responsibilities to as many people as possible can help the leader of the meeting to relieve himself. This also gives participants a sense of ownership of their part, shows that they are trusted and encourages team dynamics. Every agreed task should have a specific executor who will feel responsible for that obligation. Performers need to understand the purpose of their tasks, have access to the means and resources needed to perform them, and feel ownership of that task. It is necessary, if possible, to set a date and time for the next meeting, end the meeting on a positive note and highlight achievements, and thank everyone for their attendance and active participation (Barker, 2001).

Based on numerous articles related to this work topic, a survey was designed to see what is really important to people during a meeting. We identified the following important points such as:

- the clearness of the purpose of the business meeting to the attendees,
- feels during meeting,
- getting bored during meeting,
- effectiveness of meeting and contribution to the improvement of organization's business,
- selection of the participants in the business meeting according to the relevance of their roles to the topic being discussed,
- the frequency of business meetings in organization,
- receiving a pre-written summary or notice of topics to be discussed at the business meeting,
- studying the topics of the meeting before meeting,
- the impression that business meetings often end with a discussion that deviates from the topic and that key issues are not resolved,
- business meetings represent sources of knowledge and information for participants,
- the person leading the meeting allow each participant to express their opinion,
- satisfaction with the information presented at the business meeting,
- giving the opportunity to express opinion during a business meeting,
- business meetings usually end within the agreed time frame,
- individuals in a business meeting often remain silent in order to end the meeting before time,
- meeting participants refrain from expressing their opinions because of fear for their workplace,

- the decisions made at the meeting carried out transparently and
- business meetings in accordance with participants' expectations.

4. Methodology

The research included 217 respondents (49.77% of men and 50.23% of women). Observing the structure of respondents, all respondents are employed. The structure of respondents with regard to age is such that 38.5% are between 25 and 35 years old; 39.4% are between 35 and 45 years old; 11.9% are between 45 and 55 years old; 10.2% refers to those up to 25 and over 55 years old.

In order to identify who and how often participates in business meetings, and their opinions regarding the course, efficiency and purpose of the business meetings they participate in, an anonymous questionnaire was conducted. The questionnaire was sent by e-mail via the Google Forms form or by sending the form directly, and the completed forms were collected in the same way as they were submitted. A questionnaire contained 21 questions. In the part of the questionnaire, the respondents expressed their degree of frequency with each statement on the Likert scale with 5 levels of frequency (1 = never, 5 = always). Data were submitted and collected in the period from September 19, 2023 to September 22, 2023.

Gender and age were used as criterion variables. The entire sample of respondents depending on gender is divided into 2 groups: G1 – male and G2 - female. Depending on the age, the sample of respondents was divided into 2 groups: A1 – from 0 to 35 years old and A2 – from 35 years or more.
Dependent variables used to assess who participates in business meetings, and their opinions regarding the course, efficiency and purpose of the business meetings they participate in consisted of a set of 21 variables.

Data processing methods included calculating descriptive statistics parameters. The data were processed by the computer program Statistics ver.13.0.

5. Research results

Tables 1, 2, 3 and 4 show the results of descriptive statistics for 21 dependent variables used to assess the frequency of properly conduct meetings: arithmetic means, standard deviations, minimum and maximum values, and asymmetry and roundness of the distribution of results.

Distributions of results do not exceed the maxD value limit, so we can speak of a normal distribution of data. From the presented measures it is justified to conclude that the variables have satisfactory metric characteristics, therefore parametric statistical procedures were applied in the processing of their results.

Table 1: Descriptive indicators for assessing the frequency of properly conduct meetings depending on the gender of the respondents

Variables	G1 – male (N=108)				G2 – female (N=109)			
	M±	SD	Min	Max	M±	SD	Min	Max
Q1	3.388889	1.471431	1.00	5.00	2.642202	1.542742	1.00	5.00
Q2	2.509259	1.180016	1.00	5.00	2.614679	1.325730	1.00	5.00
Q3	3.555556	1.044195	1.00	5.00	3.385321	1.070724	2.00	5.00
Q4	3.046296	1.299779	1.00	5.00	3.238532	1.283074	1.00	5.00
Q5	3.425926	1.034035	1.00	5.00	3.211009	1.054737	1.00	5.00
Q6	2.314815	0.882310	1.00	5.00	2.192661	0.775517	1.00	5.00
Q7	3.351852	1.104915	1.00	5.00	3.256881	1.125493	1.00	5.00
Q8	3.231481	1.000995	1.00	5.00	3.449541	1.134364	1.00	5.00
Q9	2.842593	0.938900	1.00	5.00	2.807339	0.995146	1.00	5.00
Q10	3.166667	1.054585	1.00	5.00	3.110092	1.141307	1.00	5.00
Q11	3.500000	1.009303	1.00	5.00	3.688073	0.987864	1.00	5.00
Q12	3.851852	1.100678	2.00	5.00	3.807339	1.109530	1.00	5.00
Q13	3.259259	0.900367	1.00	5.00	3.275229	0.891021	1.00	5.00
Q14	3.972222	1.131192	1.00	5.00	3.880734	1.144429	1.00	5.00
Q15	3.027778	0.980733	1.00	5.00	3.119266	1.094809	1.00	5.00
Q16	2.981481	1.135506	1.00	5.00	3.073394	1.086162	1.00	5.00
Q17	2.629630	1.090251	1.00	5.00	2.807339	1.134289	1.00	5.00
Q18	3.000000	0.947204	1.00	5.00	2.853211	0.989067	1.00	5.00
Q19	3.250000	0.958240	2.00	5.00	3.073394	1.068977	1.00	5.00
Q20	2.861111	1.342743	1.00	5.00	2.504587	1.513053	1.00	5.00
Q21	3.027778	0.901280	1.00	5.00	3.000000	1.036375	1.00	5.00

Legend: G1 – male; G2 – female; M - mean; SD - standard deviation; Min – minimum value; Max – maximum value

Source: Author

It can be seen (Table 1) that the average values of the results are similar regardless of gender. They are different only in one question when it is assessing the frequency of business meetings in their organization (Q1).

The mean value of the standard deviations is relatively uniform. However, it is noticeable that all respondents are on average the most heterogeneous in their answers when assessing the frequency of business meetings in their organization (G1-SD=1.471431; G2-SD=1.542742) and getting minutes after a business meeting (G1-SD=1.342743; G2-SD=1.513053). The respondents are the most homogeneous in their answers when assessing the frequency of getting bored during business meetings (G1-SD=0.882310; G2-SD=0.775517). It is also evident that group of male respondents (G1) in 19 of the 21 observed variables have minimal results according to the Likert scale = 1. While group of female respondents (G2) in all observed variables have minimal results according to the Likert scale =1.

Table 2: Descriptive indicators for assessing the frequency of properly conduct meetings depending on the gender of the respondents

Variables	G1 (N=108)				G2 (N=109)			
	SKEW	**KURT**	**Med**	**Mod**	**SKEW**	**KURT**	**Med**	**Mod**
Q1	-0.324685	-1.31407	4.00	5.00	0.251502	-1.51637	2.00	1.00
Q2	0.794592	-0.29931	2.00	2.00	0.719176	-0.70127	2.00	2.00
Q3	-0.074962	-0.96092	3.50	3.00	0.050997	-1.26009	3.00	4.00
Q4	0.303036	-1.14052	3.00	2.00	0.050410	-1.24984	3.00	2.00
Q5	-0.159609	-0.79048	3.50	4.00	-0.000645	-0.73810	3.00	3.00
Q6	0.997636	0.84158	2.00	2.00	1.469768	3.69017	2.00	2.00
Q7	-0.060646	-0.95437	3.00	4.00	0.229724	-1.07409	3.00	3.00
Q8	0.144371	-0.68227	3.00	3.00	0.010831	-1.25836	3.00	3.00
Q9	0.528793	-0.90001	3.00	2.00	0.570404	-0.44072	3.00	2.00
Q10	0.000000	-0.83163	3.00	4.00	0.313376	-1.06603	3.00	2.00
Q11	-0.361189	-0.61175	4.00	4.00	-0.450720	-0.53655	4.00	4.00
Q12	-0.428709	-1.17799	4.00	5.00	-0.603381	-0.65729	4.00	3.00
Q13	-0.148033	-0.76511	3.00	4.00	-0.094265	-0.62862	3.00	4.00
Q14	-0.694608	-0.81222	4.00	5.00	-0.517308	-1.05552	4.00	5.00
Q15	-0.298580	-0.41681	3.00	3.00	-0.197680	-0.78878	3.00	4.00
Q16	0.153914	-1.04377	3.00	2.00	0.028728	-1.04051	3.00	3.00
Q17	0.299817	-0.65311	2.50	2.00	0.116935	-0.99286	3.00	2.00
Q18	0.403372	-0.43352	3.00	3.00	0.534906	-0.31834	3.00	2.00
Q19	0.255672	-0.88060	3.00	3.00	0.129597	-0.78328	3.00	3.00
Q20	0.329103	-1.06953	3.00	2.00	0.677285	-1.06773	2.00	2.00
Q21	0.178897	-0.91274	3.00	3.00	0.101683	-0.67551	3.00	3.00

Legend: G1 - male; G2 - female; SKEW - a measure of distribution symmetry; KURT - measure of distribution form; Med - median; Mod – mod

Source: Author

It is evident (Table 2) that the distribution of results is positively asymmetric because the arithmetic mean, median and mod are in the zone of lower results.

Table 3: Descriptive indicators for assessing the frequency of properly conduct meetings depending on the age of the respondents

Variables	A1 (N=95)				A2 (N=122)			
	M±	**SD**	**Min**	**Max**	**M±**	**SD**	**Min**	**Max**
Q1	2.915789	1.595627	1.00	5.00	3.090164	1.515780	1.00	5.00
Q2	2.400000	1.133625	1.00	5.00	2.688525	1.330395	1.00	5.00
Q3	3.494737	1.060647	1.00	5.00	3.450820	1.060971	2.00	5.00
Q4	2.947368	1.240868	1.00	5.00	3.295082	1.315442	1.00	5.00
Q5	3.284211	1.117207	1.00	5.00	3.344262	0.993953	1.00	5.00
Q6	2.410526	0.950865	1.00	5.00	2.131148	0.703601	1.00	5.00
Q7	3.284211	1.126689	1.00	5.00	3.319672	1.107946	1.00	5.00
Q8	3.231579	1.025760	1.00	5.00	3.426230	1.105344	1.00	5.00
Q9	2.852632	1.010250	1.00	5.00	2.803279	0.932776	1.00	5.00

Variables	A1 (N=95)				A2 (N=122)			
	M±	**SD**	**Min**	**Max**	**M±**	**SD**	**Min**	**Max**
Q10	3.221053	1.122108	1.00	5.00	3.073770	1.076941	1.00	5.00
Q11	3.652632	0.975971	1.00	5.00	3.549180	1.021281	1.00	5.00
Q12	3.778947	1.112587	1.00	5.00	3.868852	1.098089	1.00	5.00
Q13	3.357895	0.921560	1.00	5.00	3.196721	0.868544	1.00	5.00
Q14	3.852632	1.157477	1.00	5.00	3.983607	1.120682	1.00	5.00
Q15	3.157895	1.024340	1.00	5.00	3.008197	1.048382	1.00	5.00
Q16	3.147368	1.100951	1.00	5.00	2.934426	1.111456	1.00	5.00
Q17	2.852632	1.138947	1.00	5.00	2.614754	1.086710	1.00	5.00
Q18	2.989474	0.961987	1.00	5.00	2.877049	0.975551	1.00	5.00
Q19	3.221053	0.958489	1.00	5.00	3.114754	1.061705	1.00	5.00
Q20	2.484211	1.327797	1.00	5.00	2.836066	1.506793	1.00	5.00
Q21	3.042105	0.977576	1.00	5.00	2.991803	0.966342	1.00	5.00

Legend: A1 – from 0 to 35; A2 – from 35 to more; M - mean; SD - standard deviation; Min – minimum value; Max – maximum value

Source: Author

It can be seen (Table 3) that the average values of the results are similar regardless of age of respondents. They are different only in 2 question when it is assessing the frequency of preparing in advance as a participant for a business meeting (Q4) and frequency of getting minutes after a business meeting (Q20).

The mean value of the standard deviations is relatively uniform. However, it is noticeable that all respondents are on average the most heterogeneous in their answers when assessing the frequency of business meetings in their organization (A1-SD=1.595627; A2-SD=1.515780). The female respondents are the most homogeneous in their answers when assessing the frequency of getting bored during business meetings (SD=0.703601). It is also evident that all respondents regardless of age have minimal results according to the Likert scale = 1.

Table 4: Descriptive indicators for assessing the frequency of properly conduct meetings depending on the age of the respondents

Variables	A1 (N=95)				A2 (N=122)			
	SKEW	**KURT**	**Med**	**Mod**	**SKEW**	**KURT**	**Med**	**Mod**
Q1	0.076285	-1.58778	3.00	1.00	-0.140626	-1.43981	3.00	5.00
Q2	0.902290	0.06073	2.00	2.00	0.634455	-0.85330	2.00	2.00
Q3	-0.067899	-0.99468	3.00	3.00	0.025400	-1.21599	3.00	4.00
Q4	0.374631	-0.97236	3.00	2.00	0.012976	-1.30791	3.00	3.00
Q5	-0.258865	-0.84698	3.00	4.00	0.133156	-0.81709	3.00	3.00
Q6	1.058700	0.82501	2.00	2.00	1.113398	2.72038	2.00	2.00
Q7	-0.037400	-0.88759	3.00	3.00	0.188852	-1.17643	3.00	3.00
Q8	0.121903	-0.75581	3.00	3.00	0.059210	-1.18736	3.00	3.00
Q9	0.429156	-0.86151	3.00	2.00	0.652857	-0.42587	3.00	2.00
Q10	0.057562	-0.88480	3.00	3.00	0.254904	-1.02769	3.00	2.00
Q11	-0.440832	-0.46862	4.00	4.00	-0.371792	-0.65645	4.00	4.00
Q12	-0.448267	-0.96368	4.00	5.00	-0.573151	-0.84472	4.00	5.00
Q13	-0.195345	-0.62625	3.00	4.00	-0.087178	-0.75659	3.00	3.00
Q14	-0.462639	-1.12314	4.00	5.00	-0.719492	-0.76421	4.00	5.00

Variables	A1 (N=95)				A2 (N=122)			
	SKEW	**KURT**	**Med**	**Mod**	**SKEW**	**KURT**	**Med**	**Mod**
Q15	-0.203166	-0.59663	3.00	4.00	-0.235309	-0.64590	3.00	3.00
Q16	-0.152088	-1.02875	3.00	4.00	0.278067	-0.94709	3.00	2.00
Q17	0.075120	-0.95466	3.00	2.00	0.308521	-0.71145	2.00	2.00
Q18	0.387533	-0.49926	3.00	3.00	0.522198	-0.28649	3.00	2.00
Q19	0.132110	-0.73371	3.00	3.00	0.188580	-0.81434	3.00	3.00
Q20	0.744949	-0.60715	2.00	2.00	0.284030	-1.38190	2.00	2.00
Q21	0.054040	-0.81032	3.00	3.00	0.184160	-0.62981	3.00	3.00

Legend: G1 – from 0 to 35; A2 – from 35 to more; SKEW - a measure of distribution symmetry; KURT - measure of distribution form; Med - median; Mod – mod
Source: made by the author

It is evident (Table 4) that the distribution of results is positively asymmetric because the arithmetic mean, median and mod are in the zone of lower results.

6. Discussion

Statistical analysis was conducted based on two criterion variables, gender and age. Each criterion variable divided the sample into two groups. The variable gender has a group of male respondents (G1) and female respondents (G2). While the variable age has a group of respondents to 35 years old (A1) and respondents from 35 to more years old (A2). The responses from respondents in the survey only show the respondents perception of the frequency of the variables.

Respondents, regardless of gender, consider that the opportunity to express their opinion during a business meeting is very frequently. After that respondents consider that the purpose of the business meeting should be clear to the attendees. The purpose of the business meeting is to reveal possible problems that have arisen in the business. Also, the person who leading the meeting should allow each participant to express their opinion. Respondents consider that sometimes they get bored during business meetings.

Respondents younger than 35 years old consider that business meetings in their organization are sometimes bored, and also sometimes they receive a pre-written summary or notice of topics to be discussed at the business meeting. They sometimes prepare in advance as a participant for a business meeting. They also sometimes have the impression that business meetings often end with a discussion that deviates from the topic and that key issues are not resolved. Sometimes they refrain from expressing their opinions because of fear for their workplace.
Respondents older than 35 years old said that they sometimes receive a pre-written summary or notice of topics to be discussed at the business meeting. They also sometimes get bored during business meetings. Only sometimes business meetings are in accordance with their expectations.

The analysis showed that there are no large deviations depending on the gender or age of the respondents.

7. Conclusion

The rules of business communication outside and inside the organization are important to ensure effective and professional communication. Maintaining good business practices and business meeting rules helps build successful relationships and makes it easier to achieve goals in the business world. Successful meetings are a means of achieving goals. Conducting successful meetings requires a person who is responsible for creating a pleasant atmosphere, a quality presentation and the satisfaction of those present. Properly conducted meetings can be extremely useful tools for decision-making, problem-solving, and collaboration, so it's important to put effort into their preparation and execution to achieve maximum impact. Business meetings come in different forms depending on the aspects being observed. Despite their diversity, they have a common purpose - the cooperation of employees or business partners to solve problems or exchange information.

The results of the conducted survey showed the opinion of the participants regarding the course, efficiency and purpose of the business meetings they participate in.
According to gender, slightly more men than women participated in the survey. When asked about the frequency of business meetings in their organization, almost a quarter have business meetings every day. Almost half of the survey participants receive a written summary or notice of the topics to be discussed at the business meeting in advance. Only a few participants declared that the purpose of the business meeting was never clear to those present. The topics of the meeting are studied and always and often prepared in advance by almost a quarter of the participants. During business meetings, participants generally feel comfortable. More than half of the participants declared that they were sometimes bored during the business meeting. A little less than a quarter of survey participants believe that business meetings are effective and that they contribute to the improvement of their organization's business. When asked if they think that the participants of the business meeting were selected in accordance with the relevance of their roles in relation to the topic being discussed, the answers are in an approximately equal. Half of the participants sometimes have the impression that business meetings often end with a discussion that goes off topic and that key issues are not resolved. A smaller part of the participants believes that business meetings always represent sources of knowledge and information for them. Almost half of participants think that the purpose of the business meeting is to discover possible problems that have arisen in the business. Even half of the participants also think that business meetings should sometimes be less formal and more relaxed. For most participants, presentations help them better understand the topic of a business meeting. Only a small part of the participants is always satisfied with the information presented at the business meeting. The vast majority of participants always express their opinion during a business meeting. When different opinions appear in a business meeting, a small part of the respondents answered that enough time should be devoted to resolving it. The majority of participants believe that the decisions made at the business meeting are always implemented transparently. Almost a quarter of the participants do not receive the minutes after the business meeting. Most of the participants answered that the business meetings were in accordance with their expectations.
The obtained research results moderately confirm the theoretical statements.
Therefore, the hypothesis set at the beginning of this research, which is that business meetings are always effective and contribute to the improvement of the organization's business, is accepted because the respondents mostly gave answers in the upper measurement scale. It is important to emphasize that the responses from respondents in the survey only show the respondents perception of the frequency of the variables.

The limitation of the present study was the available time for the completion of the questionnaire. As it was an online questionnaire, access to it was restricted by time. The result was that some of the participants were unable to complete it within the specified time. Finally, sample size and representativeness are an issue to be addressed.
Along with the limitations of the study, we need to highlight the importance of conducting further research in order to obtain more valid results such as a larger sample should be used.

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A scientific paper

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EXPLORING THE IMPACT OF DEMOGRAPHIC DIFFERENCES ON STRATEGIC NETWORKING ANTECEDENTS AMONG SLOVENIAN SMEs

ABSTRACT

In today's globalized and interconnected world in which firms form different kinds of inter-relationships, the concept of strategic networking has emerged as a valuable factor in understanding the firm's behavior and performance. This carries significant importance for small and medium-sized enterprises (SMEs) as networks help them overcome different challenges and seize new opportunities. In the context of tangible and intangible resource scarcity, the participation of small and medium-sized enterprises in strategic networks has proven to be a promising path for attaining business success. While various antecedents of strategic networking have been outlined in the literature, there is a lack of understanding of the influence of demographic variables of the individuals involved in networking activities. This research focuses on exploring the direct and moderation effects of gender, experience, education, and position on each of the strategic networking dimensions (trust, commitment, reputation, communication, and cooperation) among SMEs in Slovenia. A total of 120 SMEs operating in different industries participated in an online survey conducted in March 2020, and their answers were analyzed using linear regression techniques. The results confirmed the direct effects of gender, experience, and education on certain strategic networking dimensions, while position did not prove to have such an effect. The results additionally confirmed several moderation effects of analyzed demographic variables. These findings contribute significantly to the field, offering both theoretical insights and practical recommendations for management.

Key words: *Strategic networking, demographic differences, SME, Slovenia.*

1. Introduction

Significant changes occurring in the global environment over the recent decades have encouraged both practitioners and researchers to explore contemporary business practices extending beyond conventional market and industrial frameworks (Gulati et al., 2000). That is why the concept of strategic networking has emerged as a valuable element in understanding

the firm's behavior and performance (Thrikawala, 2011). Operating in complex and dynamic settings has motivated companies to form different kinds of inter-relationships, making strategic partnerships and networks essential constituents of modern organizational strategies (Zeffane, 1995). This holds particular importance for small and medium-sized enterprises as networks help them overcome different challenges and seize new opportunities. In the context of tangible and intangible resource scarcity, the participation of small and medium-sized enterprises in strategic networks has proven to be a promising path for attaining business success (Antoldi & Cerrato, 2020). Leaning on mutual collaboration, SMEs broaden their resources, capabilities, and knowledge base, and consequently overcome their constraints. Previous studies have emphasized numerous other benefits arising from strategic networking for SMEs since it allows the exchange of information, sharing of mutual risks and costs, access to resources, and spotting opportunities for innovation (Jarillo, 1988; Madzimure, 2019; Mbanje et al., 2015; Parker, 2008), which can lead to enhanced business performance (e.g., Chung et al., 2015).

Business networks offer a more logical and identifiable perspective as they are originally formed with the intention of actors to collaborate towards shared mutual goals. Business network breadth and depth significantly relate to a firm's dynamic capabilities development, conveying the advantages of the network into business output (Jiang et al., 2020). An improved business network almost certainly leads to SME development and helps achieve sustainable performance (Abbas et al., 2019). However, different networks assume different results, i.e., the peculiarities of the network generate particular knowledge (Belso-Martínez et al., 2020). Therefore, only a certain combination of specific external knowledge and firm group structures may lead to benefits such as improved innovation processes (Belso-Martínez et al., 2020). To amplify network stability and avoid its failure, it is recommended to adhere to two principles of design: (1) to align the interests of outside network managers with member entrepreneurs and (2) to employ sanctions to "free riders" (Parker, 2008). Essentially, the problem of cooperation caused by conflicts of interest is perceived as the problem of motivation. Still, networks collapse due to a lack of communication, trust, and direct competition, that is when the goals of individual partners are not consistent with the collective goals (Yaqub, 2011).

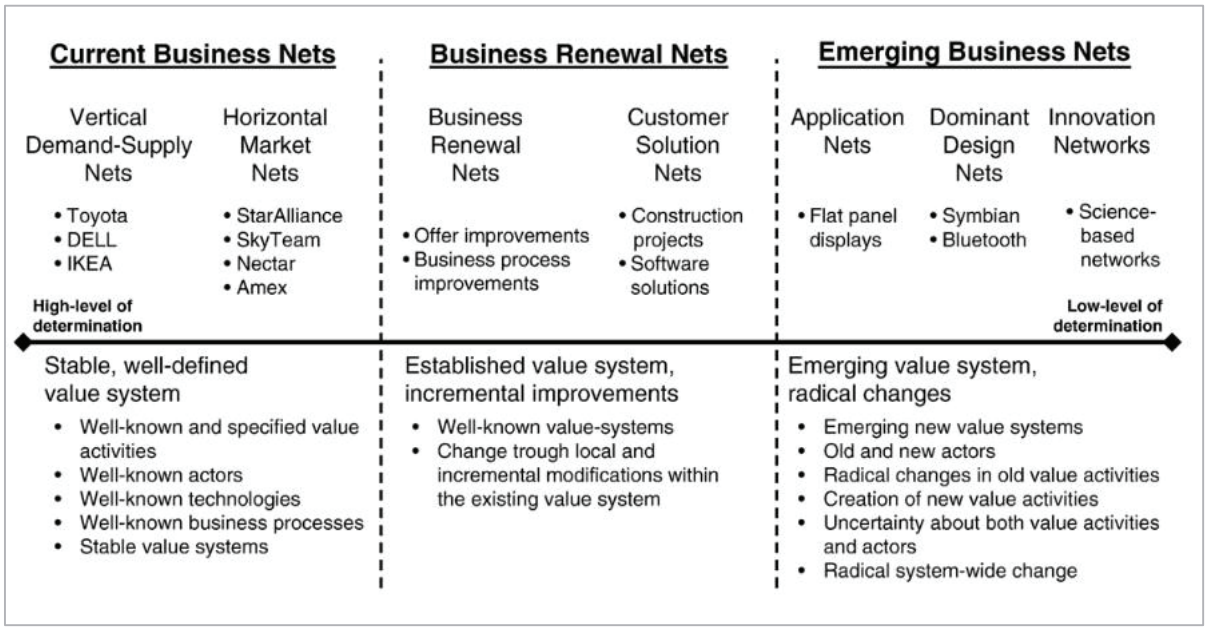
According to social capital theory, the ability of owners to effectively access resources that are beyond their direct control via networking can impact the success of their activities (Watson, 2012). Such collaboration can facilitate economies of scale in SMEs without the drawbacks associated with larger company sizes (Julien, 1993). Likewise, innovation theory underlines that networks play a crucial role in diffusing innovations (Granovetter, 1973), implying that SMEs whose owners actively engage in networking could outperform those whose owners do not (Havnes & Senneseth, 2001). However, previous studies indicated that some individuals were more prone to participating in networking activities than others (Forret & Dougherty, 2004). In a study conducted on managerial and professional employees, Forret & Dougherty (2001) examined the relationship of personal and job characteristics with involvement in networking activities inside and outside their organizations. They found that gender, socioeconomic background, self-esteem, extraversion, organizational level and position are predictors of engagement in networking activities. For example, men are more likely to engage in networking, as well as people with higher socioeconomic status and higher position in the company. Additionally, other networking differences concerning their members have been proposed, particularly regarding gender. In their literature review on entrepreneurial networks and gender differences, Hanson & Blake (2009) conclude that networking activities are infused with the norms and constraints from the local cultures, where social identity of entrepreneur shapes the nature of those links. Gender differences do exist in functioning of those networks, and they are mostly connected to the status, access to resources, and availability of opportunities. Given that networks are composed of personal motivation and past experiences;

cultural norms and household responsibilities often lead to female entrepreneurs participating in fewer networks compared to their male counterparts (Watson, 2012).
Specifically, in Slovenia, female entrepreneurs constitute around 30 % of all entrepreneurs (Pušnik et al., 2009), which represents the lowest rate in the EU (Morić Milovanović et al., 2021). Being an important source of innovation, women as entrepreneurs are important in creating new jobs, and for economic growth in general (Morić Milovanović, 2023). At the same time, they face several challenges while running their businesses, which are mostly based on gender-based obstacles, such as lower level of management skills, conflict avoidance, risk aversion, discrimination in accessing credit, and other financial constraints.
A study conducted by Morić Milovanović et al. (2021) has demonstrated that strategic networking is dependent upon personal traits of the owners/managers of SMEs (Morić Milovanović et al., 2021). In particular, gender and work experience have a positive effect on strategic networking, while education and position in the organization do not have such effects. As the study observed strategic networking as a unidimensional construct, there was a need to observe such effects on its dimensions: trust, commitment, reputation, communication, and cooperation. This study aims to fill the identified gap and is a continuation of that research. As such it aims to explore the direct and moderation effects of gender, experience, education, and position of key people in SMEs (owners, managers, directors) on five identified antecedents of strategic networking among SMEs in Slovenia. Since an individual's behavior affects the group dynamics and consequently impacts network settings, it is important to observe demographic traits and their relationship to various dimensions of networking activities (Koohborfardhaghighi & Altmann, 2016). Actors in the network use different techniques to achieve their objectives, making the network settings vibrant and complex. Observing networks concerning their actors helps in understanding many interactions and outcomes of their collaboration.
The paper is composed of five sections. After the introduction, a literature review follows which presents the hypothesis. The third section describes the research methodology, while the fourth section presents the results. The paper ends with the conclusion which summarizes the findings and compares them to previous studies; additionally providing theoretical and managerial recommendations, research limitations, and suggestions for future studies.

2. Literature review and hypotheses

Inter-organizational networks can be defined as groupings of business entities interconnected through market mechanisms (Zeffane, 1995). Networks offer faster, smarter, and more flexible solutions compared to reorganizations or downsizing and are becoming an important element in conducting entrepreneurial activities for resource-constrained small and medium-sized enterprises, allowing them to strengthen their position in the market. Business networks are created by at least three actors, to achieve numerous benefits in comparison with a single market transaction or firm (Möller et al., 2005). Based on a value creation logic, three different types of nets are recognized, each advancing different conditions and requiring different management approaches (Möller & Rajala, 2007): current business nets, business renewal nets, and emerging new business nets. Their differences are explained in Figure 1.

Figure 1: Business net classification framework

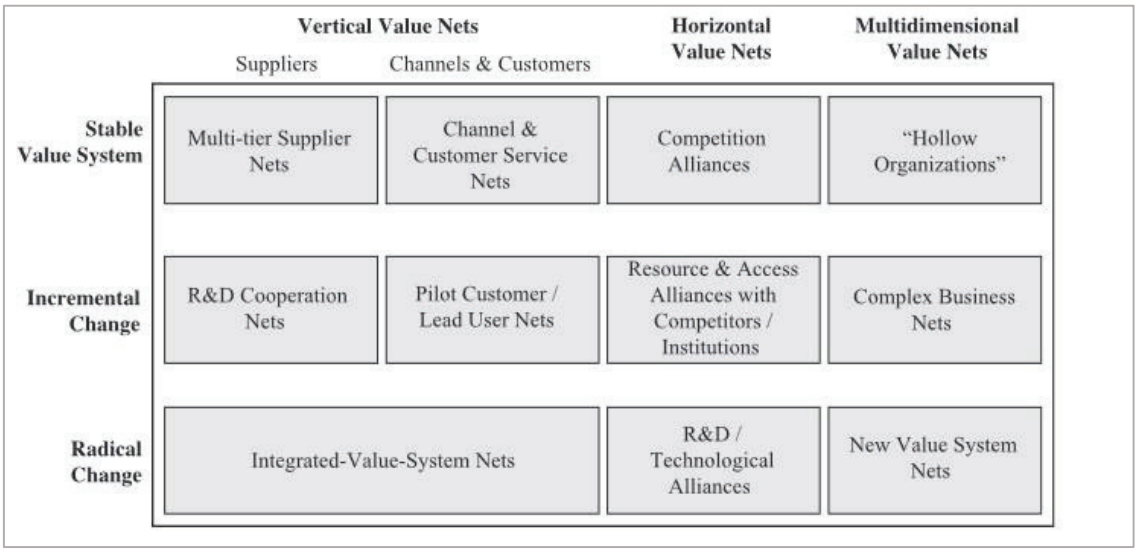


Source: K. Möller, A. Rajala (2007). ***Rise of strategic nets — New modes of value creation****, Industrial Marketing Management, vol 36, pp. 899.*

The figure illustrates a continuum of value systems (VSC), featuring three ideal value systems that are explained in detail in the lower segment of the diagram (Möller & Rajala, 2007). These systems embody different approaches to value creation and ask for diverse management tools. The upper segment of the figure outlines the main types of strategic business networks and gives examples of the formed nets. The left end of the VSC presents current business nets, which are further divided into vertical and horizontal nets. Vertical networks represent clearly explicated and comparatively stable value systems wherein the actors producing and delivering particular products are readily identifiable. Horizontal nets are created in competing environments when companies realize they possess the products, relationships, or services that, when combined, achieve a stronger competitive position in the market (Möller & Rajala, 2007). The middle of the VSC labels value systems that are already determined, but are being modified through small innovations and activities to achieve improvements. The right end represents new, emerging nets that are formed in the environment of radical changes, comprise old and new actors, and create activities of new values.

Strategic networks as organizational configurations are important and represent stable inter-organizational relationships with participating firms (Gulati et al., 2000). They may include buyer and supplier coalitions (together with distribution channels, innovation, product development, and brand networks), but also technology coalitions, or competing firms coalitions to set up industry standards (Möller & Rajala, 2007). From that aspect, they can be classified as vertical, horizontal, or multidimensional strategic nets, which is further explained in Figure 2.

Figure 2: Types of strategic nets



Source: K. Möller et al.(2005). ***Strategic business nets—their type and management****, Journal of Business Research, Vol. 58, pp. 1277.*

Vertical value networks encompass supplier networks, distribution, and consumer networks, as well as vertically integrated value structures (Möller et al., 2005). The primary objective of a vertical network is to enhance operational productivity. Horizontal value networks include various modes such as competitive alliances, alliances for accessing or developing resources and capabilities, or technological alliances (Möller et al., 2005). Multidimensional value networks (MDVNs) comprise hollow organizations that operate only at their core business and outsource the rest of the processes. Additionally, MDVNs can include other complex business networks and new value system nets. These alliances require the knowledge, skills, and capabilities of several actors involved.

In today's competitive environment, the pressure to meet expectations on a global level has led SMEs to adopt a networking strategy as a solution to withstand rival pressure, complement inadequate resources, and share business risks (Bengesi & Le Roux, 2014). Small and medium-sized enterprises are extremely important for the development of modern societies, both at the national and global levels (Jarillo, 1998). These firms are vital for promoting competitiveness and innovativeness (OECD, 2000). They represent about 99 % of all enterprises in Europe, employing around 50 % of workers (Fatoki & Odeyemi, 2010). In Slovenia, SMEs contribute to 64.45 % of value-added and 72 % of employment, which is above the European Union averages of 56.4 % and 66.6 % (European Union, 2020). This sector faces several challenges in its daily business operations, with financial barriers being the most severe (Bartlett & Bukvič, 2001). Other obstacles include external elements such as regulatory burdens and intense competition, while internally they face limited access to skilled labor, inadequate managerial skills, and a lack of information sharing. To speed up their decision-making process and create faster solutions, SMEs need to adjust their organizational processes to new market contexts and customer preferences (Pérez-Gómez et al., 2018). Strategic networking allows for quicker adaptation and transformation into flexible organizational forms.

Strategic networking has several dimensions. This research focuses on trust, commitment, reputation, communication, and cooperation. Their identification is based upon various theories: transaction cost theory (Coase, 1937; Williamson, 1981), resource dependence theory (Sheth & Parvatiyar, 1992), social exchange theory (Birley & Cromie, 1988), and network theory based on Swedish model (Håkansson & Johansson, 1992). Trust is considered the most important component of strategic networking that significantly contributes to its success

(Antoldi et al., 2018; Chang & Harwood, 2001). It is also a significant factor when making decisions to upgrade the relationship (Selnes, 1998). It is viewed as "anticipated cooperation" (Burt, 2001), as it has been created by repeated cooperative actions, and as such represents a vital advantage of networks (Miller et al., 2007). When it comes to moderating effects, the effect of trust on network performance is reinforced by output control mechanisms (based on outcome measurements), but it has a lower positive effect for higher levels of social and process controls (Antoldi et al., 2018).

Commitment refers to persistence in maintaining a business relationship, where there is a strong will to maximize efforts to continuously invest in that relationship (Anderson & Weitz, 1992). Commitment can be observed as instrumental, attitudinal, and temporal, depending on the cause of a relationship (Gundlach et al., 1995). Considering that commitment stems from trust, the two are closely related and have a positive effect on network performance (Anderson & Weitz, 1992; Morgan & Hunt, 1994). The mediating role of commitment is recognized as significant when firms in strategic networks, for instance, develop innovations in a group (Fjordhammar & Roxenhall, 2017).

Playing fair continuously enhances a company's capability for future transactions (Yaqub, 2011). It develops the firm's reputation for integrity which motivates partners to maintain their commitment to the alliance. For other firms, a good reputation implies clear and uncomplicated contractual relations and the possibility of exchange based on an oral contract (Dyer, 1996). Status is a stronger predictor of network characteristics than reputation, as it is based on product quality and financial performance perceptions (Chandler et al., 2013). In a mediating role, reputation reduces opportunistic hazards for the members who perceive future alliance(s) as important (Yaqub, 2011).

Stanko et al. (2007) consider a quality communication process an impetus for networking performance and success. In addition, a reliable partner who is willing to disclose information on expenses, quality, and production is vital to mutually benefit from an alliance (Dyer, 1997). Communication regularly enables network members a faster exchange of information and better mutual understanding, to achieve common goals (Jonsson & Zineldin, 2003). Since networks are constantly exposed to changes in composition, constant communication alleviates these challenges (Kahle et al., 2018). O'Connor & Shumate (2018) in their multidimensional network approach identified the key role of strategic communication in creating, maintaining, and dissolving network ties.

As being small in size implies potentially low power and control in the market, cooperation is one of the modes to improve business performance and adaptability for SMEs (Barratt & Oliveira, 2001; Feizabadi & Alibakhshi, 2022). Cooperation enables network members to conduct their individual goals that are aligned with the common goals of the network (J. C. Anderson & Narus, 1990; Barratt & Oliveira, 2001). The major advantages of cooperation occur in terms of synergistic and complementary effects (Feizabadi & Alibakhshi, 2022; Holub, 2016). Therefore, firms should perform better in cooperation rather than individually. It is interesting to notice that the probability of survival of a strategic network depends on strategic interests (benefits, contributions, priorities) and adaptive capabilities of members, across different stages of the network life cycle (Gulati et al., 2005).

As already mentioned, this research builds on the previous study (Morić Milovanović et al., 2021), examining the nature of the relationships between personal traits and strategic networking. The results showed that gender has a positive effect on strategic networking, with males having a higher level of strategic networking activities, but women become more active in networking with the increase in education and experience. Also, the study found that experience has a positive effect on strategic networking while education and organizational position show no effect on strategic networking. Based on the recommendations for future studies, this research now analyzes the direct effects of gender, experience, education, and

position on the antecedents of strategic networking and the moderation effects of gender on experience, education, and position to strategic networking antecedents. Hence, the proposed hypotheses are as follows:
H1.1. - H1.5. Gender has a positive effect on each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation), with males having a higher level of strategic networking activities than females.
H2.1. – H2.5. Experience has a positive effect on each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation).
H3.1. – H3.5. Education has a positive effect on each of strategic networking antecedents (trust, commitment, reputation, communication, and cooperation).
H4.1. – H4.5. A position has a positive effect on each of strategic networking antecedents (trust, commitment, reputation, communication, cooperation).
H5.1. – H5.5. Relationship between work experience (within the firm) and each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation) will be moderated such that the relationship will be stronger for women then for men.
H6.1. – H6.5. A relationship between the level of education and each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation) will be moderated such that the relationship will be stronger for women then for men.
H7.1. – H7.5. A Relationship between the formal position in the firm and each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation) will be moderated such that the relationship will be stronger for men than for women.

3. Research method

3.1. Sample, Variables, and Measures

The sampling frame was drawn from the consulting database of a private firm, where 1,000 Slovenian SMEs were contacted to participate in an online questionnaire. The classification of SMEs followed the EU definition, with micro firms defined as those with fewer than 10 employees, small firms with 10 to 49 employees, and medium-sized firms with 50 to 250 employees. The online questionnaire was distributed twice within the same sample, once in February and again in March 2020. A total of 120 valid responses were collected, resulting in a response rate of 12 %. Demographically, 41.6% of respondents were male, while 58.4% were female. Regarding work experience within the same company, 1% worked less than one year, 14% had worked for one to four years, 3% for five to seven years, and 82% for over seven years. Education levels indicated that 30.8% of respondents had completed secondary school or lower, 40% held a university diploma, 19.2% held a master's/MBA diploma, and 10% held a PhD diploma. In terms of positions within their respective firms, 65.8% of respondents were firm owners, 16.6% were directors, and 17.6% were managers.
In the research model, *antecedents of strategic networking* have been observed as dependent variables and were measured via three 7-point Likert-type questions, where commitment has been assessed based on Allen and Meyer's (1990) scale; trust based on Garbarino and Johnson's (1999) scale; reputation based on Hansen et al. (2008) scale; communication was based on Sivadas and Dwyer's (2000) scale; cooperation based on Eriksson and Pesamaa's (2007) scale. The commitment had a value of a minimum of 1, maximum of 7, range of 6.00, mean of 3.83, standard deviation of 1.84, and Cronbach's α value of .96. Trust had a value of a minimum of 1, maximum of 7, range of 6.00, mean of 6.02, standard deviation of 1.12, and Cronbach's α value of .83. Reputation had value of a minimum of 3.33, maximum of 7, range of 3.67, mean of 6.01, standard deviation of .89, and Cronbach's α value of .80. Communication had a

minimum of 1, maximum of 7, range of 6.00, mean of 5.19, standard deviation of 1.28, and Cronbach's α value of .73. Cooperation had a value of minimum of 1, maximum of 7, range of 6.00, mean of 3.96, standard deviation of 1.53, and Cronbach's α value of .79.
Gender, education, and position presented independent variables in the model. *Gender* was coded as a dummy variable, with 0 representing female and 1 representing male. The variable demonstrated a minimum value of 0, a maximum of 1, a range of 1.00, a mean of 0.64, and a standard deviation of 0.48.
Experience, another independent variable that presented a person's work experience within their current firm, was coded into four groups: 1 = 'less than 1 year', 2 = '1 to 4 years', 3 = '5 to 7 years', and 4 = 'more than 7 years'. Experience showed values of minimum of 1, maximum of 4, range of 3.00, mean of 3.63, and standard deviation of .78.
Education, as another independent variable was coded as follows: 1 = 'elementary school and lower', 2 = 'secondary school', 3 = 'university diploma', 4 = 'master/MBA diploma', and 5 = 'PhD diploma'. Additionally, education was coded as 'years of schooling' to further assess the obtained results' validity. There was no statistically significant difference between the two classifications. Education exhibited values of a minimum of 1, a maximum of 5, a range of 4.00, a mean of 2.15, and a standard deviation of 1.01.
Position, also an independent variable, comprised respondents' current roles within the firm's organizational structure, and was coded into three groups: 1 = 'owner', 2 = 'director', and 3 = 'manager'. The position displayed values of a minimum of 1, a maximum of 3, a range of 2.00, a mean of 2.67, and a standard deviation of 0.86.
Control variables included *firm size* and *industry*, with firm size coded according to the EU definition of SME. Industry-level effects were arranged into eight sectors based on the Statistical Office of the Republic of Slovenia. Firm size demonstrated values of a minimum of 1, a maximum of 3, a range of 2.00, a mean of 1.46, and a standard deviation of 0.69. Industry exhibited values of a minimum of 1, a maximum of 8, a range of 7.00, a mean of 4.76, and a standard deviation of 2.31.

3.2. Analysis

Multiple regression analysis was used to test direct and moderation effects between independent variables: gender, experience, education, and position, and each of the strategic networking antecedents (trust, commitment, reputation, communication, cooperation) as dependent variables. To make sure there was no presence of nonresponse and common method bias, ANOVA tests and Harman's one-factor test analysis were used. Additional tests were conducted to ensure there were no issues with multicollinearity, heteroscedasticity, and autocorrelation.

4. Results

Table 1 provides information regarding means, standard deviations and correlation coefficients of controlling, independent, and dependent variables. Correlation coefficients are rather modest with the range from -0.389 to 0.680. Statistically significant correlation coefficients between controlling, independent and dependent variables as stated in the model are observed between the following variables: firm size and position (r = -0.389), industry and communication (r = -0.200), industry and cooperation (r = -0.268), experience and trust (r = 0.373), experience and reputation (r = 0.364), experience and communication (r = 0.244), and experience and cooperation (r = 0.199).

Table 1: Means, SDs, and correlations, n = 120 (antecedents of strategic networking)

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Firm size	1.46	0.69	1.00										
2. Industry	4.76	2.31	-.140	1.00									
3. Gender	1.35	0.48	-.027	.098	1.00								
4. Experience	3.63	0.78	-.099	.128	-.138	1.00							
5. Education	2.15	1.00	.079	.166	.148	-.205*	1.00						
6. Position	2.67	0.86	-.389**	.118	-.001	.033	-.040	1.00					
7. Trust	6.02	1.12	.087	.093	-.159	.373**	-.080	-.046	1.00				
8. Commitment	3.83	1.84	.149	-.144	-.057	-.064	.179	-.061	.103	1.00			
9. Reputation	6.01	.89	-.015	.075	-.140	.364**	-.090	.045	.629**	.031	1.00		
10. Communication	5.19	1.28	.137	-.200*	-.174	.244**	.066	-.028	.470**	.361**	.492**	1.00	
11. Cooperation	3.96	1.53	.146	-.268**	-.162	.199*	-.069	-.019	.298**	.497**	.209*	.680**	1.00

Notes: *. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

Source. Authors

Table 2 provides the results of the multiple regression analysis where each model had a different antecedent of strategic networking as the dependent variable while controlling and independent variables and moderation effects are kept the same in each of the observed models. Trust is a dependent variable in Model 1, commitment in Model 2, reputation in Model 3, communication in Model 4, and the dependent variable in Model 5 is cooperation. The results show that gender has a statistically significant direct effect only on cooperation ($\beta = -0.453$, $p < 0.1$), as shown in model 5, where males have stronger cooperating activities than their female counterparts, while there is no effect on other antecedents of strategic networking. Therefore, it can be confirmed there is statistically significant evidence to support hypothesis 1.5. Experience as an independent variable has a statistically significant direct effect on trust (model 1, $\beta = 0.418$, $p < 0.01$), communication (model 4, $\beta = 0.333$, $p < 0.05$), and cooperation (model 5, $\beta = 0.334$, $p < 0.1$), thus supporting hypothesis 2.1, hypothesis 2.4, and hypothesis 2.5. Education has a statistically significant direct effect only on commitment (model 2, $\beta = 0.292$, $p < 0.1$), therefore supporting hypothesis 3.2., while position does not have a statistically significant direct effect on any of the strategic networking antecedents.

Table 2: Multiple regression analysis (secondary model, showing only β); dependent variables: antecedents of strategic networking

Variables	Model 1: Trust	Model 2: Commitment	Model 3: Reputation	Model 4: Communication	Model 5: Cooperation
Controls					
Firm size	.268*	.308	.094	.361**	.361*
Industry	.053	-.137*	.026	-.113**	-.188***
Direct effects					
Gender	.244	.393	.160	.341	.453*
Experience	.418***	-.058	.333	.333**	.334*
Education	-.074	.292*	-.044	.125	-.037
Position	.016	.020	.073	.148	.160
Moderation effects					
Gender x Experience	-.560**	-.213	-.423***	-1.098***	-1.194***
Gender x Education	-.376*	-1.131***	-.139	-.664***	-.610**
Gender x Position	.285	-.387	.186*	.405*	-.335
Model stats					
R-squared	.235***	.172***	.185***	.334***	.272***
Adj.R-squared	.172***	.105***	.119***	.279***	.213***
D-W	1.935	2.000	2.051	2.133	2.106
VIF	<2	<2	<2	<2	<2
Max Cooks	.227	.079	.177	.177	.069

Notes: *p< 0.10; **p < 0.05; ***p < 0.01.

Source. Authors

When looking at the moderation effects of gender on experience and education relationships to strategic networking antecedents, results confirm that moderation relationships are stronger for women than for men. More precisely, there is statistically significant evidence to confirm that the relationship between work experience (expressed as the number of years with the firm) and trust (β = -0.560, p < 0.05), reputation (β = -0.423, p < 0.01), communication (β = -1.098, p < 0.01) and cooperation (β = -1.194, P < 0.01) is moderated as such that the relationship is stronger for women than for men. Therefore, there is enough evidence to support hypothesis 5.1, hypothesis 5.3, hypothesis 5.4, and hypothesis 5.5. Furthermore, there is statistically significant evidence to confirm that the relationship level of education and, trust (β = -0.376, p < 0.1), commitment (β = -1.131, p < 0.01), communication (β = -0.664, p < 0.01) and cooperation (β = -0.610, p < 0.05) is moderated as such that the relationship is stronger for women than for men. Therefore, there is enough evidence to support hypothesis 6.1, hypothesis 6.2, hypothesis 6.4, and hypothesis 6.5. When observing the moderation effect of gender on the relationship between position and strategic networking antecedents, there is no statistically significant evidence to confirm that the relationship is stronger for women than for men. To be more precise, there is statistically significant evidence to confirm that the relationship level of position and reputation (β = 0.186, p < 0.1), and communication (β = 0.405, p < 0.1) is moderated as such that the relationship is stronger for men rather than for women, thus supporting hypothesis 7.3 and hypothesis 7.4. Furthermore, as shown in Appendix 1, figures 1(a) – 1(d) and figures 2(a) – 2(d) provide further evidence to support the previously mentioned hypothesis related to the moderation effect gender plays on the relationship between experience, and education, and antecedents of strategic networking.

5. Discussion and Conclusion

This paper has set out to examine the direct and moderation effects of demographic traits of owners and managers: gender, experience, education, and position on five different antecedents of strategic networking (trust, commitment, reputation, communication, and cooperation) working in SMEs in Slovenia. As the literature review demonstrated, networks help SMEs overcome the common barriers they face in a relatively cost-efficient manner. Moreover, it allows for faster adaptation and formation into flexible organizational units. Since the formation of these inter-relationships is dependent on personal traits and other demographic variables, there was a need to further observe and examine their impact on strategic networking antecedents. This study aimed to fill the identified gap. The survey conducted on 120 key people working in SMEs in Slovenia, confirmed the direct effects of gender, experience, and education on certain strategic networking variables, while position did not prove to have such an effect. The results additionally confirmed several moderation effects of analyzed demographic variables. These findings offer both theoretical insights and practical recommendations for management.

From the theoretical perspective, this study shows that demographic traits of owners and managers have an effect on networking initiatives of SMEs. The results of the study showed that that gender has a statistically significant direct effect only on cooperation, where males have stronger cooperating activities than their female counterparts, thus supporting hypothesis 1.5. When comparing these results to the previous studies, it can be noted that even though the differences concerning gender have long been acknowledged among scholars in different fields, the studies observing the impact of gender on the networking activities of SMEs are inconsistent (Rho & Lee, 2018). For example, Aldrich, Reese, and Dubini (1989) concluded that female entrepreneurs are not as likely to have a higher degree of networking activity, which was further supported by a study by Cromie and Birley (1992) stating that female managers devote less time to developing network contacts. On the other hand, other scholars emphasized that women are prone to cooperating more in networks since they have better communication skills, and encourage active participation and information sharing, which is why they engage and communicate more with external partners (Johansen 2007; Jacobson, et al. 2010). Watson (2011) demonstrated that male SME owners engage in more formal networks than women. Contrarily, Mengel (2020) did not find evidence of gender differences when forming the networks, measured in terms of the number of links formed or the centrality in the network. Similar findings were presented by Forret & Dougherty (2001) who found that the only difference between men and women in five dimensions of networking behavior was that men participated in more socializing behavior than women. This difference, however, was not present when observing men and single women. Even though this study confirmed stronger cooperating activities for males, additional research is encouraged to reach more definite results.

Furthermore, the results of this study showed that experience has a statistically significant direct effect on trust, communication, and cooperation, which supports hypotheses 2.1, 2.4, and 2.5. This can be explained by the fact that when key people in SMEs work within the same company for the longer period of time, they get acquainted with the industry (and the key players within that industry), and over time they form connections with different business partners. So, it is easier for them to identify opportunities for collaboration and can leverage their knowledge to enter different networks. They also have larger network of contacts which can enhance their cooperation within networks. Experience can also improve their communication skills, as with time managers/CEOs have developed better understating how to better convey messages, listen to feedback and resolve conflicts. A somewhat opposite results were reached in a study by Watson (2011), who found there was no relationship between experience and networking. This

was explained by the fact that managers with more experience do not feel that they need to engage or seek advice from other partners as they feel confident enough to make decisions on their own. In this study, conducted on SMEs in Slovenia, the majority of participants (82%) worked in the same company for over 7 years and the results indicated that experience has a statistically significant impact on trust, communication, and cooperation dimensions of networking. Future studies are encouraged to explore this variable in more detail to reach concise conclusions.

When it comes to other hypotheses, the results of this study also showed that education has a statistically significant direct effect only on commitment, therefore supporting hypothesis 3.2., while position does not have a statistically significant direct effect on any of the strategic networking antecedents. Education provides necessary skills and knowledge to excel in a certain field of work. Educated people can also have higher career goals and expectations, and can be more persistent to succeed within their job field, to overcome obstacles and achieve their networking goals, which can affect their commitment. A somewhat similar results were reached in a study by Watson (2011) who demonstrated that education, industry, age, and size of the company are significantly connected with networking. Similarly, Shaw et al. (2008) noted that people with high levels of human capital (such as education education) also have a high level of social capital (e.g., contacts in a network). In terms of position, this study showed no statistically significant impact on any of the strategic networking antecedents, which is in contrast to the study of Michael and Yuki (1993) who found that organizational level is important for networking. As a person progresses within the organization, the expectations regarding his/her role rise in terms of acquiring new contacts, relationships, and cooperation, which is why they could be more prone to networking. As this study did not reach the same result, additional studies are needed for further clarification.

In examining the moderating effects of gender on the relationships between experience and education with strategic networking antecedents, findings indicate that these moderating relationships are stronger for women than for men. Specifically, there is statistically significant evidence confirming that the association between work experience (measured by the number of years with the firm) and trust, reputation, communication, and cooperation is moderated, showing a stronger relationship for women compared to men. This validates hypotheses 5.1, 5.3, 5.4, and 5.5. Additionally, there is statistically significant evidence to confirm that the relationship between the level of education and trust, commitment, communication, and cooperation is moderated as such that the relationship is stronger for women than for men, thus supporting hypotheses 6.1, 6.2, 6.4, and 6.5. This could be explained by several reasons. For example, Moleta et al. (2023) in their study on women entrepreneurs in Brasil found out that women tend to have higher expectations regarding trust within business networks compared to the actual level of trust they perceive in these networks. In other words, women expect a higher degree of trustworthiness and reliability from their business networks than what they actually experience or perceive in reality. With higher levels of experience and education, they are more confident in engaging in networking activities (and thus manifest higher levels of trust, reputation, communication and cooperation). Moreover, Ashourizadeh & Schøtt (2013) revealed in their study that more educated entrepreneurs have larger networks than the ones with lower education level. The same study revealed that women tend to have smaller networks than men. So, even though women do not engage in networking activities as frequent as men, their level of education will still increase their levels of trust, reputation, communication, and cooperation (as a dimensions of strategic networking).

On the other hand, when examining the moderating effect of gender on the relationship between position and strategic networking antecedents, the results reveal statistically significant evidence confirming that the association between position and reputation, and communication is moderated, showing a stronger relationship for men compared to women. This supports

hypotheses 7.3 and 7.4. This could mean that men tend to promote themselves and their ideas in networking situations more frequently, leading to a stronger association between their position and reputation or communication outcomes. Moreover, there is also a difference in motivation and power between men and women (Shen & Joseph, 2020). For example, Gino et al. (2015) found that both men and women associate position with power and career advancement, but women tend to have less power-related goals and connect them more to negative outcomes. Moreover, societal norms also dictate how women and men are perceived and evaluated in leadership positions (Bullough et al., 2021). Men are expected to be more dominant in their roles, which can have an impact on their position within the network. Rothstein et al. (2021), emphasize that women and men belong to different sex-segregated networks, which can restrict the communication flow and lead to potential problems for career advancements in management for women. In their study, they confirmed that women are significantly under-represented at top levels in their organizations, and tend to belong in sex-segregated networks, which was further negatively associated with the status and power of network members - only for women, not for men.

From the practical side, this study can help key people in small and medium-sized enterprises evaluate their situation and position themselves in relation to the antecedents of strategic networking. This can help them determine where they might need to invest additional effort to increase their networking activities. Knowing that gender, experience, and education impact strategic networking antecedents can help overcome some of the identified constraints and additionally invest in networks and inter-relationships and thus gain a competitive position. Even though this study has shown that certain individuals are more likely to establish networking activities, it also points to the specific other actions that practitioners can follow to increase their networking skills. For example, investing in continuous education and professional development can enhance managers' skills, knowledge and expertise within their industry (Forret & Dougherty, 2001). This can include workshops, seminars or networking events where they can stay up to date on all the latest trends in their market, but also expand their network of contacts. Moreover, key people in SMEs should be mindful of the demographic differences that might exist when forming networks, especially when it comes to gender. Endorsing inclusive culture, building mutual trust, promoting mentorship and support and encouraging women at higher positions to participate in networking activities can bridge the gap in gender inequalities that might exist at workplace.

The study also has limitations, since it is cross-sectional in nature and thus provides a snapshot of the current state of mind of the respondents. Moreover, the results are based on the self-report data, meaning that response bias can occur. Additionally, not all potential contextual factors influencing demographic differences (internal organizational climate or culture, type of business ownership, etc.) are elaborated in this study, which is also a recommendation for future research. Additional recommendations go in the direction of conducting longitudinal research, to get a more realistic picture of the influence of demographic variables on strategic networking antecedents. An online questionnaire, as a survey tool, also has its limitations which are mostly displayed in potential technical issues with the internet or lack of digital skills of respondents.

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Appendix 1

Figure 1: Interaction effects of gender on relationship between experience and (a) trust, (b) reputation, (c) communication, and (d) cooperation

Figure 1 (a)

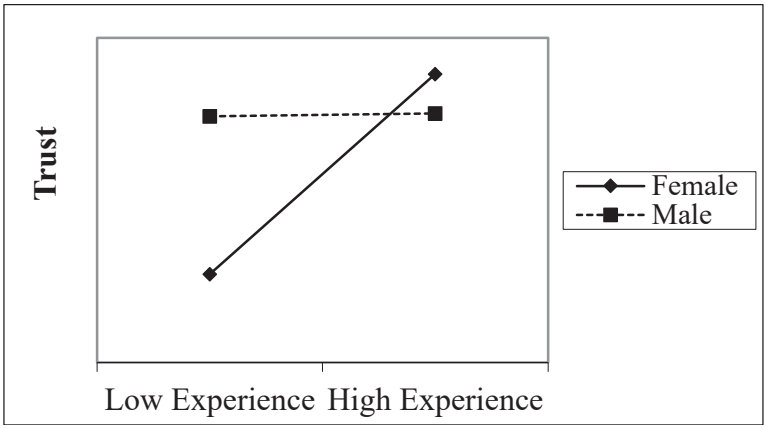


Figure 1 (b)

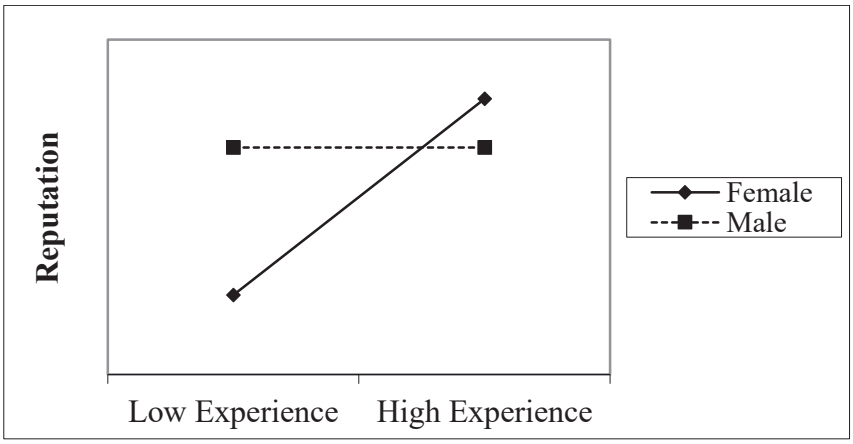


Figure 1 (c)

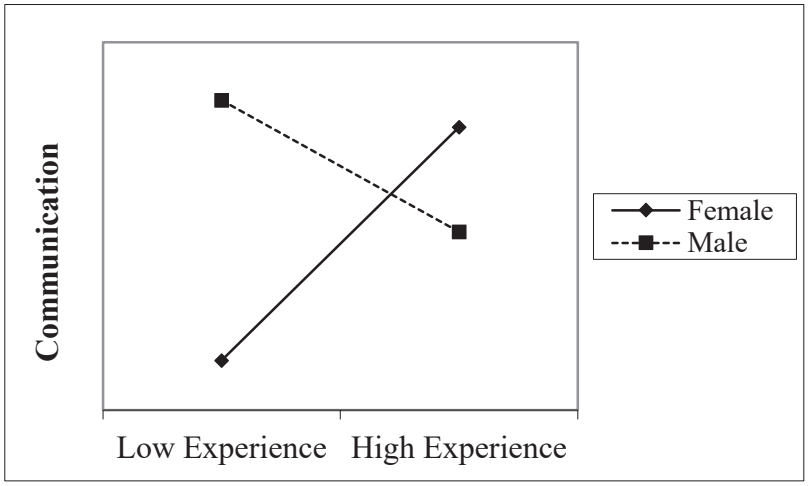


Figure 1 (d)

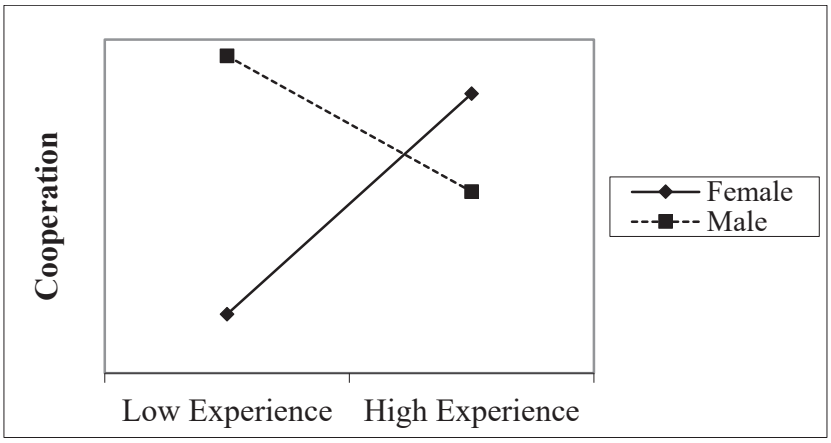


Figure 2: Interaction effects of gender on relationship between education and (a) trust, (b) commitment, (c) communication, and (d) cooperation

Figure 2 (a)

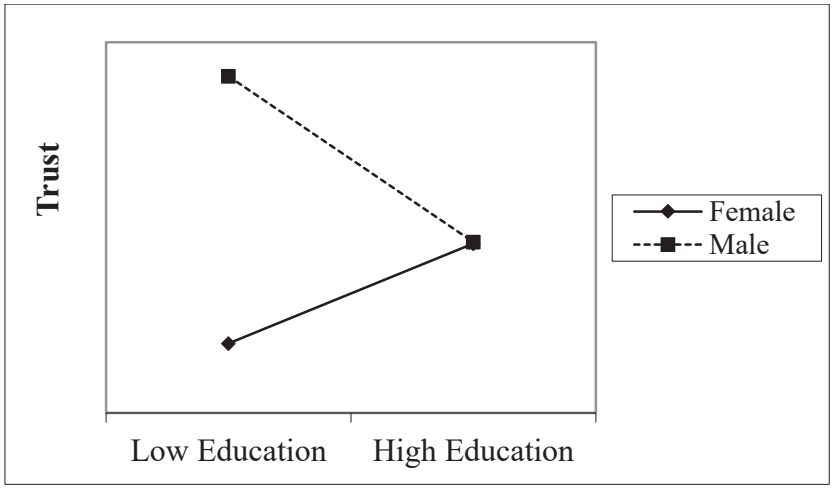


Figure 2 (b)

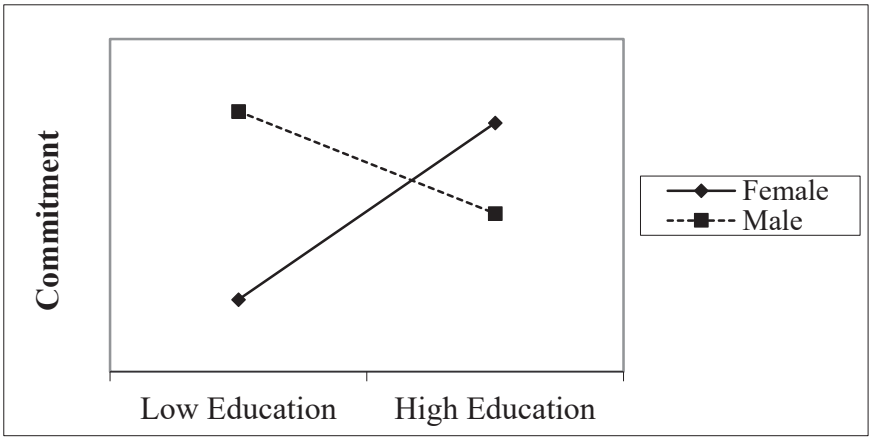


Figure 2 (c)

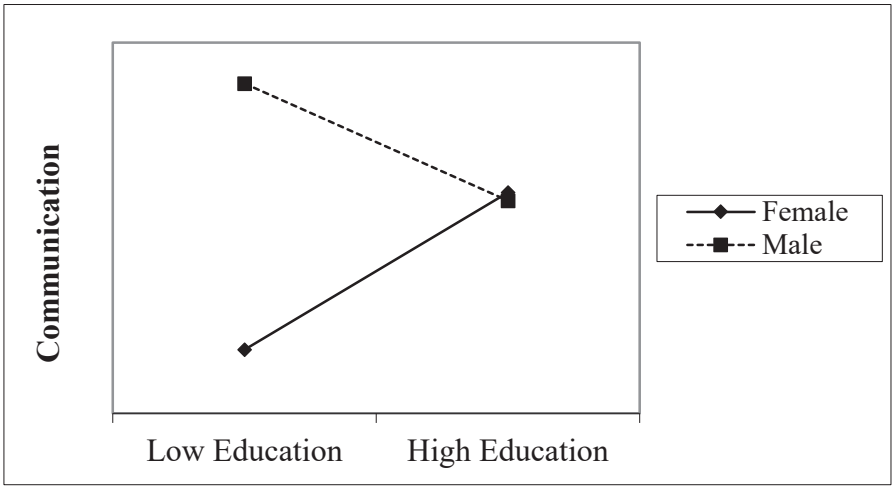
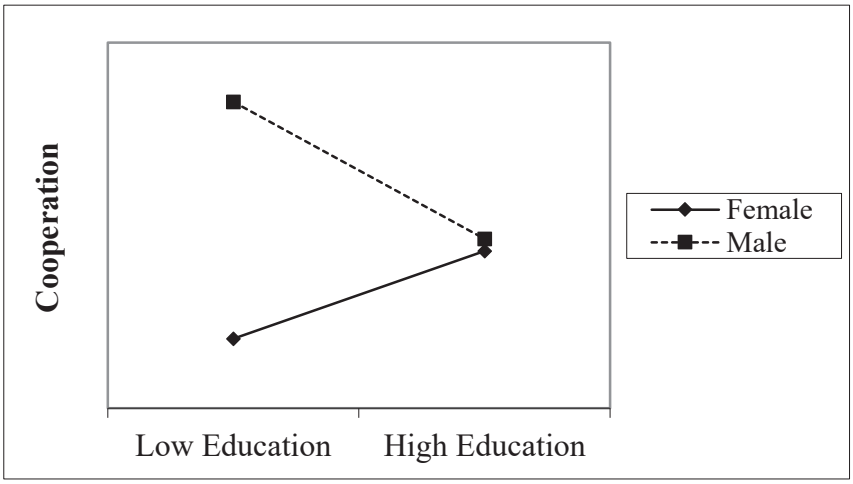


Figure 2 (d)



A scientific paper

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IS INNOVATION KEY FACTOR FOR SUCCESS OF START UPS IN CROATIA?

ABSTRACT

Start-up companies move the world and represent an engine for the development of society. There are several definitions of what a start-up company is, and depending on the period and the author, different definitions appear. But that's why everyone agrees that for a company to be a start-up company, one of the key characteristics is that the company must be innovative and this is the crucial element for the company's success. A key question that is the subject of this research paper Is innovation a key factor for success of the start-ups in Croatia? The purpose of the research that was carried out in Croatia was to determine whether innovation is the key factor and element for the success of a start-up company. The main thesis of our research is to determine whether innovations represent a basic and crucial part for the success of every start-up company. The research was conducted through structured interviews with founders and co-owners of 14 Croatian start-up companies from all over Croatia operating in various industries. The results of the research showed that startups see the innovation is an integral part of the success of every start-up company, but it is not crucial and a basis for success, no matter how big and important that innovation is. The findings of the research suggest that while innovation is very important, it is not the sole determinant of success.
The research highlights the importance of balanced approach that integrates innovation with other key elements to achieve sustainable growth and competitiveness in the global market. A large number of factors influence a start-up company to succeed in the global market and show significant success. At the same time, the research showed that innovations are of great importance for startups, but its not the only determinant of success.

Key words: *entrepreneurship, startup, innovation.*

1. Introduction

Innovation and startups are crucial themes in contemporary academic discourse, particularly within entrepreneurship, business management, and economics. The intersection of innovation and startups is often explored through the lens of how novel ideas, products, processes, or

business models are developed and commercialized by new or existing firms to create value and drive economic growth. Startups face numerous challenges in their innovation efforts, including resource constraints, market uncertainty, and regulatory hurdles. Despite these challenges, startups are uniquely positioned to introduce groundbreaking innovations due to their flexibility, risk-taking propensity, and focus on addressing unmet market needs. The academic literature emphasizes the critical role of supportive policies, access to funding, and robust entrepreneurial networks in enabling startups to navigate these challenges and capitalize on opportunities for innovation.

From an academic viewpoint, the challenge of balancing innovation with operational efficiency in startups involves a strategic approach to resource allocation, fostering an organizational culture that supports both innovation and operational stability, and ensuring strategic alignment between innovation efforts and the startup's broader strategic objectives. This multifaceted approach requires continuous adaptation and reevaluation as the startup evolves and responds to changing market dynamics and internal capabilities.

According to data and analytics provided by Dealroom.co, a global leader in the provision of data insights, the year 2023 witnessed the emergence of 464 start-up enterprises within Croatia. Among these, two have achieved the status of 'unicorns,' a term denoting start-up companies that have reached or exceeded a valuation of 1 billion USD. These start-up entities are located across the country, with a significant concentration in Zagreb. Substantial number of these enterprises are located within business incubators or accelerators, underscoring the pivotal role these platforms play in fostering entrepreneurial growth and innovation within the region. Managers of the researched start-up companies in Croatia agree that sucess is balance between varius factor and it can be conceptualized through the lens of resource allocation, organizational culture, and strategic alignment. Resource allocation theory provides a foundational framework for understanding how startups must navigate the allocation of scarce resources between innovation initiatives and operational demands.

To discuss start-up companies, it's essential to examine a distinction that exists between them and newly founded companies, or if "start-up" is merely a term used to promote entrepreneurship. Additionally, the topic of the research is how crucial is innovation regarding other elements and the connection of those elements in succeeding.

2. Innovations and start-up

There are a large number of definitions of what is a start-up company and how that term is viewed by different authors. Definitions vary from author to author, but also from period to period when those definitions or viewpoints are given. If we ask the academic community they will give one type of definition, but if we ask entrepreneurs they will give another type of definition and a different point of view. Some authors agree that startup science is still a young discipline and there is a lack of research in this area (Luciana Santos Costa at all., 2021). Their descriptive analysis of the research corpus revealed 228 articles, with a total of 313 authors and co-authors that were distributed in 25 countries, with a concentration in the United States (37.28%). The period of distribution of the articles comprises the years from 1990 to 2019, with emphasis on the year 2015, with 48.43% of the articles published. Startups, characterized by their nascent, dynamic nature, are often at the forefront of innovation. They are typically seen as agile entities that challenge established norms and industries through disruptive or radical innovations. Blank and Dorf (2012) in "The Startup Owner's Manual" highlight the unique position of startups in the innovation landscape, emphasizing their role in testing, developing, and commercializing novel ideas. The lean startup methodology, popularized by Eric Ries (2011) in "The Lean Startup," further illustrates the iterative process of building startups and innovation through the build-measure-learn feedback loop, emphasizing the importance of

agility and customer feedback in developing successful business models. According to the European Commission, a startup is "an enterprise, regardless of its legal form, that is in the process of being set up and whose goal is to develop an innovative product or service, or a scalable business model."
Startups are not just technology companies; but any companies in the process of being set up; (Hermanson, 2011; Longhi, 2011; Blank and Dorf, 2012; Perin 2016; Kohler, 2016). This type of entrepreneurship happens more in the area of technology because the costs are lower to create a software company than an industry. Eric Ries (2006), defines a startup as a human institution designed to create a new product or service under conditions of extreme uncertainty. Start-ups are the strongest manifestation of entrepreneurship and innovation [Giezzi A., 2020]. They are distinguished from other business ventures by dynamic market expansion executed most of using modern technologies, such as information and communication [Barandiaran-Irastorza, X.; Peña-Fernández, S.; Unceta- Satrústegui, A., 2020]. Their rapid development is guaranteed by unique know-how and investor financial support (business angels; venture capital). Due to the exceptional originality of business ideas, high demand for capital, and intensive pace of development, start-ups are high-risk ventures, intended for visionaries and entrepreneurs with above-average levels of risk acceptance. Anamaria Diana (2017) says, that startups can be defined as newly established, innovative companies with a service life of up to 2 years and a maximum of 10 employees, while Krejci (2015) says, a startup is a new and temporary company that has a business model based on innovation and technology. In addition, these types of companies have a potential for rapid growth and scalability
Innovation is broadly defined as the introduction of something new or the improvement of existing products, services, processes, or practices. This concept is encapsulated in the Oslo Manual, jointly published by the OECD and Eurostat, which provides guidelines for collecting and interpreting innovation data. The manual categorizes innovation into four main types: product innovation, process innovation, marketing innovation, and organizational innovation. These categories underscore the multifaceted nature of innovation, extending beyond mere technological advancements to include changes in how businesses operate and engage with their markets. McGrath (1995) in "Defining and Developing Competence: A Strategic Process Paradigm" suggests that firms need to engage in "discovery-driven planning" to allocate resources efficiently under conditions of high uncertainty, which is characteristic of startups. This approach emphasizes the need for flexibility in resource allocation to accommodate the iterative nature of innovation processes while ensuring operational requirements are met. Organizational culture plays a pivotal role in balancing innovation with operations, as highlighted by Tushman and O'Reilly (1996) in "Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change". They introduce the concept of an ambidextrous organization, capable of exploiting existing competencies while simultaneously exploring new opportunities. This dual capability necessitates a culture that supports experimentation and tolerates failure in innovation efforts, alongside a disciplined approach to managing day-to-day operations. Strategic alignment between innovation and business strategy is critical to ensure that innovative activities contribute to the startup's overarching goals. Kaplan and Norton (2001) in "The Strategy-Focused Organization" argue that aligning innovation with strategy involves integrating innovative initiatives into the strategic planning process, ensuring that innovation is not pursued in isolation but is directly linked to the startup's strategic objectives. This alignment ensures that innovation efforts are market-driven, addressing real customer needs and enhancing the startup's competitive position.

The concept of open innovation, introduced by Henry Chesbrough in "Open Innovation: The New Imperative for Creating and Profiting from Technology" (2003), has also gained traction. This paradigm shift suggests that startups can benefit from leveraging external ideas and

technologies in conjunction with their internal R&D efforts to accelerate innovation and bring new products to market more efficiently. Autio et al. (2014) in "Innovation Ecosystems and Growth in Startups" examine how startups' growth is influenced by their surrounding innovation ecosystems, highlighting the interplay between startups, investors, research institutions, and government policies in fostering an environment conducive to innovation. Clayton M. Christensen, a renowned Harvard Business School professor and a leading authority on innovation and growth, provided a nuanced view of innovation that has influenced business leaders and academics alike. In his book, "The Innovator's Dilemma," Christensen defines disruptive innovation as a process by which a smaller company, typically with fewer resources, successfully challenges established incumbent businesses. This is achieved not by emulating the incumbents' products or services but by targeting overlooked segments of the market and providing more suitable solutions that the incumbents are not offering. Over time, these innovations move upmarket and eventually displace the established competitors. Christensen's definition of innovation, particularly disruptive innovation, emphasizes the importance of how innovations can change competitive landscapes and business models, rather than focusing solely on the novelty or technological aspects of new products or services. His work highlights the strategic implications of innovation and the need for companies to be vigilant and adaptable to emerging innovations that might initially seem insignificant but have the potential to transform industries.

Start-ups should not solely prioritize innovation; rather, they must exhibit adaptability and preparedness for the challenges that innovation may introduce. While the success of a company is influenced by various elements, the recognition of innovation's significance as a factor in securing a competitive edge is imperative. Concurrently, research indicates that although innovations are vitally important for start-ups, they do not singularly determine success. Success in start-ups is contingent upon a multitude of factors, in addition to innovation.

The challenge of growth and development is significant for established companies and startups, yet it presents substantial opportunities for new startups capable of introducing innovative rules to the game. The dichotomy between one company's challenge and another's opportunity underscores the essence of entrepreneurship, which is deeply rooted in innovation. The quintessence of innovation involves identifying opportunities and devising novel approaches to capitalize on them Entrepreneurs are characterized by their willingness to embrace risk, yet they engage in careful evaluation of the costs associated with actualizing an idea against the potential rewards, aiming to introduce distinctive solutions that garner admiration from competitors (Tidd & Bessant, 2019). To secure a competitive edge, continuous innovation across all products and services is imperative. Successful innovations are not serendipitous; they require deliberate management. Innovations are pivotal for the growth and development of companies, with the ultimate objective of innovation being to effectuate improvement and foster positive transformation..
Schumpeter (1942) points out that innovation leads to "creative destruction", which causes constant progress and improves living standards. But Peter Drucker agrees that entrepreneurs must learn to practice "planned innovation." According to Peter Drucker, planned innovations are an integral part of a planned and organized search for changes and of the planned analysis of the opportunities that those changes can offer for economic or social innovations. Specifically, planned innovations are the result of observing seven sources of innovative opportunities namely: the unexpected, inconsistencies, process need, industry and market structures, demographics, changes in perception, new knowledge (Drucker, 2009). Innovations have become a driving force for thefuture opportunities of the companies." (Urbaníková et al., 2020) and innovation is also the main es-sence of startups.

Innovation is crucial for startups as it enables the development of novel products or services, setting them apart from competitors. While innovations vary in type, their core objective remains consistent: to generate value for customers. Innovation transcends the mere creation of new offerings; it also encompasses the enhancement of existing products or services. Startups are constantly engaged in exploring and testing new ideas to devise superior solutions for customer needs. Consequently, alongside other vital factors for their sustainability, startups must foster an innovation-centric culture. This culture serves as a base for securing a competitive edge, as well as facilitating the growth and evolution of the business..

3. Research

The central research question addressed in this paper examines the perceptions of startup managers and owners regarding innovation, specifically its significance and impact of innovation on the success of startups. Entrepreneurship is acknowledged as a catalyst for innovation, productivity, and job creation, with innovation being particularly crucial for startups to distinguish themselves in a competitive market. Innovation serves as a formidable tool for securing a competitive edge, offering numerous benefits that facilitate the growth, development, and success of startups. Innovative startups face serious obstacles in their innovation processes because of the high costs of innovations, lack of commercial and managerial competencies, and difficulties in cooperating with industrial agents (Franco-Leal Noelia a, Diaz-Carrion Rosali 2020)

Firstly, innovation enables the creation of novel and viable products or services, allowing startups to present unique value propositions to customers and thereby differentiate themselves from competitors. Furthermore, innovation contributes to cost reduction and enhances operational efficiency. Through the exploration of innovative approaches to daily operations and the experimentation with new ideas, startups can optimize resource allocation. Additionally, innovation attracts talented individuals to establish startups and fosters a culture that values and emphasizes the importance of innovation. However, the pursuit of innovation also presents significant challenges, primarily due to the inherent risks and uncertainties of venturing into uncharted territories.

This paper employs a qualitative methodologie through structured interviews to explore the role and significance of innovation in establishing a growth and success for startups in Croatia. The study research involved interviews with 14 startup owners and managers from Croatia. Companies were selected based on the methodology provided by Dealroom.co, adhering to their criteria for defining startups. According to this methodology, 464 companies are registered in Croatia, with the highest concentration in Zagreb and its surrounding areas. To ensure a comprehensive analysis, companies from both Zagreb and the surrounding regions, as well as those from the interior of Croatia, were included to maintain criteria of equality. The interviews were conducted between December 2023 and February 2024.
One of the objectives of this research was to qualitatively assess the significance and function of innovation in the success of startup companies, and to determine whether innovation serves as a key factor for their market success.. The aim of this research is to contribute valuable scientific insights into innovation and how start up managers define the importance of innovation in their success. The subsequent analysis of the findings is detailed in the following sections of the text.

On the question, **As a manager of a startup, how do you perceive the role of innovation in determining the success of your company?**

the answers include a different spectrum of perspectives that describes the different attitude of the respondents towards the innovation. The responses to the question on the role of innovation in determining the success of a startup reflect a spectrum of perspectives and attitudes toward innovation. One perspective emphasizes the importance of innovation as a critical ingredient for success. It acknowledges that while innovation alone may not suffice to build a sustainable and profitable business, it is nonetheless a crucial factor that, when integrated with other aspects such as strategic planning and operational excellence, facilitates success. This viewpoint underscores the need for a balanced approach to innovation, considering both disruptive and incremental forms. Another perspective highlights innovation as a mindset and strategic approach that sets startups apart in competitive landscapes. It delineates various ways in which innovation contributes to success, including providing a competitive advantage, fostering adaptability, solving problems, improving efficiency, and expanding market reach. This perspective underscores the multifaceted benefits of innovation for startups, emphasizing its role in driving differentiation, competitiveness, and growth. Conversely, some respondents express a more reserved view of the importance of innovation. They acknowledge the necessity of innovation but perceive it as less crucial compared to other factors such as sales, relationships, and market demand. This perspective suggests that while innovation may contribute to success, it is not always the primary determinant and must be balanced with other considerations such as meeting market needs and building relationships with clients.

Overall, the responses reflect diverse perspectives on the role of innovation in startup success, ranging from viewing it as a crucial ingredient and strategic imperative to considering it as a secondary factor that must be balanced with other business priorities. This diversity underscores the complexity of innovation's role in determining the success of startups and the need for nuanced approaches that consider the unique context and challenges of each venture. In summary, while innovation is widely acknowledged as a key driver of startup success, its role is perceived within a broader strategic context. Effective innovation is not just about introducing novel ideas but also about aligning these innovations with the startup's overall business strategy, market demands, and operational capabilities. This balanced approach enables startups to leverage innovation for competitive advantage while ensuring sustainability and relevance in the market

What challenges do you face in balancing the need for innovation with other operational aspects of running a startup?

Balancing the need for innovation with operational aspects in a startup presents a multifaceted challenge, as highlighted by various managers. The primary struggle involves managing the inherent tension between the drive for innovation and the need for stability, predictability, and efficiency in day-to-day operations. One of the core challenges is the scarcity of resources, which is a common constraint in startups. Innovation often requires a significant investment of both time and money in activities with uncertain outcomes, such as research and development, testing, and iterating new ideas. This investment can strain limited resources, making it difficult to maintain operational aspects like production, marketing, and sales, which are essential for immediate survival and profitability. The process of innovation itself, characterized by trial and error, demands flexibility and a tolerance for failure that can conflict with the need for operational stability and predictability. Startups must navigate this delicate balance, ensuring that the pursuit of new and innovative ideas does not undermine the reliability and efficiency of existing operations. Risk management emerges as a critical tool in this balancing act, allowing startups to evaluate potential outcomes and the impact of innovation initiatives on the broader business. Establishing a culture that values both innovation and operational excellence

is essential. This culture should encourage open communication, strategic allocation of resources, and clear prioritization of tasks. Furthermore, aligning innovation with the overall business strategy ensures that innovative efforts are not only focused on creating novel products or services but also on addressing market needs and contributing to the company's long-term goals. The challenge is not merely to innovate for innovation's sake but to do so in a way that is relevant to the market and sustainable for the business.
In conclusion, balancing innovation with operational aspects requires a strategic approach that considers resource allocation, risk management, and the alignment of innovation activities with market needs and business objectives. It is about finding a sustainable middle ground where innovation can thrive without compromising the operational integrity and financial stability of the startup.

To what extent do you believe that staying ahead of technological advancements and industry trends is crucial for the success of your startup?

The responses to the question of the importance of staying ahead of technological advancements and industry trends for startup success reveal a spectrum of perspectives, ranging from cautious endorsement to strong advocacy. On one end, some respondents argue that while keeping pace with technological advancements is beneficial, it is not the sole determinant of success. They suggest that a startup can thrive by excelling in other areas, such as operational efficiency or lean business practices, without necessarily being at the cutting edge of technology. This viewpoint acknowledges the value of innovation but places it within a broader strategy that includes other critical business elements. Conversely, there is a strong consensus among many respondents that staying ahead of technological and industry trends is not only beneficial but essential for the long-term success and competitiveness of a startup. This group highlights the dynamic nature of the business landscape, where rapid technological innovations and shifting market conditions can significantly influence market dynamics. They argue that proactively engaging with emerging technologies and trends enables startups to innovate, adapt, and maintain a competitive edge. The ability to anticipate market shifts, identify new opportunities, and meet evolving customer demands is seen as crucial for avoiding obsolescence and securing a sustainable position in the market. A moderate stance emerges from some respondents who view the importance of technological advancements as situational, suggesting that while it is important, it should be balanced with improvements to existing systems and processes. This perspective emphasizes a balanced approach, where innovation and technological engagement are part of a dual strategy that also values the enhancement of current operations.
In summary, while views on the absolute necessity of staying ahead in technology and trends vary, there is a general agreement on its significance for startup success. The divergent opinions underscore the complexity of navigating the startup landscape, where strategic choices about innovation, technology adoption, and market responsiveness are tailored to individual business contexts and industry specifics.

Are there specific industries or sectors where you believe innovation is particularly crucial for the success of startups?

The responses to the inquiry about the significance of innovation across different industries reveal a nuanced perspective that acknowledges the universal importance of innovation while highlighting its critical role in certain sectors. Respondents agree that innovation serves as a fundamental driver of startup success across all industries, yet they emphasize its paramount importance in specific sectors such as technology, healthcare, and clean energy. In technology and healthcare, the rapid pace of scientific advancement and the evolving nature of consumer needs necessitate continuous innovation. Startups in these sectors are expected to deliver groundbreaking solutions that address complex challenges, improve patient outcomes, and

leverage the latest technological developments. The emphasis on innovation in these areas is not just about sustaining competitive advantage but also about contributing to significant societal advancements. The clean energy sector is identified as another area where innovation is particularly critical, given the global urgency to address climate change and the transition towards sustainable energy sources. Startups in this sector are at the forefront of developing renewable energy technologies, energy-efficient solutions, and sustainable practices, highlighting the role of innovation in driving environmental sustainability and economic viability. While respondents recognize that every industry can benefit from innovation, they point out that in sectors characterized by rapid technological change, intense competition, and high societal impact, innovation is not just beneficial but essential. Startups in these areas must prioritize innovation to remain relevant, meet regulatory and market demands, and contribute meaningfully to their respective fields.

How does the startup ecosystem, including collaboration with other startups, impact the innovation capabilities and success of your company?

The impact of the startup ecosystem and collaboration with other startups on a company's innovation capabilities and success is multifaceted, drawing both positive and critical viewpoints. On the positive side, collaboration within the startup ecosystem is highly valued for its role in facilitating knowledge sharing, resource pooling, and access to complementary expertise. Such collaboration is seen as a catalyst for innovation, enabling startups to leverage shared resources, such as office space, equipment, or expertise, without substantial investments. This environment fosters a culture of continuous learning, accelerates innovation, and opens doors to potential collaborations, joint ventures, and partnerships that enhance innovation capabilities. The responses also highlight the significance of cross-pollination of ideas, brought about by collaborating with startups from different industries or with complementary skill sets, which leads to fresh perspectives on problem-solving and innovation. Moreover, collaboration is credited with allowing market validation through shared experiences, emphasizing the startup ecosystem's dynamic and collaborative nature in shaping innovation capabilities and contributing to success. Conversely, some responses reflect a more critical view, pointing out the insufficiency of cooperation and the challenges posed by the introverted nature of some developers, which can hinder effective communication and collaboration. Despite these challenges, there's a recognition of the need for increased collaboration, both formal and informal, to drive success. The mixed experiences with collaboration underscore the variability within the startup ecosystem, suggesting that while the potential for a positive impact on innovation and success is significant, realizing this potential can be contingent upon overcoming communication and cooperation barriers.

4. Conclusion

Research shows underscores the multifaceted nature of innovation in startups, encompassing not only product or technological innovation but also process and business model innovations. Furthermore, study indicate that, despite the importance of innovation, the startup company managers and owners must do balance between innovation and operational efficiency, not only rely on innovation. It is essential to recognize that the strategic alignment of innovation efforts, the industry-specific impact of innovation, and the supportive role of the startup ecosystem are critical factors in navigating the complex landscape of startup management and fostering company growth. A start up company cannot merely depend only on innovation as a singular factor and anticipate success. Managers needs to rely on holistic approach that integrates innovation with solid business practices, adaptable strategies, and collaborative networks if they

want to achieve sustainable success. As articulated by one of the interviewed company managers, the essence of the relationship between a start-up and innovation lies in "Innovation is not just a luxury for startups; it's a necessity. It's a mindset that should be embedded in the company culture from the top down, encouraging creativity, experimentation, and a continuous quest for improvement. Startups that prioritize and integrate innovation into their DNA are better positioned to navigate challenges, seize opportunities, and achieve sustained success as a moment that was also important and an integral part of the success of the start-up company, it should be ahead of technological advancements and industry trends is essential for the success of our start-up. It enables us to be agile, adaptable, and relevant in the market".
In summary, it is evident that innovation is fundamental across all industries, and progress in any domain is unattainable without innovation. However, it is crucial to underscore that in IT technology, healthcare, agriculture, finance, and consumer goods are examples of sectors where innovation plays a vital role in driving growth, disrupting traditional business models, and addressing complex challenges. Research shows that, despite managers highlighting the significance of collaboration within and among start-up companies, they reported that actual cooperation levels are notably low. This phenomenon can be attributed to the reticence of managers to exchange and share ideas, driven by a desire to maintain focus and safeguard their companies. Additionally, it was emphasized that a majority of owners and managers havet lack of communication skills which is very important for running and developing a startup company. Like a general conclusion, research shows that start-up companies should not always focus and stand only on innovation as main driver to success, but should also include the other elements for the company's success which is very important This research will provide a starting point for subsequent studies aimed at explore whether startup companies depend solely on innovation as a success factor or incorporate other elements in their development. Future research should focus on identifying the key factors that contribute to the success of startups and the role of artificial intelligence in their achievements. Additionally, it is important to determine the proportion of new startups that depend exclusively on innovation and to research the extent to which reliance solely on innovation has contributed to the failure of these companies.

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A scientific paper

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MONETIZATION OF NEW APPLICATIONS

ABSTRACT

When personal computers and afterwards mobile phones have completely changed our approach to work and to everyday life, the appearance of desktop and mobile applications have done the same in a very short period. Applications are now an important part of everyday modern life. A huge number of the world's population owns a mobile device on which millions of applications are available. Whether they are free to download or not, all applications can earn money through monetization. Monetization is the process where a product or service is converted into money. App monetization can be achieved in many ways and every new app on the market must carefully choose an adequate monetization strategy. For the purposes of this study, fifty applications have been selected out of which the authors selected and analysed nine applications which they considered to be the most representative. The authors reached and presented in the paper several conclusions about the monetization models of successful and unsuccessful applications. They have also acquired important knowledge about the advantages and disadvantages of individual models and gained an understanding of how monetization strategies change in accordance with the life cycle of the applications themselves.

Key words: *Monetization, Application, Digitization, Internet.*

1. Introduction

The development of new technologies always introduces new opportunities for progress and brings changes to all human activities that need to be adapted to them. Modern life is characterized by rapid changes caused by the emergence of the Internet, mobile technology, and digitization. Digitization has significantly changed the way of life and introduced a revolution in all spheres of human life. Digitization has also had a great impact on the business world. It enabled the automation of industrial processes and increased productivity. The ability to access a large amount of data has improved the decision-making process. The opening of new markets and the increase in the number of potential customers opened new earning opportunities. Communication has become faster and simpler than ever before, because with the introduction of mobile technology, the exchange of information can take place in real time all over the world. From the first public call via mobile phone in 1985, to the first ever sent

SMS message in 1992 and modern smartphones, mobile telephony has completely changed the world we live in in less than forty years. (Križanović, 2020)

Very soon after calls and SMS messages, in 1997 the first applications appeared on mobile phones. Ten years later, the first application stores appeared, which had only about five hundred applications available. Today, millions of applications can be found in application stores, and all trends point to the further development of this market. As with the creation of most new products or services, the creation of new applications is an enterprise with an uncertain outcome. Although there are many factors that are impossible to influence, knowing the market can greatly reduce this uncertainty. Planning is a prerequisite for the success of any business, so even when creating a new application, every step in its development must be carefully planned before it is released on the market.

There are many expert and research articles that provide comprehensive survey of monetization and explain individual cases of monetization in detail, but given the specificity of the topic - all surveys and research quickly become out of date considering the high intensity of changes in the market application. Among the most prominent studies is the study of Ailie K. Y. Tang (2016) that analyses applications as promotional tools in mobile advertising and digital marketing. Dinesh Elanga (2018), on the other hand describes the functioning of app monetization with an emphasis on the Internet of Things market. Gil Appel, Barak Libai, Eitan Muller and Ron Shachar (2019) offer a short overview of application monetization based on the data from 2018. Aniebiet Inyang Ntui (2021) explains the positive and negative consequences of individual monetizations based on a six-month study of monetizations. Young-Jin Lee (2021) reveals that developers of mobile applications change their monetization strategies over time (from paid to free applications and vice versa), and finally, Julian Runge, Jonathan Levav and Harikesh S. Nair (2022) offer a description of a Freemium model for generating monetization.

When observing the global market from the perspective of monetization of Croatian applications, it can be concluded that there are no relevant studies that would answer the question in which direction potential application developers should go. Therefore, the goal of this paper was to investigate ways of monetizing applications at a global level in order to provide information to Croatian app developers and help them decide which form of monetization to choose.

2. Monetization

In the context of state finances, monetization means “converting state debt from a form of financing through debt securities into money, thereby increasing the money supply (enciklopedija.hr)”. Monetization can also mean “the use of cash surrogates in function of turnover and payment (enciklopedija.hr)”. When talking about app monetization, the following definition applies monetization is “the conversion of less liquid or non-monetary assets into money (enciklopedija.hr)”. Today, monetization primarily refers to “the process of turning something that does not bring profit into cash.” (Ganti, 2022)

For an application to become part of a business activity, it can only do so by generating income, which is realized through monetization. “If a product does not have built-in monetization mechanisms, then it is usually:

- An experimental product within a well-funded larger company that can afford monetary losses.
- A start-up company that is backed by an entrepreneur that has yet to be monetized in any way and that has the necessary funds for maintenance and shows potential for growth.
- A side project that is worked on for fun and that may never become a serious business." (Holmes, 2022).

Although today it is most often used when generating profits from Internet applications or other digital sources, monetization is not a new concept. Television and radio are the media that used monetization by advertising to generate income long before the advent of the Internet. And even earlier, print media (newspapers and magazines) started monetizing through advertising. In many cases, monetization seeks innovative methods of generating income from new sources. Monetization can also be realized through these two special forms (Kenton, 2022):

- **Commodification**: A special form of monetization by which a profit is made through the privatization of a previously public good is called commodification. An example of commodification is the transfer of public road usage fees to private hands.

- **Liquidation**: A form of monetization where financial resources are obtained by selling inventory or assets. Finances can be obtained in this way in a short period of time. It is most often used by companies that end their business through bankruptcy or change of business model.

Sometimes there will be a built-in model of monetization from the very beginning of the company, while in other cases it will be necessary to reach some level of security in the business that will be monetized later. Too much focus on the monetization process in the early stages of business development can actually stall progress.

The concept of monetization has become especially important in the modern digital economy. The emergence and rapid development of the Internet and the growing number of users of personal computers and mobile phones also led to the creation of new monetization models. Generating profits is possible today in ways that did not exist at all not so long ago.

Digital media are all media that publish or offer their media content via the Internet or via digital networks and devices. The content they publish can be displayed in different formats. Content can reach the user in the form of text, audio, video, animation, graphics, or a combination of several digital forms. Digital content can be accessed through several types of devices – mobile phones, televisions, personal computers, tablets, game consoles, etc. Even media that were created before the advent of digitization (daily newspapers, magazines, radio, television, books, etc.) had to adapt to changes are still unthinkable today without some digital version. Daily newspapers and magazines are far less present in printed editions and much more in online editions or mobile applications.

The biggest difference between traditional and digital media is their interactivity. While traditional media provided only one-way communication, today's digital media achieve two-way communication. (Ferenčić, 2012) Digital media, apart from the format in which they appear, can also be distinguished by the type of content they display. Types of content in digital media can be blogs, social networks, ads, video games and books in electronic form (e-books), etc. (Goldberg, 2019) Digitization brought another type of change that the media had to adapt to. Today, more and more media content can be accessed completely free of charge, so digital

media owners are forced to look for alternative sources of income. The main way digital media generates revenue today is monetization. Monetization of digital media can be defined as turning digital content into a source of income.

Monetization of websites is considered to be the conversion of its content into money. There are several ways to make money online. The total number of ways to monetize a website varies depending on the author, and the most frequently mentioned are earnings through advertising, sale of space to advertisers, donations, sale of products and services, sponsored content, courses, and training, charging for access to content and sale of the website.

A podcast is an audio recording that is uploaded to a user's device or viewed online. The principle of operation is similar to radio transmission, but with one important difference – podcast content can be listened to at any time. (Fedewa, 2022) The content of a podcast can be various: analysis of sports events, political topics, video games, technology, etc. "Podcasts today are a special kind of entertainment and are actually a modern type of talk show". (Fedewa, 2022) The specificity of podcast monetization is that there is no visual but only audio content, but it can also be turned into earnings. A podcast can be monetized in these ways: sponsorship, product sales, donations, or sharing content on YouTube.

3. Applications

The term "application" used to be most widely used in two situations: as a synonym for the term "implementation" or "use" and as a term meaning "the application of one object or material to another (jezikoslovac.com)". With the advent of computers, in addition to these two, there is also a third meaning of this term: "an application is a computer program created to perform a task or a dedicated program (jezikoslovac.com)". Computer applications are a relatively new term, so the related definitions are diverse. The most commonly used definition of the term "application" reads: "An application is a self-contained package of software that allows a user to perform specific tasks on a mobile device or personal computer."

Whatever the purpose of an application, its content has the possibility of monetization. Before even starting to think about the income from an application, it is necessary to deal with the application itself. Creating the app itself is the first but most important step in creating potential value. To identify the best way to monetize a new application, it is first necessary to establish all its advantages and disadvantages. A thorough understanding of the business goals to be achieved with the new app will determine the business strategy and approach to app monetization.

All types of applications can be divided into two basic groups: mobile applications and desktop applications. The biggest advantage of desktop applications over mobile applications is that they are accessed from a larger screen and have more memory available to work with. The second division of applications is based on the criteria of categories in Google Play and the App Store, where applications are classified into 32 and 24 categories, respectively. According to numerous authors, this large number of categories can be reduced to six basic ones (Blog. duckma, 2022): "Lifestyle" applications, useful applications, social network applications, games and entertainment applications, productive mobile applications and news and information applications.

3.1. Creating applications

Before creating a monetization strategy, it is necessary to complete the first step in the process, which is the creation of an application. Creating an application is a process that can be time-consuming and tiring, but also rewarding. When creating a new application, it is first necessary to have a design concept. The concept of creating an app involves developing potential ideas for the app, while answering these questions:

- Who are the potential users of the application?
- What is the purpose of the application?
- What are the most important features of the application?

After the preparation of the concept, the application design follows, which includes creating a user interface and finding graphic solutions. Designing an application is an important step in its creation, because a better design guarantees a more pleasant user experience and, accordingly, a more successful application.

The next step is to develop the application. In this step, application functions are created by programming in the default programming language. There are numerous more or less well-known tools and programs for application development. The choice of the program in which the application will be created depends on the platform for which it will be intended, but also on many other technical details. The programming languages most often used to create mobile applications are: C, C#, Java, Python, Swift, Kotlin, Ruby, etc. During this step, care should be taken that the application works without errors and performs all the tasks intended. Once the app is developed, it is time to release it to the market. This is done on one of the platforms that further distribute the applications (Google Play Store or Apple App Store).

3.2. Marketing and distribution of applications

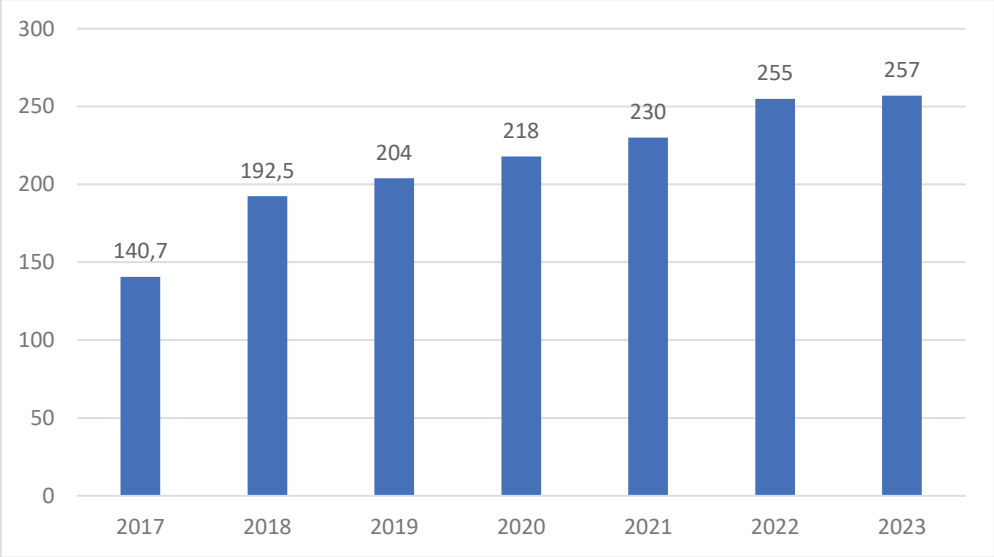
A newly developed app can be superbly designed, easy to use, useful and fun. The ways of its monetization can also be of high quality, reliable and adequate. All the steps in the development of the application can be done flawlessly, but if the potential users of the application do not know about it, there will be no monetization of the application. Only when new app creators do a little more research on their industry, they will find that monetizing them requires more than just a mobile website. Attracting the attention of smartphone users is perhaps the most important step in monetizing new applications. So, the question arises: how to spread the word about the existence of a new application? (Patel, 2023).
There are several ways to advertise mobile applications, but for any type of marketing, the basic prerequisite must first be met, which is that the application that goes live must be something that users need. To successfully attract users, it is necessary to apply the correct marketing strategy. “Broadly speaking, a marketing strategy can be defined as a formalized set of actions needed to promote a mobile application using special channels.” (Dogtiev, 2023). Marketing strategy is the basis of the success of any business. Choosing an adequate marketing strategy attracts consumers, increases sales and builds the strength of the company's brand. The life cycle of any application can be divided into three stages:

- before being launched on the market
- the very moment of launching on the market
- after being launched on the market.

Once the application is created, it needs to be marketed. In addition to the two largest and best-known platforms for the distribution and sale of applications – Google Play and Apple's App Store, there are also many other more or less well-known distribution platforms. Each distribution platform offers different benefits and therefore it is useful to deploy the new application on as many platforms as possible. Part of the process before deploying an app on any of the platforms consists of mostly the same steps. With some application distributors, there is no official data on the number of available applications, while with others, deviations are possible depending on the data source.

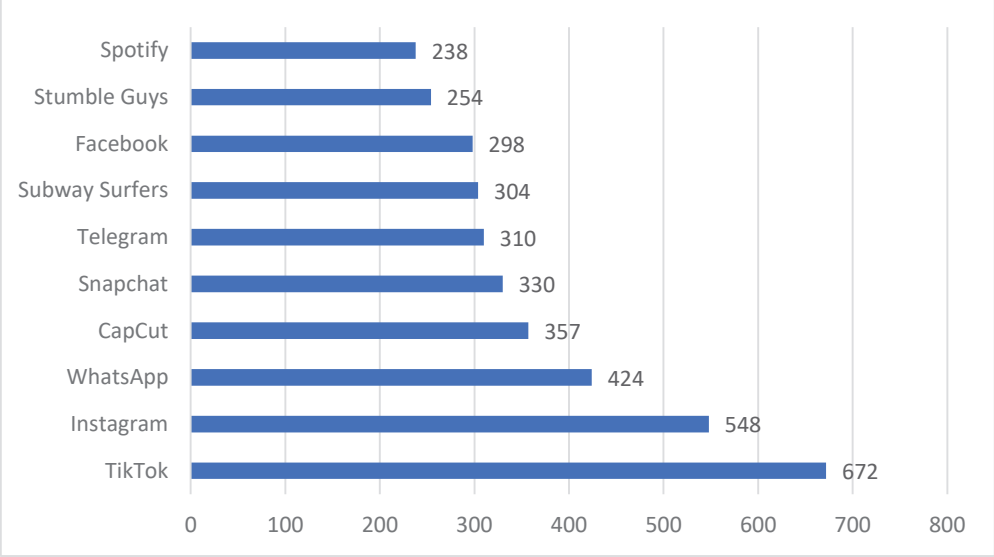
The following charts show data on the trend of app downloads over the past seven years and an analysis of the most popular mobile apps used in 2022.

Chart 1: Number of mobile app downloads worldwide from 2017 to 2023 in billions



Source: Statista.com (accessed on 24/03/2024)

Chart 2: Leading mobile applications in the world in 2022 by number of downloads in millions



Source: Statista.com (accessed on 24/03/2024)

It is evident from the previous charts that the application market has been constantly growing since 2017, however in the last few years the trend of application downloads has slowed down, and the most popular applications are still the applications intended for social communication (TikTok, Instagram and WhatsApp).

4. Method of research

In order to make the research results as relevant and comprehensive as possible, the authors analysed 50 applications that are regularly used in everyday activities and whose monetization is relevant for drawing useful conclusions that could potentially be applied in future monetization in the Republic of Croatia. The authors created a list of 50 applications that can be classified in five fields: social networks, games and entertainment, news and information, lifestyle, and applications for creating content, services and goods (Productive applications) (see Table 1). Out of 50 applications the authors chose and gave a more detailed description and analysis of the most relevant monetization models from each field. The survey has revealed that nine applications listed in the column *Analysed applications* in Table 1 are the most relevant examples of good or bad practice for future monetization in the Republic of Croatia.

Table 1: List of analysed applications classified by the field of activity

No.	**Field of activity**	**Analysed application**						
1.	Services and Goods (Productive applications)	Yplan	ClickUp	Calendly	Slack	Loom		
		Ideri	Shift	Habitica	Zapier	Toggl		
2.	Lifestyle	Swetcoin	Calm	FaceApp	KineMaster	Webtoon		
		Strava	FitOn	Burn.Fit	Jefit	Daily Workouts-Fitness Coach		
		Tinder	Bumble	Hinge	Happn	Raya	Match	
3.	News and Information	AccuWeather	Weather	MyRadar	Windy	Weather Live		
		The Guardian	BBC News	Reuters	The New York Times	The Washington Post	Al Jaazera English	
4.	Games and Entertainment	PokemonGo	MonopolyGo	Roblox	Brawl Stars	Candy Crash Saga	Clash of Clans	Coin Master
5.	Social Networks	WhatsApp	FacebookMessanger	Facebook	Viber	Instagram	Snapchat	

Source: Authors

5. App monetization

Due to the increasing popularity of mobile applications, being a direct consequence of the growing number of mobile phone users, the interest in making money through applications is also rising. The application can be monetized in numerous ways and it is only a matter of which of the available monetization models will be chosen. It is crucial to integrate the monetization of a new app right from the moment the app goes live. The selected model can always be abandoned, replaced with another one or another one can be added to it. Changing the way of monetization is a common practice in the application market because many factors can change

over time from the moment the application is put on the market. Many rankings of the best applications can be found on the Internet, so on one of them we can see that five of the ten best applications are free (top10.com, 2023). All non-free apps use a one-time download payment model. With some free applications, there is an option to pay for the *ad-free* version.
The mentioned models of app monetization are not the only ways to monetize it. Monetization can also occur by some less used methods that still cannot be counted in monetization models (e.g. selling an application or using software to increase profits).

Of the total number of app monetization models, some of them are adequate for all types of apps, while the remaining ones are applicable only to certain types. Each model has its own advantages and disadvantages, as well as the types of applications for which it is best suited – for example, some models are suitable for new applications, others for existing applications or for applications with a large user base, etc. The most well-known app monetization models are (businessodapps.com, 2022):

a) Monetization through advertising

The time that mobile phone users spend browsing the Internet or using applications on their smartphone is increasing. Some of this time can be used to serve ads to users. Advertisers therefore try to place their advertisements in a targeted manner, so that mobile phone users see advertisements on the screen that they might find interesting. Monetization through in-app advertising is one of the more popular methods of app monetization. Statistics show that 37% of applications worldwide use some form of advertising (Statista.com, 2022).
There are three ways by which in-app ads can generate profit (Patel, 2023):
- **CPM** (*Cost per thousand impressions*): Payment is made after 1000 users view the advertisement in the application
- **CPC** (*Cost per click*): Payment is made every time someone clicks on an advertisement
- **CPA** (*per action*): Payment is made every time someone clicks on an advertisement and performs the requested action.

b) Paid download of files

The oldest and most direct app monetization model is paid file downloads. With a one-time payment, the user gets full access to all the benefits of the application. Earnings with this model are immediate, but that's why there are drawbacks that make this model less and less used. "The problem with this monetization model is that it's hard to convince someone to pay for something they haven't had a chance to try. Also, it is worth knowing that both Apple and Google take 30% of each charge" (Patel, 2023). If this monetization model is chosen, it is necessary to carefully assess how much each download of the application will be charged.

c) In-app purchases

In this model, applications are free, but additional benefits are paid for. Under this model of monetization, we include the so-called "freemium[1]" applications. In-app purchases are most often used in video games. The game is free to use, however extra levels of some video game, extra lives or extra game currency are charged. In order for this model to achieve the desired effect, it is necessary for users to get used to the application and only then consider the

[1] The term "freemium" was created as a combination of the term "free" and "premium". It indicates a business model in which basic content is free, and additional content is charged. (Segal, 2022).

possibility of paying for additional benefits. For the success of this model, it is necessary to find a balance between too little and too much content in the free part of the application.

d) Subscription

The subscription model is used for applications that potential users will use for a long period of time. In order to get the maximum profit from subscriptions, there is a frequent case of a *free trial* period in which potential subscribers could know exactly what they will get with the subscription. This method of monetization is most often found in entertainment and news applications. The balance between available content and subscription-based content is key to the success of this monetization model. However, before introducing any form of subscription, you should be aware that the vast majority of users do not want to pay anything, so the biggest risk when introducing a subscription is the possibility of losing already acquired users. Before introducing a subscription, it is necessary to know the answers to the following questions (Holmes, 2022):

- Are users willing to pay for subscription-based services and can they afford it?
- Is the offer valuable enough that the user would be willing to pay for it every month?
- Is the offer sufficiently different from others on the market to prevent users from switching to someone else for a similar or lower price?

The advantages of a subscription are that it results in a more stable income and subscribers are likely to use the app longer than other users. The disadvantages of subscription are that the content of the application must be updated regularly and switching from a monetization model to a subscription can result in losing users.

e) Sponsorship program

This method of monetization is generally not suitable for new applications because it is difficult to expect that their potential will be recognized from the very beginning. Once the user base grows, some brands may become interested in sponsoring. By using a sponsored app, business entities have the opportunity to expand the market and app owners to increase earnings. The biggest advantage of this model is that it interferes with the user experience the least of all models.

f) Sale of goods

Any mobile application can generate additional profit by selling goods on the Internet. Anything can be sold: toys, shoes and clothes, tools, etc. Selling does not have to be the primary activity of the app owner, but it can be used as an opportunity for additional earnings. “To encourage app owners to adopt this strategy, Amazon launched a service called “Merch by Amazon” that allows publishers to promote their products on Amazon’s pages.” (Patel, 2021).

g) Collection and sale of data

Applications connected to the Internet collect large amounts of user data. User data mainly include the user’s email address, personal preferences and memberships in social networks. Researchers in various fields are always interested in all kinds of user data, which means that app owners can sell these data to researchers and increase profits. With this model, profit can be made in two ways: the data can be sold to a company or the owner of the application can use

it. The first disadvantage of this app monetization model is that it raises the issue of data security and confidentiality. Another problem is that customers can develop a feeling of distrust towards the company. The advantage of this model is getting to know the user, because knowledge about user preferences can be used for a more adequate selection of advertisements. (Patel, 2021) An additional advantage of this model is that this is one of the few monetization models that does not disturb the user experience.

h) Transaction fees

Collecting transaction fees through the app is a simple and effective way to monetize it. In order for this model to be applied, there must be an option to purchase products or services in the application itself, which is mainly achieved through advertisements. Profit is made in a way that every time someone makes a purchase through the application, its owner receives a pre-agreed fee. The advantages of this model are that it does not affect the user experience when using the application and does not harm the user's credibility. When introducing transaction fees, care should be taken that they are not too high, but not too low either.

6. Empirical research

For the purposes of this research, fifty applications have been selected with an emphasis on nine of them that the authors consider to be the most representative for analysis (WhatsApp, Pokemon Go, The Guardian, Accu Weather, Tinder, Strava, Ideri, Sweatcoin and Yplan) and their monetization models have been examined in detail. The applications have been selected by representing all application categories in order to make the results as objective as possible. All selected apps are available through online app stores. Data on the monetization models of the applications inspected have been collected from various websites, and the research results indicate the most popular ways of app monetization among the selected ones and what model corresponds to which type of application. Below is a description of the nine most popular selected applications and their monetization models, based on which the final conclusions were reached.

- **WhatsApp**

WhatsApp application was created in 2009 by Brian Acton and Jan Koum. WhatsApp is designed as an alternative to expensive SMS services. "This application is free to use and install. It can be installed on all platforms - iPhone and Android smartphones as well as Mac and Windows PC operating systems. It allows users to make calls and exchange text, photo, audio and video messages with other users around the world, regardless of the type of recipient's device.

Initially, the use of WhatsApp was charged as follows: $1 for downloading the application and $1 per year for its use (Page, 2022). At the peak of the use of this model, WhatsApp had about 700 million users, so it can be estimated that the earnings were about 700 million US dollars a year. In 2016, the company Meta announced a change in this collection strategy because they believed that this method of monetization was limited and that they would not be able to generate significant income for a long period of time. Very soon after this announcement, a new announcement arrived - the subscription period has come to an end and WhatsApp has become completely free to use. WhatsApp announced this news on its official blog on 18 January 2016. Part of the announcement read as follows: "Of course, people are now wondering how we plan to maintain the existence of WhatsApp without subscriptions and whether this announcement

means that we are introducing advertisements. The answer is no. Starting this year, we will test tools that will enable communication with business entities and organizations (Blog.whatsapp, 2016)". In other words, WhatsApp stopped charging private users and introduced charging companies and organizations.
WhatsApp actually makes up a very small part of Facebook's total revenue, and today almost all of that revenue is generated by charging business users for services through the WhatsApp for Business application. WhatsApp is an example of how an app monetization method can change as other factors change - in this case, the change was most affected by the total number of app users. In the beginning, WhatsApp was free, so very quickly it switched to the principle of charging for use with an annual subscription, and ultimately it abolished any charging for private users and made money only from companies that use its services.

- **Pokemon Go**

Since video games for mobile phones are one of the most used types of applications, an example of the monetization of some of them was analysed for the purposes of this paper. One of the most popular mobile applications today is the Pokemon Go game. It was created in 1996 and since then it has turned into a global phenomenon. The application is the property of the company Niantic. Today, there are Pokemon movies, playing cards and video games, the most famous of which is Pokemon Go.
"Pokemon Go is a free mobile app that combines gaming with the real world. The game uses user geolocation and mapping technology to create an "augmented reality" where players can catch Pokemon in real locations. "Today, Pokemon Go generates revenue from various sources: selling digital goods, advertising, organizing events and selling hardware. The game itself works on the "freemium" principle.

- **The Guardian**

The Guardian is a British daily newspaper founded in 1821. After several years of losses until 2011, they turned to online publishing, and there were plans to become the first British daily newspaper to be completely online (Sabbagh, 2011). The Guardian launched its first mobile app in 2009. It was an iOS mobile app, and two years later an Android app was launched. Like many other newspapers, The Guardian faced financial difficulties in 2016, which forced the management to lay off 400 employees. (Davies, 2018) The first step in getting the newspaper out of the crisis was to ask for one-time and annual donations from readers. Donors, depending on the amount of the donation, got access to special contents and benefits. Benefits included an annual subscription, tickets to special events, free access to mobile applications, etc. The newspaper's management, motivated by the statistical data that 80% of online media readers will never pay a subscription fee, no matter how much it is, decided not to introduce any form of payment for reading its online media content. Instead, they introduced membership fees and soon reached a million members. The example of monetization of The Guardian newspaper is not a classic example of monetization of mobile applications, because the actions of the newspaper's management do not only apply to the mobile application, but to the company's overall operations. This example was chosen because it shows how in difficult periods, by making the right decisions, content monetization can be maintained and even improved.

- **AccuWeather**

The specificity of weather forecasting applications does not leave them much room for manoeuvre when choosing a monetization model, and although there are some additional

contents that can be monetized, placing advertisements is the main way of generating profit. The company AccuWeather was founded in 1962 in the USA. In 2021, the company's website was in the top 50 most visited worldwide. Today, they are ranked as the third best weather app. AccuWeather can be singled out for two specific attempts to increase profits. The first way AccuWeather tried to improve the monetization of its ads was by installing a program that would bypass the ad blocking programs on the devices of app users[2]. In order to achieve this, they decided to cooperate with the company Blockthrough. The program that Blockthrough installed on the AccuWeather app would detect whether the user is using an adblocker or not. If it does, then it would check if the Acceptable Ads option is turned on. During the period of using this program, AccuWeather doubled its revenue from advertising. Another way to improve financial conditions was attempted by AccuWeather in a somewhat controversial way. User location is a private information and can only be shared with the user's permission. "AccuWeather was caught sending user location data to data monetization companies, even when the user location sharing permission was turned off". (Whittaker, 2017)

- **Tinder**

Tinder is the world's most famous online dating app. Tinder owes its success mostly to its creativity. "In 2013, Tinder revolutionized online dating by introducing a simple selection system. Tinder uses two monetization models to make money from its app: subscription and in-app purchases (buying features that increase the user's chance of finding a suitable partner). The Tinder app is a great example of how creative solutions, more than any other aspect of app development, are responsible for successful monetization.

- **Strava**

The application called "Strava" is a free application for cyclists, runners and swimmers, which is used for monitoring sports activities, physical fitness, kilometres passed and processing statistical data on the user's sports activities. Although Strava can be used to record results in all sports activities, most users are cyclists and runners. In 2022, Strava had more than 100 million users, and in the same year, more than 90 million photos were shared through the application. In 2021, the Strava app reported revenue of 167 million US dollars, and in 2022, it generated profits using three different monetization models: **subscription, sponsored challenges** (Strava sets challenges sponsored by different companies) and **information sales** (information is sold mainly to sports equipment manufacturers and services in order to design future products and services).

- **Ideri**

Ideri is a German company that produces and sells software. There are several products in the form of applications that this company offers in its range - Ideri note, Ideri move, Ideri pace and Ideri packaging suite. All applications are available to install and use on all mobile and desktop platforms. The basic contents of all the mentioned Ideri applications are free, and monetization of the applications is achieved in two ways: by subscription or by a package that contains subscription and maintenance. Ideri's management has recently been leaning towards a subscription option instead of a package that includes sales and maintenance. The reason for this is that the subscription model is estimated to be more profitable for both the company and

[2] About 43% of mobile device users have an ad blocking program installed, which is a big problem for applications whose only profit sometimes comes from advertising.

the customer. The customer would ultimately spend more through the subscription but would not have large costs at the beginning of using the application. For customers who already have one of the applications, a rule has been introduced that after two and a half years of using the package that includes sales and maintenance, they switch to a subscription. Ideri is an example of how you can always find a better app monetization model than the existing one and how switching to a new model does not have to be a drastic move but a gradual adjustment.

- **Sweatcoin**

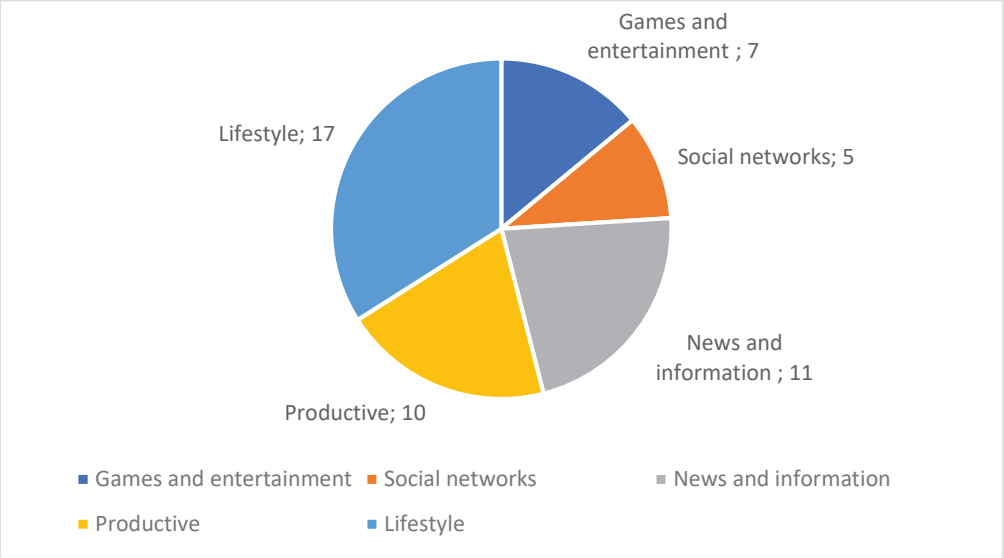
This app measures the number of steps a user takes in a day, either running or walking. In 2022, Sweatcoin had over 110 million users and cooperated with over 600 partners. What makes the Sweatcoin application different from the other applications covered in this paper is that, in addition to being free, it rewards the user for using it. For every thousand steps taken, the user will earn one Sweatcoin. When the customer collects enough Sweatcoins, he can spend them on buying products available through the app, donate them, use them to get discounts in partner stores, bid on products offered at the auction, convert them into cryptocurrency or convert them into SWEAT tokens. Although no concrete money is obtained, through earned Sweatcoins, every user can achieve financial profit through shopping. If the application is completely free, and also rewards users, the question arises: How is it possible that it generates any profit at all? The Sweatcoin app is monetized in these four ways: **subscription, cryptocurrency, advertisements** (integrated video advertising messages), partnership (**partner brands**).
To put it simply, the principle of monetization of the Sweatcoin application is as follows: By rewarding users, they stood out from similar applications and increased the number of users, so the consequence was an increase in the number of companies with which they will cooperate. In a sea of free apps, Sweatcoin has gone one step further by paying users.

- **Yplan**

The case of the Yplan application shows that monetization can sometimes be unsuccessful. The Yplan app is designed as an events app based in London. It appeared in 2012 and quickly became one of the most popular ticket booking apps in London. “Already at an early stage, about 30% of iPhone owners in London had the application on their mobile device” (Sawers, 2015). The quick success encouraged the owners to expand - a year later the same application was launched in New York and San Francisco. The application worked on the following principle: you could search for local events by day of event, by type (e.g. film, music, comedy, etc.) or by a combination of day and type of event (Sawers, 2012). The founders had a vision to create a company worth a billion US dollars.
The rapid growth and promising future attracted investors, so Yplan raised about 40 million US dollars. However, already a year later, the initial enthusiasm stopped, new funds did not arrive, and losses began to pile up. In just one year, the application made a loss of about 21 million US dollars. Soon the company was sold for only 2 million US dollars (Sawers, 2016), and its poor performance today serves as a warning to creators of new applications.

Below is a presentation of all the analysed applications with regard to the category to which they belong.

Chart 3: Division of applications by category

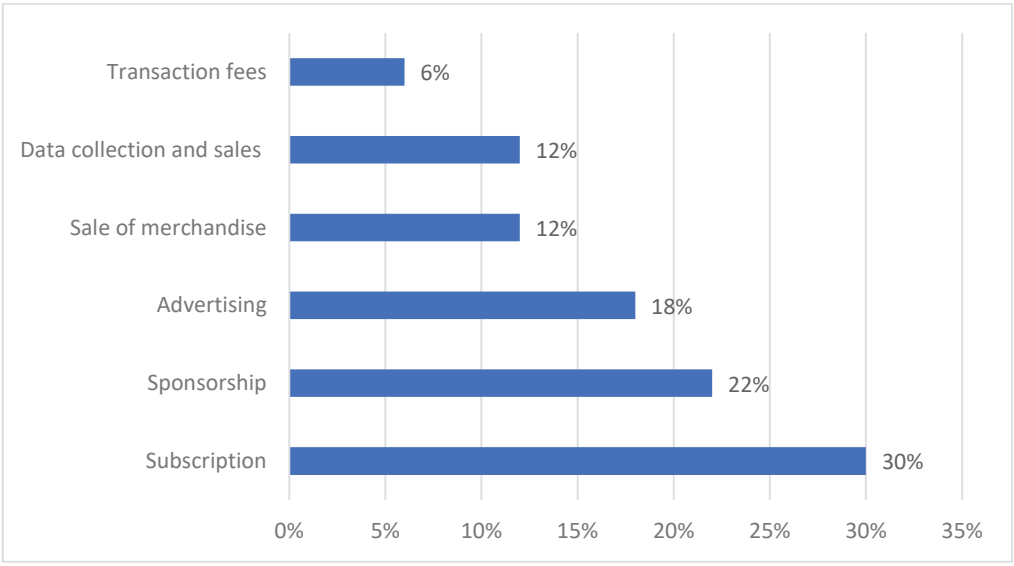


Source: Authors

Out of a total of fifty analysed applications, most of them (17) belong to the category Lifestyle, News and information (11), Productive (10), Games and entertainment (7), and the least (5) to Social networks.

The selected applications differed in the monetization models used, which is shown in the following chart.

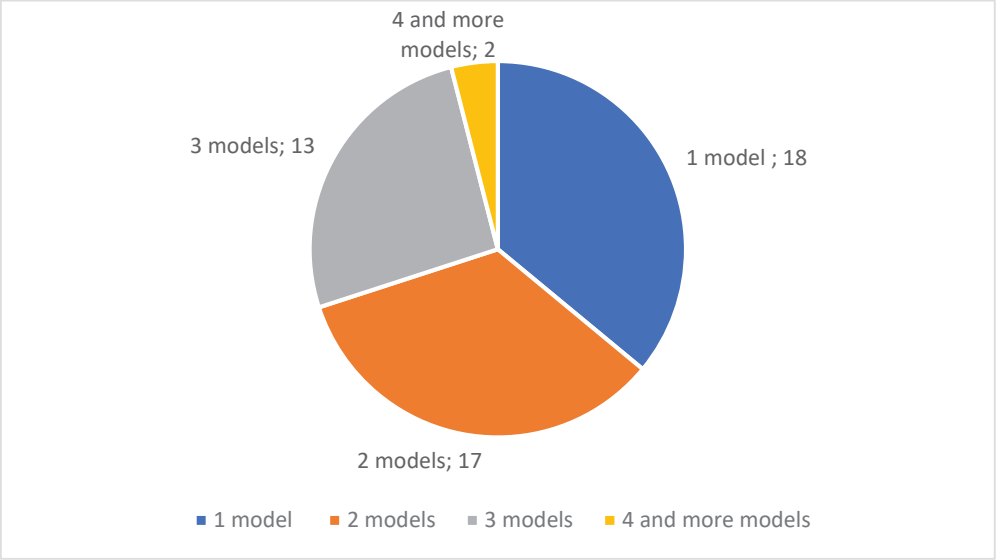
Chart 4: Distribution of applications by monetization model



Source: Authors

The graph shows that most applications base their monetization on subscription, then on sponsorship and advertising, and the least rely on data sales and transaction fees.
The surveyed applications also differed in the number of monetization models they use or once used and then discarded, which is shown in the following chart.

Chart 5: Number of used monetization models by application



Source: Authors

It is evident from the chart that most applications use one model or a combination of two monetization models for monetization, and only some applications opt for three or more models.

7. Conclusion

App monetization is the process of making the app generate profit. Creating a new app is only the first step in monetizing it. In order for monetization to occur at all, it is necessary to choose an adequate monetization model, and in some cases several of them. Monetization of applications can be done in several ways. The most commonly used are in-app purchases, advertising, subscription and sponsorship programs. Each of these methods has its advantages and disadvantages and it is not possible to determine which of them is the best, because each application has its own special characteristics. It should be noted that not every monetization model is suitable for every stage of the application life cycle.

The research has shown that all application monetization differs from each other and that the monetization itself adapts to the life stage of the individual application. In this paper, 50 very popular applications from the fields of social networks, games and entertainment, lifestyle, news and information, and the creation of new content, services and products have been analysed, and the conclusion is that each monetized application had a different monetization strategy that mainly consisted of using several different monetization models. It has also been shown that a timely change of the monetization model is an important part of the strategy, and many practical examples indicate the possibility of choosing the wrong model, which leads to financial losses. Examples of monetization have shown that many applications that have become the most popular among applications of their kind, have achieved this because of one reason, and that is creativity. Apps like Tinder, Pokemon Go and WhatsApp appeared in an app market where there were already similar apps, but they offered innovative solutions that set them apart from the competition. Users quickly recognized this, which resulted in a rapid growth in their popularity, and thus in generating profits. Anyone who wants to market their app with the goal of monetizing it has a wide variety of strategies and profit-making models at

their disposal. The question of choosing the right model is the key to the success of monetizing any new application.
Through the analysis of various models of monetization at a global level, this study contributes to understanding of advantages and disadvantages of certain forms of monetization that could be applied in the Republic of Croatia. During the research authors have encountered various limitations like the existence of numerous web pages where the best or the most popular applications are ranked. Therefore, the selection of analysed applications may not have been completely unbiased. Taking into account the obtained results, the advantages and disadvantages of diverse models of app monetization this study has opened a possibility for Croatian researchers to deal with the topic in more detail, respecting the global trends on the one hand, and considering the economic and new technology context in the Republic of Croatia on the other.

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A scientific paper

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FROM LOCAL BEGINNINGS TO GLOBAL REACH: THE IMPORTANCE OF MICROMARKET STRATEGIES FOR PLATFORM STARTUPS – AN EMPIRICAL STUDY

ABSTRACT

The business landscape is witnessing a transformative shift with the widespread adoption of digital platforms, which facilitate consumer access and real-time adaptation of services across global markets. These platforms transcend geographical boundaries, offering a diverse array of products and services in various industries. For instance, platforms like Uber and Upwork connect users with service providers in transportation and freelancing, respectively. Despite the overarching trend towards digitalization and globalization, our research emphasizes the importance of local and regional networks for the growth of platform startups, particularly in their early stages. We investigate the micromarket strategy, wherein startups target small, pre-existing markets with active member interactions. This strategy allows platforms to emulate the effective matchmaking capabilities of larger markets, even during their initial phases of development. Through an in-depth expert interview conducted with a platform startup based in Germany, we have uncovered the crucial role played by local and regional networks in establishing markets and gaining traction. These networks enhance the quality of interactions among members, thereby contributing to the success of platform startups. The interviewed entrepreneur is a seasoned professional who has successfully founded a company, with his venture thriving in the market for several years. The focus of the interview was to gather insights on a relatively unexplored subject. Therefore, our research contributes to the development of new scientific hypotheses and theories in this area, providing a foundation for further exploration and inquiry into this topic. Our study advances the understanding of growth strategies employed by platform startups. We offer actionable insights and guidance for entrepreneurs, particularly first-time founders and executives in early-stage startups, based on empirical evidence. By highlighting the significance of local and regional networks, our research provides valuable implications for the sustainable development of platform businesses in the dynamic and evolving business landscape.

Key words: *micromarket strategy, platform startups, local and regional networks, early-stage growth, expert interviews.*

1. Introduction

Platform-based business models have caused a market shift, with companies such as Amazon, Apple and Facebook (since 2021 Meta Platforms) becoming so successful that they are displacing established large corporations from leading positions in the economy (Clement et al., 2019; Cusumano et al., 2002; Eisenmann et al., 2006). There are now numerous digital platforms that provide a wide range of offers and enable customers to easily find and compare products. Platforms are active in at least two, but often more than two markets. In multi-sided markets, the participants on the different market sides influence each other through the use of the platform (Rochet & Tirole, 2003). A major challenge for platform founders is the so-called chicken-and-egg problem. If there are too few producers, no consumers are attracted, and conversely, producers, are not interested if there are no consumers on the platform. The question arises as to how to start building a user base for a multi-sided market when each side of the market depends on the prior existence of the other side. (Parker et al., 2016) One possible strategy is the micromarket strategy – a simultaneous strategy whereby platform founders cultivate a small market whose members already interact with each other. This allows founders to test the most important matchmaking features in the early startup phase, which could later be also relevant for larger market segments (Parker et al., 2016). To date, there have been hardly any empirical studies on the micromarket approach for platform founders (Hapoienu, 1990; Hoch et al., 1995; Verdino, 2010; Yang and Yuan, 2018). Therefore our research focuses on the following questions: How do platform startups implement a so-called micromarket strategy through geographic market segmentation? Why are local and regional networks important for the access and development of markets by platform startups? Using a case study (Yin, 2018) of a platform startup, we show how the founders managed to successfully implement a micromarket strategy through geographical segmentation. The study emphasises the importance of regional and local networks. Our data is based on an expert interview and other accessible online sources. The focus is on the multi-sided sports platform Urban Sports Club (USC), which was founded in Berlin in 2012. By using local networks, the startup was able to gather information about consumer and producer expectations and behaviours at an early stage and constantly adapted the platform design accordingly. The startup utilised the knowledge from a locally defined market to its advantage in its subsequent expansion and in the battle against new market participants. For startup research, we are expanding our understanding of entrepreneurial processes in the early startup stage (Grichnik, 2017). Furthermore, we contribute to a better understanding of the exploitation of micromarkets in the context of launching a business. The implications for practical applications are substantial. Startup support programs should prioritize resources and knowledge for product launch strategies and tools for early-stage startups. These aspects could also play a greater role in educational settings, including universities, research institutes, incubators, accelerators, startup competitions, investor pitches, and events. In theoretical terms, our research enriches the understanding of methods that focus on early-stage startup support like the Lean Startup method and prototyping within the broader context of the Creation School (Grichnik, 2017; Richter et al., 2018). Future research can measure the importance of micromarkets for the success of platform startups in qualitative or quantitative studies. In the following, we hypothesise that geographic market segmentation is important for building platform startups to solve the well-known chicken-and-egg problem and to create platform structures that work for different user groups in multi-sided markets. We start with a theoretical introduction and provide a comprehensive foundation for understanding platform businesses, multi-sided markets, network effects, and strategies employed by startups to address coordination challenges and the "chicken-and-egg problem" during platform launch. It sets the stage for the subsequent methodology section, which applies this theoretical framework to investigate

how platform startups implement micromarket strategies through geographic market segmentation. We provide a comprehensive case study of how USC implemented a micromarket strategy through geographic market segmentation, highlighting the importance of local and regional networks for platform startups in accessing and developing markets. It illustrates USC's journey from inception to growth, emphasizing strategic decisions, challenges, and lessons learned along the way.

2. Theoretical Background

Platform businesses focus on facilitating interactions among many participants. These interactions range from short-term transactions like buyer-seller connections to long-term social relationships, collaborative efforts, or performance improvement initiatives (Clement et al., 2019). The platform's role is to provide governance and standards to enable large-scale interactions, unlocking network effects (Deloitte, w.d.). In contemporary times, there exists a plethora of digital platforms catering to diverse offerings, facilitating customers in their quest to discover and compare products (Clement et al., 2019; Evans & Schmalensee, 2016; Gawer, 2021). These platforms encompass shopping venues where transactions occur digitally, through businesses like eBay and Amazon. Additionally, there are brokerage platforms serving sectors like property and job portals, as well as advertising platforms found for example in search engines. Payment platforms, including online payment services, and software platforms, such as app stores, also play a significant role in the platform ecosystem (Clement et al., 2019). One common characteristic among these platforms is their intermediary role (Evans & Schmalensee, 2016; Cusumano & Gawer, 2002). In multi-sided markets, interactions between participants on different sides of the market lead to cross-side network effects. This structural arrangement is predominantly shaped and advanced by the platform intermediary which orchestrates a network in the capacity of a platform. The concept of multi-sided markets is highly relevant for understanding platform business models. (Evans & Schmalensee, 2016) It is strongly related to network effects. (Varian et al., 2004). Same-side network effects refer to effects within the same side of a certain market. Whereass cross-side effects increase or decrease the value for users in different markets. Positive network effects arise when the platform's benefit increases with the addition of more users (e.g. social networks), while negative network effects occur for example when an excessive number of users are present on one side of the platform (e.g. congestion of a mobile network) (Parker et al., 2016; Srinivasan, 2021). Positive cross-side network effects occur when the participation of users on the other side of the market influences the network's benefit. Market participants tend to favour larger marketplaces with numerous suppliers, as they anticipate a wider array of products, heightened competition and lower prices in such environments (Clement et al., 2019). Network effects lead to increasing returns to scale and this leads to so-called „winner-takes-all-markets“ (Gawer, 2021). However, the specificities of local networks must be considered. If markets are highly localized the tendency for monopolistic or concentrated structures is lower. A commonly cited example of a local network is Uber. The value of the platform does not automatically increase for drivers as more passengers use the service (cross-side effects). The network effect is locally bounded, as it applies only to a specific city or region. More passengers in a city have a locally bounded effect for drivers in that city specifically, but not for drivers in another city (Gawer, 2020). Negative cross-side effects can also manifest, leading to a reduction in the network's benefit for participants. This can result from an excessive volume of advertising on a platform, which may deter users. This is why platforms also experience an equilibrium issue (Clement et al., 2019). The provider must ensure that the numbers of producers and consumers are balanced and transactions can be conducted

with high quality. The network dynamics inherent in platforms often give rise to what is commonly referred to as the „chicken-and-egg problem“ (Pan Fang & Wu, 2019). This dilemma arises when a platform lacks a sufficient number of producers to attract consumers, and vice versa, resulting in disinterest from providers due to the absence of customers (Clement et al., 2019). Consequently, platform development must focus on different market sides without neglecting one of them. Digital platform businesses encounter challenges related to a lack of users and interactions upon launch. Failure to address these issues results in user disengagement from the platform and can lead to a downward spiral where the platform loses users and activities (Choudary, 2015; Schirrmacher et al., 2017). Early acquisition of both producers and consumers is imperative to facilitate interactions between them. Various launch strategies exist for digital platform business models to overcome these coordination challenges (Schirrmacher et al., 2017). The strategies can be sequential or simultaneous regarding the focus on the different markets. For example, a single-side strategy is sequential because the providers offer benefits for one market side in the beginning. Later on, the second market becomes attracted by the existing actors that are already present on the platform. In contrast, the micromarket strategy is a simultaneous strategy because the business launch starts in a small niche market comprising members already engaged in interactions. By doing so, the platform can provide effective matchmaking capabilities similar to those of a large market, even during its initial stages of growth (Parker et al., 2016). There are different application forms of micromarket strategies like geographic-based, demographic-based, behavioral-based, psychographic-based or channel-based micromarketing (Harvard Excelerate, 2023; Jones & Tedlow, 1993). Using one of these possibilities startups can work with their most relevant market in the beginning to learn for later larger market rollouts (Schirrmacher et al., 2017). Geographic micromarketing is a strategy that targets customers within a particular geographic region (Harvard Excelerate, 2023). In our research, we focus on a geographic market segmentation adopted by a startup for platform launch to tackle the chicken-and-egg problem. This approach involves tailoring efforts to focus on residents of specific areas, such as neighbourhoods or even specific area codes. This type is said to be particularly beneficial for local businesses or those offering location-specific services or products which is also a relevant characteristic of the platform business in our case study. The success of geographic market segmentation at a business launch is exemplified by Facebook, a social media platform that thrived by adopting a micromarket approach (Parker et al., 2016). As previously discussed, achieving critical mass is essential for platform business models due to the impact of network effects. However, a global launch would not have been as effective for Facebook. Instead, starting the platform at Harvard University ensured the presence of an active community right from the beginning (Parker et al., 2016). By initially attracting 500 users within the tightly interconnected community of Harvard University, Facebook leveraged geographic concentration to reduce the required critical mass and enhance matchmaking capabilities. Utilising these characteristics, the platform's designers continually improved the quality of interactions among users. Facebook's expansion involved establishing user bases on new campuses, with growth accelerating when the platform enabled cross-campus connections. These connections allowed users to remain engaged while awaiting the participation of their own campus. Moreover, Facebook circumvented the need to repeatedly address the chicken-and-egg problem by interlinking different local campuses. For startups, a micromarket strategy is even more compelling than for established companies due to limited resources. The strong focus on a small, delineated market enables low-risk experiments and significant learning opportunities (Harvard Excelerate, 2023). Despite the emphasis on a small market, the micromarket strategy can also significantly contribute to a startup's growth (Verdino, 2010). A micromarket strategy allows for an in-depth understanding of the characteristics and needs of a niche market, facilitating product development tailored to these insights (Hapoienu, 1990; Yang & Yuan, 2018; Weitz & Wensley, 2002). However, it is not a traditional niche strategy, as

micromarketing delves even more specifically into the needs of the target group (Kara & Kaynak, 1997). This focus can be highly efficient, as it is possible to learn a great deal about the market with minimal financial resources. This results in high cost-effectiveness, high relevance and user engagement, customer loyalty, and provides the opportunity to test new ideas and bring innovations to smaller markets and later roll them out more broadly (Harvard Excelerate, 2023). Potential drawbacks of a micromarket strategy include the high time intensity of preparation and execution. While costs may be relatively low, the time investment required by the startup remains high. There is also a risk of over-specialisation so when scaling, it is important to consider that other market segments probably bring different characteristics and needs that must be adjusted (Kara & Kaynak, 1997). We conducted research on the advantages and disadvantages of a geographic micromarket approach. Our empirical analysis is based on a single case study to illustrate the use of local markets for platform development.

3. Methodology

The research questions - "How do platform startups implement a so-called micromarket strategy through geographic market segmentation? Why are local and regional networks important for the access and development of markets by platform startups?“ - were analysed using the research strategy of a qualitative case study. Our main hypothesis is that geographic market segmentation is important for building platform startups to solve the chicken-and-egg problem and to create platform structures that work for different user groups in multi-sided markets. As the topic is relatively new and there is little data on the research question, it made sense to use an explorative qualitative research design to gain an initial insight into the topic. This analysis is based on a single case study. Case studies are suitable for special, outstanding or otherwise unique events or processes (Yin, 1994). In the following, a multi-sided platform startup - called Urban Sports Club (USC) - was selected as the object of investigation. The criteria for conducting a case study, the investigation of a contemporary phenomenon that has not yet been researched, are particularly well met here. As with many case studies, this work also has a specific reference to a current topic. The course of the investigation was organised according to the research questions and our main hypotheses. The data collection for this work was realised through a qualitative, guided expert interview and online sources such as newspaper articles. In an expert interview, the focus is on gaining knowledge from people who have special and retrievable knowledge in their field through their function or profession (Mayer, 2013). Once the research sub-questions had been defined, the interview questionnaires were drawn up. The questions formulated therein were designed to encourage the interviewee to give the most informative answers possible about the research topic, which could then be easily analysed. The interview questions were open-ended and the interview itself lasted approximately one hour. One of the founders was interviewed. The questionnaire contained questions about the launch process of the platform, the different market sides, the process of finding the first paying customers, the pricing model, dealing with competitors and learnings about the launch process. Case studies, when examined individually, benefit from a well-defined structure and incorporation into a theoretical framework. Subsequently, the theoretical framework forms the understanding of platform business models with their specifics and challenges on the one hand, and the use of micromarkets for the development of business models on the other (see part 2: Theoretical background). The research questions are analysed on the basis of these theoretical principles. Both the role of regional and local networks in the context of geographical market segmentation and the specific approach of the startup in building a successful platform business model are current topics that require empirical studies for a deeper understanding. To ensure the quality that applies to the development of case studies, the study is based on key quality

criteria. The researchers only use statements whose credibility and accuracy have been verified in advance. The use of primary and secondary data enables triangulation of the content and ensures the scientific quality of the case study. Furthermore, the "platform business models" and "micromarkets" constructs used and the focus on the structure of a "platform startup" are presented in detail and comprehensibly in the theoretical section and then applied to the data collection process and analysis.

4. Case Study: Urban Sports Club

In 2012, two management consultants, Moritz Kreppel and Benjamin Roth, founded the sports platform Urban Sports Club (USC) in Berlin. Identifying a gap in the sports market, they were passionate about sports, valued flexibility, and enjoyed exploring new activities. Eventually, they decided to establish the company, fully committing to their vision. Their goal was to create a platform where customers could access a variety of sports and wellness activities through a flat-rate membership. Moritz Kreppel, one of the founders, articulated the mission in a summer 2023 interview: "Our mission from the outset has been to motivate and inspire people to lead healthier and more active lifestyles. We achieve this by offering a comprehensive membership model, where individuals no longer join individual sport centres but instead join us, gaining access to [different] sport clubs. These include fitness studios, yoga, swimming pools, pilates, tennis, squash, football, beach volleyball, skiing, or water skiing. [...] Memberships are cross-border, meaning members with a Berlin membership can surf in Lisbon, play football in Barcelona, or ski near Munich." (Interview transcript, 2023, p. 1). Acting as a typical platform intermediary, USC connects sports facilities' offerings with sports enthusiasts. On one market side, the platform focuses on the B2B sector - the platform serves sports and wellness facilities aiming to optimize capacity usage and increase visibility. On the other market side (B2C) it provides customers with a high number of sports possibilities for a fixed price. Users register on the USC website and download the corresponding app on their smartphones, and choose a membership plan. Through the app, customers can then book classes, discover nearby sports facilities, and check in upon arrival, confirming their participation. Studios pay only for customers who have checked in. USC also focuses on companies as clients (B2B), aiming to contribute to an improved work-life balance for employees. This means that the employer subsidises part or all of the sports costs for individual employees. With this approach, the platform is now serving three markets as a multi-sided digital platform. Today, USC offers over 10,000 sports venues in more than 50 sports, spanning six countries: Germany, Netherlands, France, Belgium, Spain, Portugal and Austria. In 2023, the company secured an additional investment of 95 million Euros for advancing global scaling, improving the platform, and expanding the partner network (Fitness News Germany, w.d.) The investment is a result of USC's strategy to specialize in the employee benefits market very successfully (Verdane, 2023). How did USC implement a so-called micromarket strategy? The founders embarked on establishing the platform in Berlin in 2012. Initially, the aim of the two sports enthusiasts was to create a local offering that seamlessly integrated gym memberships with football playing and occasional visits to a yoga studio. Various models were explored: all-inclusive memberships, credit point systems, add-on memberships, etc. The product was unknown at the time and was unique to Berlin. Therefore, the founders compiled a PowerPoint presentation and directly approached the studios they were familiar with. There, they inquired, "What do you think? Can you imagine participating? What are the strengths and weaknesses from your perspective? What would we need to offer for it to work for you? And over the course of about six to nine months, the current model emerged." (Interview transcript, 2023, p. 2). In January 2013, the founders had conversations with ap-

proximately 25 studios in Berlin. The studios were easy to convince as there was no cost involved for the businesses. In parallel, the founders conducted a large survey among potential members and analyzed almost 1000 data sets of responses. The focus was on sports enthusiasts among colleagues, friends, and acquaintances in Berlin. They were asked about sports activities, training frequency, and willingness to pay. The analyzed training frequency of 2.7 times per week proved to be problematic as the business case would not work with such a high training frequency. The platform could not pay the studios enough for the individual visits of the members. As a result, the founders based their own training frequency and observed the behavior of friends in the nearby area. Through this, they were able to relativize the training frequency and assessed it to be lower than indicated by the respondents. The lower assumed training frequency made the business model viable. In January 2013, USC had its first paying customers on the Berlin platform. The technology was based on a modified platform of a football startup. Thus, the founders employed a so-called MVP (Minimum Viable Product) (Ries, 2014) which should be continuously improved over time. The product itself was still in its infancy. In the beginning, there was no app for members to check-in. There was a self-made plastic card with a glued-on photo that members could hand in at the corresponding sports studio counter. There, they were entered into a printed list. This list was the basis for the distribution of contributions to the studios. The members had to pick up the card at the founders' office (at that time in the coworking space Betahaus) and fill out a SEPA direct debit mandate for it. "There was a lot of feedback. So we were really, really, really close to a process that you would be ashamed of..." (Interview transcript, 2023, p. 5) The founders improved the process until it worked. "Our IT-infrastructure, it must be said, was completely developed in India. So rather cheap, I would say. And also, code-wise, maybe rather simple. But then it really served its purpose and worked really well. And that was exactly the right decision, not to take a few million and invest it, which we didn't have, and not to invest in a tech platform first, but simply to learn from experiences by creating an MVP and see how it works. And it worked well with the platform." (Interview transcript, 2023, p. 5) At that time, USC was the largest sports offering in Berlin with 25 studios. However, the startup grew slowly in terms of memberships. Nevertheless, the founders had decided on bootstrapping (renouncing external financing) and did not have sufficient budget for large marketing campaigns. For a long time, the founders puzzled over why they could only attract a few members to their offering. Initially, only a few friends and family members used the offering. In parallel, the founders acquired additional studios and learned that their initial assumption that 25 studios would be sufficient was wrong. "How beneficial are 100 or 200 or 1,000 studios for me if the studios in my neighborhood or close to work are not included? Nothing at all." (Interview transcript, 2023, p. 9) Local comprehensive coverage proved to be enormously important for the offering to be truly interesting for users. Another challenge was the lack of awareness of the offering in the respective target group. Consequently, the founders decided to organize a local football event – as a promotional activity to draw attention to the platform. The founders organized the event themselves and communicated their offering to 8 startup teams who played against each other during the event. With the event, the founders were able to increase awareness of their offering. Simultaneously, the founders continued to work on studio acquisition. The larger the providers, the longer it took to get them on board as USC members. Swimming offerings were added relatively late but, according to the founders' experience, were extremely relevant for attracting members. User feedback was consistently positive, even though the platform grew very slowly initially. After many months, the founders achieved their goals regarding membership numbers and interactions on the platform. During this period, they also managed to win the first corporate customers. The first ones came from their own local network, mainly consisting of other startups who knew the founders from the football cup. At the launch of the business, the founders found that cold calling did not work. Overall, the

corporate customer focus also increased the complexity of the platform by serving three markets. The challenge was to coordinate the interests of three stakeholders with few employees and to continuously optimize the platform based on their needs. The learning process was described by the founders as very lengthy and time-consuming. However, the simultaneous development of the three market sides proved to be a successful model in the long run. The first investors joined in December 2014. The number of members on the USC platform increased steadily, and so did the number of studios. However, with the increasing success of the offering, the first competitors entered the market. A startup named Fitengo completely copied USC's offering but expanded faster. Nevertheless, USC was able to take over Fitengo shortly afterward. "We stuck to our strategy, which then paid off." (Interview transcript, 2023, p. 13). In April 2015, the founders were shocked by the following unexpected headline: Rocket Internet is on an expansion course and acquires the wellness platform Somuchmore. The business model of Somuchmore was very similar to that of USC. However, Rocket had a considerably larger capital pool (> 20x) for growth and announced rapid expansion into various new cities. Furthermore, the offering appeared much larger to customers than USC, making the platform more attractive, and the Somuchmore brand was much more well-known than USC at that time. The founders of USC analyzed the competitor's business model and concluded that Somuchmore had copied a business model from the USA, focusing primarily on boutique fitness and targeting women as its audience. Corporate clients were not addressed with the offering. They concluded that the offering would not work for the European market and that the target audience was too narrowly defined. USC decided to continue pursuing its own model, with a focus on a broad offering and a wide target audience, aiming to improve its quality. Rather than pursuing rapid, costly, and uncontrolled expansion, the USC platform focused on the continuous enhancement of quality. Ultimately, quality prevailed, and USC acquired Rocket's Somuchmore in December 2016, two years after its market launch, striving for a winner-takes-all situation in the market. (Gawer, 2020; Eisenmann et al., 2006) Additionally, in December 2016, the next funding round for USC was scheduled, and with new investors, the company experienced strong growth in 2017. Over time, the company repeatedly adjusted its pricing model, thereby persuading new and existing customers of the offering. From 2015 onwards, there was a massive expansion into over 20 major cities. With the acquisition of Somuchmore, the expansion into France also began. In January 2018, USC significantly started expanding its partner network in countries such as Italy, Portugal, and Spain. In August 2019, the merger with OneFit was announced, enabling the expansion into the Netherlands as a new market. In October of the same year, the company expanded its portfolio to Belgium with new partner studios in Brussels. The Corona pandemic significantly slowed down the company's growth. However, since 2022, USC has recovered very well and continues on its expansion course (Deutsche Startups, 2023). Using USC as an example, it is evident how a geographical micromarket strategy is implemented by a platform startup.

5. Discussion

We have observed in the case study how a platform startup implements a micromarket strategy through geographic market segmentation. Now, let's address the question: "Why are local and regional networks important for platform startups to access and develop markets?" At the outset, the company operated within a limited local area and pursued gradual growth without external financing. Given the innovative nature of the business model at the time of launch, the founders lacked access to existing knowledge about the product or market. Consequently, the focus was on deriving learning effects related to matchmaking various platform actors, understanding payment willingness and evaluating the business case, etc. The company operates as

a multi-sided platform business, connecting sports venues with private sports subscribers (B2C) and companies (B2B) seeking to provide added value to their employees. In the face of skilled labor shortages, USC recognized the trend toward employer branding and was laying the foundation for further growth and positive cross-side network effects. The value proposition for sports venues emphasized capacity utilisation, making it relatively easy to convince them of the platform's benefits, especially since the model did not incur additional costs for the studios at the time of the platform launch. For private users, the value proposition centered on accessing a variety of sports options through a single subscription. For corporate clients, it offered an attractive value proposition in times of skilled labor shortages, allowing them to retain employees. A key learning for USC was realizing that positive cross-side network effects only arise with a sufficient number of registered sports facilities in a locally limited territory. Similar to Uber, USC experiences local network effects, meaning that an increase in offerings is only beneficial for users if it is available in close proximity to their home or workplace although the founders emphasize cross-border utilization of sports opportunities. 25 studios distributed all over the city of Berlin at the platform's launch were insufficient to generate significant cross-side effects and platform growth. Additionally, the availability of attractive and diverse sports options, which is difficult for the platform itself to influence, presents a significant challenge. Another consideration is the potential negative same-side network effect that can arise when too many consumers simultaneously seek to use the services of a specific sports venue. USC attempts to address this issue through waiting lists for classes, with penalties such as fines for users who cancel late, thereby hindering access for other athletes. In this case, USC seeks to simplify matchmaking and minimize negative same-side network effects through suitable platform governance. Unlike social media platforms such as Facebook or Instagram, which convey pure information goods, USC involves the use of semi-physical goods, as it deals with the provision of sports services traded over the internet. This leads to value loss through the use of the offered goods, as multiple ownership or use is limited (space in sports venues) or not possible (use of sports equipment). Furthermore, the use of sports facilities also incurs higher variable costs, including repairs, maintenance, cleaning services, and consultancy services, in addition to high fixed and investment costs. These costs apply to the studios and not to the platform. However, the platform must solve this equilibrium problem and needs to make sure, that the disadvantages for the studios stay balanced otherwise negative network effects would occur. The emergence of winner-takes-all markets, as a significant phenomenon in platform markets, is, among other factors, the result of high economies of scale. However, this is a characteristic of pure information goods. For semi-physical goods, economies of scale are correspondingly lower. Therefore, unlimited growth of the USC platform and the associated exploitation of network effects are only possible to a limited extent. This is also evident in the initial business case calculation by USC, where excessive platform use by sports enthusiasts would have made the platform unprofitable. When subscriptions reduce available capacity and studios are compensated per visit, the platform's costs would be too high and would need to be reflected in higher subscription prices. This, in turn, would create a barrier for users because the subscription cannot be significantly more expensive than a single-studio subscription. On the other hand, the subscription cannot be much cheaper, as this would lead to a loss of members for the sports venue. To be successful, USC must manage the balance across different markets and continuously strive for equilibrium to ensure high quality for all market sides. For USC the process of winning sports facilities as partners at the platform's launch was easier than acquiring members, which was only possible after reaching a critical mass of locally available studios. From this point onwards, the platform grew rapidly, and the acquisition of competitors and external financing from investors accelerated its growth across Europe. USC leverages the existing dynamics of market actors to learn from existing interactions, identify payment willingness and test the business case. The critical mass of studios required at the beginning to

enable platform growth was geographically limited and thus manageable, allowing the focus to be on generating sufficient interactions in local markets. The experiences from this local market were leveraged for expanding the platform into other European markets, requiring manageable financial resources but entailing significant time investment due to experimenting in the local market. The acquisition of Somuchmore, a provider that initially seemed to grow faster and more successfully but targeted a different customer segment and value proposition, demonstrates the success of this approach. While USC learned from initial platform interactions that consumers appreciate a wide range of sports options and high flexibility, Somuchmore, with its narrower target group focus and limited offerings, failed to compete against USC. Instead of adequately considering the cultural specificities of the European market, Somuchmore transferred an offering from the US market, hindering rapid growth and leading to its later acquisition by USC. This underscores the importance of learning effects from geographical market penetration for platform growth. USC's marketing strategy at the outset focused on the local market, increasing its visibility and initial user growth through sports events and collaborations with local startups. The implementation of a micromarket strategy benefited USC, similar to the launch of Facebook, by simultaneously acquiring providers and users in multi-sided markets. However, although memberships at USC are cross-border, indicating that members can access offerings in various European cities, the platform still must continually confront the chicken-and-egg problem in every new city or region it expands to. This is different from the platform launch and growth of Facebook, whose business model addressed the chicken-and-egg problem not only by learnings from local markets but by linking different university campuses during its platform launch for optimizing positive network effects. In conclusion, adopting a micro-market strategy allows founders to base their innovation on existing relationships between producers and consumers, learning from interactions to design platform features and solve the chicken-and-egg problem. This strategy requires more time compared to a macromarket strategy and emphasizes direct engagement or contact with target audiences before and during the platform launch. Insights gathered from platform usage are continuously used to improve platform design before scaling or entering new markets. Understanding the target audience leads to a better understanding of the perceived value of the platform and helps refine the value proposition and delivery of value for producers and consumers. This enables more effective market expansion and supports early interactions between various platform market sides.

6. Conclusion

The single case study explores how Urban Sports Club (USC), a platform startup, employed a micromarket strategy through geographic market segmentation. It underscores the significance of local and regional networks for platform startups in accessing and developing markets. Initially, USC operated within a confined local area, focusing on gradual growth without external funding. The company facilitated connections between sports facilities, private sports subscribers, and businesses, leveraging trends like employer branding. Challenges included managing negative direct network effects and addressing the semi-physical nature of the services provided. USC's marketing strategy initially targeted the local market, utilizing sports events and collaborations with startups for visibility. Overall, the analysis highlights the value of a micromarket strategy in comprehending user needs and refining the platform's value proposition for effective market expansion. However, it is evident that the applicability of our findings to other platform providers is limited. Firstly, USC experiences local network effects that are not global but confined to specific regions or locations. This indicates that the platform cannot scale to the extent of a global digital platform. While USC memberships offer cross-border access to va-

rious European cities, the platform still grapples with the chicken-and-egg problem when launching the business in new locations. This differs from, for example, Facebook's strategy, which linked university campuses during its launch to enhance local market learnings and positive network effects. This difference is relevant since it slows down the platform growth of a local platform like USC and leads to what the founders referred to as a rather time-consuming endeavor. Secondly, the business model of USC is based on the intermediation of semi-physical goods or services, not solely digital goods like social media platforms. Scalability is further constrained by the existing supply of sports facilities in a locally defined market. The presence of studios is a fact and cannot be bypassed even with good platform management. This is also the reason why the business model only works in large cities and not in sparsely populated rural areas with limited availability of sports facilities. Further examination of platforms can aid in better understanding the diverse dynamics of platforms and developing launch strategies for them.

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A scientific paper

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STUDENT ENTREPRENEURIAL COMPETENCIES OF EDUCATION MAJOR STUDIES IN SOCIAL SCIENCES, HUMANITIES AND ART

ABSTRACT

The conditions of the ever-changing modern society require constant adaptation and modification of the curriculum at all levels of education. Development of entrepreneurial competencies and an entrepreneurial way of thinking are parts of efficient education, strengthening competitiveness on the labour market and contributing to efficiency, social security, and a sense of overall professional competence.
Traditionally, students of education major are prepared during their higher education to work in public services, and the question arises whether they possess entrepreneurial competencies and whether they need them in the profession for which they are being trained.
The research aim is to describe and analyse the experiences and thoughts of future teachers on their acquisition of entrepreneurial competencies during their studies. Accordingly, a qualitative methodological approach was chosen (data collection in focus groups and framework analysis).
This paper presents the results of a qualitative analysis of twenty semi-structured interviews in which ten students in the second year of graduate education major studies in the field of social sciences and humanities and ten students in the second year of graduate education major studies in the art field evaluated their entrepreneurial intentions and competencies, their encouragement and development within the curriculum at their respective studies, the need to develop entrepreneurial competencies among students, and concomitant opportunities and obstacles.
Research results indicate a high level of uncertainty among students in their entrepreneurial competencies; lack of recognition of their entrepreneurial competencies; fear of employment in any system other than public education; lack of recognition of the content, work methods, and learning outcomes that encourage the development of entrepreneurial competencies in the curricula of their study programmes; the need for (at least elective) courses through which they can acquire entrepreneurial competencies and which they believe should be parts of the basic education of every future teacher. As a result, one can conclude that, during their studies, students of education majors acquire competencies such as creativity, innovation, independence, responsibility, which belong to a broader concept of education for entrepreneurship. Yet, it is necessary to revise the curricula and include contents and learning

outcomes related to the acquisition of economic concepts and training for entrepreneurship when it comes to starting and managing businesses.

***Key words**: students, curricula of education major studies, entrepreneurial competencies.*

1. Introduction

Students of teacher education programs, through a variety of mandatory and elective courses, acquire extensive competencies that prepare them for future teaching work. Students of teacher education in the arts, in addition to teaching competencies that enable them to conduct lessons in music or visual arts and arts in primary and secondary general education schools, as well as in the music education system, gain artistic productive and reproductive competencies, focused on their artistic work and development (Škojo, 2022).

The competencies of future teachers, derived from a contemporarily designed curriculum aimed at teaching outcomes. The development of the teacher education curriculum, planning of the study program, and courses are based on learning outcomes, on the concept of horizontal and vertical organization of the curriculum through integration and connectivity among subjects, and on the principle of a spiral curriculum (Howard, 2007). Competencies include the following elements: knowledge and understanding (theoretical knowledge in the academic area, the capacity for cognition and understanding), knowledge of how to act (practical application of knowledge in specific situations), and knowledge of how to be (values as integral elements of the way of perceiving and living with others in a social context) (Tuning, 2006). The competencies of future teachers are evident through study programs and can be classified into two broad categories. Domain-specific (academic) competencies, which form the core of the study program and are part of every educational cycle, and generic competencies, which denote a set of knowledge, skills, and values with broad application in different areas of activity (Gonzales and Wagenaae, 2006). Generic competencies cover a broad set of key competencies and are an important segment in curriculum creation (Table 1). They represent the vision of competencies necessary for the educational development of students, but also the competency framework shaped based on labor market demands.

Table 1: Overview of Generic Competencies

Instrumental Competencies	Interpersonal Competencies	Systemic Competencies
• Ability to analyze and synthesize • Organizational and planning ability • Basic general knowledge in the field • Knowledge founded in the profession • Oral or written communication in one's native language • Knowledge of a second language • Basic computer usage skills • Skills in collecting and managing information • Problem-solving • Decision-making	• Critical and self-critical abilities • Teamwork • Interpersonal skills • Ability to work in interdisciplinary teams • Appreciation of diversity and multiculturalism • Ability to work in an international environment • Ethical commitment	• Ability to apply knowledge in practice • Research skills • Learning ability • Adaptability to new situations • Ability to produce new ideas (creativity) • Leadership • Understanding of foreign cultures and countries • Ability to work independently • Project planning and management • Initiative and entrepreneurial spirit • Concern for quality • Desire for success

Source: Vizek Vidović, 2009

The conditions of the rapidly changing society in which we live and the fast-growing labor market require continuous alignment and modification of the curriculum at all educational levels. One of the updated needs related to expanding competencies in art studies concerns the interdisciplinary expansion of competencies, by acquiring knowledge and developing abilities in the areas of management (Škojo and Jukić, 2019). The implementation of management in the arts can be approached from the perspective of the need for organization in the field of arts, project management. This form is most present at all levels of professional activity of teachers, as it relates to organizing international, national, regional, or local festivals, showcases, or productions (Dragićević Šešić and Stojković, 2013). On the other hand, it is necessary to consider from the perspective of working with artistic ensembles, aligning action with the work of organizational bodies in which individuals focused on achieving the organization's goals gather. The operation of such organizations includes fundamental management functions related to planning, organizing, human resource management, leading, and controlling (Pavičić et al., 2006). Expanding competencies with skills from the field of management occurs at several levels (Buble, 2010). At the level of conceptual skills, which relate to the ability to comprehend a business as a whole, includes the ability to think, process information, and plan. Interpersonal skills relate to the ability to work with people and are also expressed through relationships with team members, including the skill to motivate, assist, coordinate, lead, communicate, and resolve potential conflicts. Technical skills are reflected in the knowledge and mastery of skills that encompass a specific group of jobs (placement, sales, product promotion, etc.), while design skills relate to the abilities with which they will shape problem solutions. Insights into research clearly show that new competency needs have been recognized, which are related to management, but also articulated needs for competencies related to entrepreneurship. Such directed learning outcomes of new study programs bring an adjustment in the thinking of all participants in the higher education system about the new spectrum of competencies of teacher education students (Moradzadeh et al., 2015).

2. Entrepreneurial Competencies

Entrepreneurship can be defined as the process of initiating, managing, and creating a new business venture through dedicating time and effort, assuming the accompanying financial, physical, and social risks, resulting in monetary income and rewards in the form of personal satisfaction and independence (Hisrich, Peters, Shepherd, 2008; Kuvačić, 2005). Entrepreneurship encompasses a totality of innovative, organizational, directing, managerial, and supervisory abilities aimed at creating new value (Škrtić, 2006; Bokšić, 2006). It requires a combination of knowledge, abilities, and skills as well as individual personality traits to act entrepreneurially and realize the indicated business opportunities in a changing social environment (Luketić, 2011). Entrepreneurial competencies are directed towards using existing knowledge and skills in an innovative way, taking personal responsibility for learning and acting, developing readiness and operationality in an individual for proactive and innovative action (Tkalec, 2012). Tittel and Terzidis (2020) highlight that key competencies for success in entrepreneurship are developed through entrepreneurial education, practical experience, and also through frequent exposure to the entrepreneurial environment.

Contemporary conceptions of entrepreneurial competencies emphasize creativity, innovation, perseverance, opportunity recognition, risk-taking, teamwork, planning, organizing, etc., as fundamental personal characteristics that distinguish entrepreneurs, highlighting their importance regardless of their fundamental education, the activity they are engaged in, or the environment in which they operate (Matos et al., 2020). Hunjet (2012) points to a current phenomenon at European universities, which, recognizing the need to master entrepreneurial competencies among their students, have started to design numerous courses emphasizing entrepreneurship and began practicing entrepreneurial activities through the establishment of interdisciplinary entrepreneurial centers. Gao (2021) reach the same conclusion in their research, emphasizing the necessity of implementing entrepreneurial content and acquiring entrepreneurial practical experiences through the innovation of university courses, highlighting that such content and activities are key to preparing students of all profiles for the challenges of modern times.

Recent research refers to the need for a more open societal attitude towards entrepreneurship and the need for a multidisciplinary approach in the form of integrating entrepreneurship with different scientific fields. In the holistic development of entrepreneurial competencies, the quality of education plays the most significant role primarily in shaping broad entrepreneurial competencies, strengthening entrepreneurial skills, and forming preferences towards entrepreneurship (Lim, 2021). Širola and Baltić (2018:198) emphasize the importance of developing the concept of entrepreneurial thinking, the process of creating and developing economic activities by combining risk, creativity and/or innovation with a reliable management structure within a new or existing organization, and highlight the importance of applying contemporary teaching strategies for the quality development of students' entrepreneurial competencies. They point to the need for implementing experiential learning through participation in so-called communities of practice, by which students will come to an entrepreneurial way of thinking and behavior through active learning. Huang (2020) emphasize the crucial role of teachers in the process of shaping students' entrepreneurial competencies. They highlight the partnership relationship reflected in the acquired interpersonal competencies. Kedmenec (2016) conclude that only quality entrepreneurial education, in addition to building entrepreneurial knowledge and skills and positively influencing students' perception of entrepreneurship as a whole, will increase students' perceived feasibility for engaging in entrepreneurial activities after completing their studies.

3. Research methodology

This paper describes a study conducted with the goal of describing the thoughts of future teachers on acquiring entrepreneurial competencies during their studies. In line with the formulated goal, the following tasks were outlined:

- Determine the preferences of teacher education students towards entrepreneurial activities.
- Examine students' opinions on the possibilities of acquiring entrepreneurial competencies.
- Investigate students' views on the implementation of entrepreneurial content in the curriculum of teacher education programs in the social sciences, humanities, and arts.
- Identify competencies that are not sufficiently developed during studies and integrate them as recommendations into guidelines for a more successful educational curriculum that will meet the challenges of today's society.

The study was carried out in January 2024, at the premises of the Faculty of Philosophy in Osijek and the Academy of Arts and Culture in Osijek. The research involved 20 participants, 10 students from the 2nd year of graduate teacher education studies in the social sciences and humanities, and 10 students from the 2nd year of graduate teacher education studies in the arts. A qualitative approach was applied, using semi-structured interviews in a focus group with specific questions, to gain a deeper understanding of the experiences and opinions of the participants. Before the start of the interviews, participants were informed about the purpose and objectives of the research, the type, and the approximate duration of the interviewing process. The sample was purposive, non-probabilistic, characteristic of the population whose opinions were to be examined. The advantage of a purposive sample is its specificity and adaptability to the purpose of the research because the researcher selects participants from the population because they possess characteristics (knowledge, experience, information, etc.) significant for the purpose of the research (Milas, 2005). The principle of homogeneity was also considered in the selection of participants, fulfilling the theoretical assumption that respondents would speak more freely when in a group of similar individuals (Skoko and Benković, 2009), and the recommendation about the appropriate number of participants (Krueger and Casey, 2009) was followed to allow all respondents to express their opinions and to develop a desirable group dynamic. The responses were recorded on a dictaphone on a mobile phone for further processing, and transcripts were made from the recordings, which were numbered and minimally linguistically edited. Qualitative data collected through interviews were analyzed according to Denzin et al. (2005). The first author transcribed the interview recordings, which were then reviewed by the second and third authors. In the qualitative data analysis, the coding process produced interpretable categories, which were interpreted in accordance with the research tasks. Data reduction was used in the analysis, employing the "cut and paste" method of grouping similar statements together (Krueger and Casey, 2009). Some comments were quoted in full due to their contextual significance.

Participation in the study was voluntary and confidential, with the intention that the responses would be used exclusively for scientific purposes. It is important to highlight that all students openly commented on all the identified themes, thus providing insight into their real thoughts on acquiring entrepreneurial competencies during their studies, as well as on possible entrepreneurial activities after completing their graduate studies.

3.1. Research results and interpretation

In this section of the paper, themes that emerged from the data analysis (Table 2) are examined. Each theme is supported by key concepts identified in the coding of interviews conducted with graduate-level students of social sciences and humanities teacher education programs and students of graduate-level arts teacher education programs.

Table 2: Description of categories from qualitative data analysis

THEMES	***KEY WORDS***	
	Students of 2nd year of master's teacher studies in social sciences and humanities fields	***Students of 2nd year of master's teacher studies in artistic fields***
Reasons for choosing a teaching career	*Security, personal interest, creativity, work environment, good relationships in a collective, career advancement opportunities, job satisfaction, ample leisure time, adequate earnings*	*Competence, creativity, conditions, proximity to home, positive work environment, career development opportunity, personal advancement, new challenges, money*
Current challenges in the labor market	*Difficulties in finding permanent employment in schools, lack of knowledge in other areas for job application, lack of entrepreneurial competencies, lack of starting capital for a business, stress*	*Difficulties in finding permanent employment in schools, need for alternative solutions, low pay for artistic work, planning necessary for the realization of business ideas*
Opportunities for entrepreneurial activities after studies	*Not focused on entrepreneurial activities! Mediating agency, schools for parents and children, educational activities, workshops*	*Not focused on entrepreneurial activities! Agencies for cultural events, independent artistic scene, private schools, chamber ensembles, amateur orchestras, art teachers, agencies for cultural entrepreneurship, promotion of subjects from the field of art*
Conditions for successful entrepreneurship	*Competencies, organization, intelligence, persistence, readiness for lifelong learning, knowledge, connections*	*Concrete approach, bravery, diligence, opportunity, desire, willingness to succeed, persistence, organizational skills, intrinsic motivation*
Ways of acquiring entrepreneurial knowledge and experience	*Internet research, experience of successful entrepreneurs, participation in the realization of gatherings, participation in activities for popularizing science, volunteering to build a career*	*Internet research, listening to successful others, participation in meetings, ensembles, exhibitions, organizations, academies, informal education*
Role of universities in forming entrepreneurial competencies	*There is no entrepreneurial course in the main curriculum, the need for a curriculum on the topic of entrepreneurship*	*Insufficiently used area of acquiring entrepreneurial competencies*
Recommendations and advice for promoting and	*Need for development of entrepreneurial competencies,*	*The need for the development of entrepreneurial competencies,*

THEMES	KEY WORDS	
	Students of 2nd year of master's teacher studies in social sciences and humanities fields	***Students of 2nd year of master's teacher studies in artistic fields***
developing entrepreneurship in teacher studies	*cooperation with other faculties, participation in successful projects*	*connection with representatives, successful projects, linking with students from other faculties*

Source: Authors

A. Motives for Choosing a Workplace

Participants from both categories (students of social sciences and humanities S-H 1-10 and students of the arts field A 1-10) mention a number of conditions that are important to them when choosing a workplace. At the top of the priorities for both categories of respondents are security and the need to feel good and satisfied at work, as well as to feel ready and competent for the job they are doing. Both groups of respondents emphasize creativity at work as the next important motive in choosing a workplace, as well as the possibility for personal progress (A4) and career advancement (S-H2). "*The main motive for me is the challenge, to work on myself and to constantly improve my competencies*" (A9). Respondents highlight the importance of having a dynamic job and actively using their working time (A7). They expressly emphasize that the workplace should be in the same place as the place of residence (A2, 5, 6), "*it is important that I do not have to travel several hours or move to the place where I work*" (A1). In their answers, respondents emphasize the importance of leisure time (S-H4), which they can use to satisfy their personal preferences and interests. "*I still want to try a lot of things, I am very curious*" (S-H10). Respondents mention money as a category that does not represent a condition for choosing a workplace (S-H7, 8, 10; A, 3, 4). "*Money is something that is assumed will come with employment, but it is by no means a decisive point in choosing a workplace*" (A2). The respondents' answers are in line with previous research where it has been highlighted that the most important factors and motivation for teachers to work and choose a workplace are job satisfaction (Borić, 2017), as well as a sense of fulfillment, security, and self-actualization (Resman, 2001). Brown et al. (2019), in their research on the reasons for choosing a teaching profession in different cultural contexts, point out that intrinsic and altruistic motivations play a dominant role in individuals who decide on a teaching career. Qualitative research also highlights other motives related to the impact of job choice on the quality of life, such as time for family and other subjective goals, like free time (Richardson & Watt, 2006).

B. Current Challenges in the Labor Market

All research participants primarily hope to find employment in schools but are aware that a "*difficult and uncertain period of job searching lies ahead of them*" (S-H2). They have realized the need for "*alternative employment opportunities*", but such new paths cause fear of the future, insecurity, and stress. They highlight examples where students in the arts find themselves engaged in various artistic activities, but they note that underpayment is the biggest problem with such solutions (A2, 3, 4). The respondents agree that they feel overwhelmed by the expectations of their environment to find a job immediately after finishing their studies. "*Due to the feeling that I will miss an opportunity, I spend a lot of time researching possibilities to join teacher groups on social networks and to be at the source of information*" (A10). Although the respondents emphasize that they are not focused on entrepreneurial activities, they are not dismissive of the possibilities of finding their further path in entrepreneurial activities.

C. Opportunities for Entrepreneurial Activities after Studies

Thinking about the possibilities of entrepreneurial activities has led the respondents to consider engaging in such activities as a part-time job. "*In an ideal opportunity, I would have my own studio alongside a school job, where I could paint and sculpt* (A2, 4), *take photos for websites* (A6), *learn how to photograph and edit pictures*" (A3). Although all respondents agree about "*the problems of initial capital for independent business*, *lack of entrepreneurial competencies*, *and uncertainty in the self-realization of entrepreneurial activities*", they list numerous interesting possibilities for entrepreneurial activities in which they see themselves after studies: "*Agency for Cultural Events, Agency for Artistic Projects*, *Independent Music (Artistic) Scene*, *Private Music School*, *Chamber Ensemble*, *Amateur Orchestra*, *Organization and Leadership of Art Workshops*, *Agency for Tutoring Amateur Artists*, *Translation Agency*, *Music Center for Children with Disabilities*, *Incubator for Gifted Children*, *Pedagogical Workshop for Children and Parents*, *School for Parents*", etc. With creative proposals, the respondents generated ideas that clearly show that their thinking is still focused on their foundational teaching competencies, and on the arts for students in the artistic field. All responses highlight the need for security, which is lacking in the choice of entrepreneurship. Respondents from both groups emphasize that a major obstacle to achieving independent entrepreneurial activities is the problem of experience.

Experiential learning approaches are an effective method that bridges the gap between academic knowledge and practical skills in a quality manner (Ruhanen, 2006). Research indicates that such approaches contribute to better acquisition of competencies and to increased interest and motivation. Experiential learning fosters creativity among students, encourages divergent thinking, and directs them towards developing a sense for new solutions and responding more quickly to opportunities and stimuli from the entrepreneurial environment (Biraglia & Kadile, 2016).

D. Prerequisites for Successful Entrepreneurship

Regarding the competencies for the realization of successful entrepreneurship, respondents place the knowledge acquired through formal or informal education first (S-H5, 7, 8; A1,5, 7). They highlight the importance of knowing "*specific companies* (S-H2), *associations* (A3, 9, 10), *ways of doing business*"(S-H3), but also other jobs and roles that entrepreneurs perform in companies. Respondents point out personal characteristics of entrepreneurs that are key to successful entrepreneurship. They mention "*resourcefulness, courage, perseverance, persistence, motivation, discipline, opportunity recognition, self-belief and confidence in their competencies, organization*", etc. They believe it is important to have acquaintances that will make it easier to achieve success. Respondents draw the following conclusions:

- "*I believe that nothing in life falls from the sky to anyone*" (A1).
- "*You have to have courage, we need to knock on every possible door, inquire and research. We will not find out all the information from one person, but gradually a complete mosaic will be obtained*" (A4).
- "*If we are ambitious and persistent enough, ideas will come to fruition*" (S-H1).
- "*Ideal opportunities are rare, we must know how to creatively adapt to the ones that are offered to us*" (A10)!
- "*We must always be proactive*" (A2)!

From the literature review, it is clear that there are numerous tasks key to successful business management. Baron and Tang (2011) state that they are responsible for generating innovative

ideas, which will be directed towards the development of new products or services, but also unique solutions that will distinguish them with a creative product from others in the market. Arenius (2020) emphasize how recognizing business opportunities in the market and exploiting them for success is crucial for business success. In this context, the development of dynamic capabilities and adaptation to changes, as well as a quick response to changing market conditions, are of particular importance. The authors also refer to the entrepreneur's relationship with other employees, emphasizing the importance of creating a quality relationship and the dynamics of cooperation within the team and the development of team creativity (Soomro et al., 2011).

E. Ways of Acquiring Entrepreneurial Knowledge and Experience

In the category related to the ways of acquiring entrepreneurial knowledge and experience, it is clear that all participants solely through their own initiative, by "*researching on the internet*", came across information. From their responses, there is an awareness of entrepreneurial experiences that are presented in the media. Respondents mention good experiences of students from certain European universities where the practice of "*independently or collectively organizing events is encouraged*" (A2, 6, 7, 8), project realization (S-H8; A2, 3) and other student activities that promote experiential learning in entrepreneurship. Students of the arts field cite the example of a sales exhibition of works. They emphasize their unpreparedness for the event where it is necessary to market their work. They point out numerous oversights where their unpreparedness in sales and promotional terms was evident. They note that they have become aware that independent research on entrepreneurial topics is not sufficient without competent guidance and mentoring.

F. The Role of Universities in Forming Entrepreneurial Competencies

Respondents from both groups emphasize that the university did not play a role in forming their entrepreneurial competencies. There was no entrepreneurial course in the curriculum of their study programs. They did not even consider this issue when enrolling because they were focused on professional and pedagogical competencies. Now, at the end of their studies, they recognize an area that "*should have been supplemented with such knowledge*". Respondents see potential in networking different associations and faculties, so that students who have not chosen an economic specialty can gain entrepreneurial competencies through volunteering and participation in association activities. They express a strong motivation to participate in projects and entrepreneurial activities: "*It is important to me to develop and learn from capable and experienced people*" (A2)! Respondents mention participation in various projects. Students from the Department of Music Art talk about organizing and participating in the Musical Christmas Celebrations of the Academy for Art and Culture and highlight how much they enjoyed preparing their study year ensemble for competition. Other respondents, inspired by this experience, recall many other projects and organized events in which they participated in similar activities within various courses: "*Student exhibitions, 3rd International Scientific and Artistic Symposium on Pedagogy in the Arts, 2nd and 3rd International Artistic and Scientific Conference on Persons with Disabilities in Arts, Science, Education, and Training, a Project from Andragogy (Digital Literacy for Retirees), a Project from Sustainable Development Pedagogy (Experiential Useful Learning)*", etc. They express various benefits they have had from such events. They clearly connect the didactic purpose and the sense in which they have effectively achieved specific learning objectives (Killen, 2005) and the possibilities of implementing similar activities in the teaching and school curriculum. They do not show a connection with entrepreneurial competencies.

G. Recommendations and Advice for Encouraging and Developing Entrepreneurship in Teacher Education Programs

The need to develop entrepreneurial competencies was expressed in all the respondents' answers. Students indicate that one of the possible ways to develop entrepreneurial competencies is to create a "*separate course*" (A8, 9), but it can also be effectively achieved through "*lectures and workshops, targeted towards concrete, applicable knowledge*" (S-H1, 4, 5, 8; A7). Art field students highlight the following: "*we artists are oriented towards volunteer work. Maybe economists should teach us how to act commercially!*" They suggest that it would be beneficial to connect students from different faculties in joint projects so that they would have opportunities to exchange knowledge and experiences. "*In this interdisciplinary synergy, everyone would benefit and carry with them valuable knowledge from different fields*" (A5). They mention the possibility of "*showcasing entrepreneurial activities through organizing inspirational lectures by successful entrepreneurs from related fields*" (A2, 3). In this way, students would be opened up to entrepreneurial opportunities and motivated for such possibilities.

4. Conclusion

Contemplating the entrepreneurial competencies and entrepreneurial intentions of students who have not directed their education towards economic sciences means reflecting on the entire educational action of both the current and future times. The increasing speed of changes in the contemporary environment instantly demands a quick and effective response from universities by implementing content into the curriculum that will enable the development of appropriate knowledge and skills. This expansion of the existing competency framework will thereby give teacher education students insight into a broader spectrum of jobs and open up greater employment opportunities. Entrepreneurial competency allows the development of new ideas, directed in various directions, but more importantly, it develops in students a new way of thinking and self-awareness as experts who have the potential to succeed in a dynamic and uncertain business environment.

The research results indicate a pronounced insecurity among students in their entrepreneurial competencies. Although they can clearly identify the generic competencies developed during their studies, which are part of entrepreneurial competencies, the research shows that they do not connect them with a personal entrepreneurial competency profile. Therefore, they express fear of employment in any form other than in the public education system. They do not recognize the numerous managerial experiences gained through organizing various events; symposiums, meetings, projects, etc., nor activities such as organizing and leading concerts and exhibitions as additional and important interdisciplinary entrepreneurial competencies. Instead, they perceive only a lack of such specific courses within their study program in their initial education. On the other hand, they clearly identify contemporary teaching strategies that could actively acquire entrepreneurial knowledge and skills, as well as creative ways to introduce such content and activities. Consequently, we can conclude that teacher education students, through numerous curricular and extracurricular activities during their studies, have adopted a wide range of generic competencies such as creativity, inventiveness, innovation, independence, responsibility, teamwork, commitment, organizing, planning, leading activities, etc., which belong to a broader concept of education for entrepreneurship.

However, ultimately, we believe it is necessary to revise curricula and include content and learning outcomes related to the adoption of economic concepts, training for entrepreneurship in the function of starting and managing business entities. Also, offer educational

entrepreneurial content and activities that will create an entrepreneurial atmosphere and develop preferences towards entrepreneurship. With the enthusiasm and initiative of all educational stakeholders, it is possible to achieve a new, active framework, oriented towards a wider spectrum of activities.

The aforementioned research, which highlights the dilemmas faced by today's young people as they complete their higher education, can represent a significant challenge for the entire educational system. If we accept the challenge and adapt to the changes that are already recognized in many higher education systems, we will gain proactive, confident in their interdisciplinary competencies, young professionals who will find ways to discover and create opportunities and creatively initiate business ideas.

Since in our research we allowed respondents to express opinions based on their personal vision of entrepreneurial competencies, the limitation of the research is directed towards the possible gap between perceived and actual entrepreneurial competencies. However, we believe that the data obtained is a valuable indicator of the direction of opinions of students, future teachers, and that is important to consider in planning further research on this issue.

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A scientific paper

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ASSESSING THE INFORMAL ENTREPRENEURSHIP IN EUROPE

ABSTRACT

The International Labour Organisation reports that the informal sector is a substantial part of the economy and labour market in many countries, playing a key role in production, job creation, and income generation. Amid recent disruptions and radical changes, such as natural disasters, technological advancements, health crises, and socio-political shifts, self-employment in the informal sector has become a vital means of survival for many individuals. However, working in this sector often exposes workers to greater vulnerability and instability, adversely impacting those employed within it. Evidence suggests that women are particularly hard hit by these changes, more so than men are. For instance, the COVID-19 crisis has disproportionately impacted women in terms of job losses, lack of participation in education, employment, or training, and a decline in managerial positions. In addition, research has indicated that family attributes such as marriage and children limit the earnings of self-employed women compared to men in both developed and developing countries. The main goal of this paper is to analyse the self-employment of women in the informal sector, which presents an intriguing area for investigation due to its complex relationship with economic and political institutions and labour participation. The paper will bring a comparative analysis of informal entrepreneurship in Europe through combining the micro (BEEPS) and macro (ILO) data. To derive policy implications, we will analyse economic, social, and institutional variables' effects on informal entrepreneurship.

Key words: *self-employment, informality, Europe, gender gap.*

1. Introduction

The International Labour Organisation (ILO) reports that the informal sector is a substantial part of the economy and labour market in many countries, playing a key role in production, job creation, and income generation. For example, globally, the proportion of informal employment in total employment in 2023 amounted to 58% (ILO, 2023).

In general, the informal economy is complex. It captures various groups, and informal entrepreneurship is defined as illegal entrepreneurial activities that remain legitimate to large groups in society (Webb et al., 2014), which is just one of them. As per Williams (2018:8), an entrepreneur operating in the informal sector is defined as someone who actively starts or manages a business that has been in existence for less than 36 months. This entrepreneur takes part in a legitimate, paid activity that is legal in all aspects, except registration for tax, social security, and/or labour law purposes, even though it should be declared. In other words, the illegitimate aspect of these entrepreneurs' activities is that some or all of their paid activities are not declared to the authorities when they should be. Informal entrepreneurship extends beyond traditional definitions of entrepreneurship to encompass a wide spectrum of activities. It includes not only small-scale operators within the informal economy but also larger enterprises within the formal economy, highlighting the inclusivity of informal entrepreneurship within the entrepreneurial ecosystem (Kumar, Mamun, Ibrahim, & Yusoff, 2018). Furthermore, various perspectives on informal entrepreneurship describe it as a traditional activity not fully integrated into modern systems, a survival strategy for marginalized groups (migrants included), a response to state regulations, or a practice driven by social, redistributive, or identity motives (Ladan & Williams, 2019; Šimić Banović et al, 2022; Vučković, 2022). The informal economy also includes other groups like self-employed workers, informal employees of formal firms who may be directly contracted or do not have formal social security rights, and informal domestic workers employed by households (Barra & Papaccio, 2024).

Amid recent disruptions and radical changes, such as natural disasters, technological advancements, health crises, and socio-political shifts, self-employment in the informal sector has become a vital means of survival for many individuals. However, working in the informal sector often exposes workers to greater vulnerability and instability, adversely impacting those employed within it and informal entrepreneurs. It is important to understand that informal entrepreneurs face various challenges that can hinder their growth and formalization. Firstly, they may be restricted from growing beyond a certain point since they cannot access bank loans, public tenders, or apply for public programs. Secondly, if they decide to formalize their business in the future, it could be costly as they may be required to pay for past tax and social security obligations. Thirdly, informal entrepreneurs have few legal options to resort to in case of late or partial payment, which can be particularly harmful to those unfamiliar with the legal system such as migrants and lower-educated individuals (European Union/OECD, 2015).

The ILO data show that in 2022, the average informal self-employment rate among EU countries amounted to 29.2%. However, it varies across different member states, with Ireland registering the lowest and the Czech Republic the largest informal self-employment rate (10.4% and 93.4%, respectively). Evidence also suggests that women are particularly hard hit by the abovementioned changes, more so than men. For example, just due to the COVID-19 crisis, women have suffered disproportionately with job losses, a lack of participation in education, employment, and training, and a decline in managerial positions, leading many to seek refuge in the informal sector. Consequently, in almost all EU countries, women have a higher informal self-employment rate than men.

The main goal of this paper is to analyse in more detail the self-employment of women in the informal sector, which presents an intriguing area for investigation due to its complex relationship with economic and political institutions and labour participation. The paper is structured as follows. After the introduction, section 2 brings the review of the existing literature on informal entrepreneurship and women in informal sector issues. In section 3, we perform an econometric analysis of the effects of various economic, political, social and institutional variables on women's self-employment outside the formal sector in European Union member states. The data used for the analysis were retrieved from Eurostat, ILO, Fraser Institute, and the V-Dem project. Finally, section 4 concludes.

2. Literature review

2.1. Informal entrepreneurship

Informal entrepreneurship is increasingly becoming a research subject from different angles. It has been studied as a factor of economic and social development and for its various determinants. This manuscript focuses on the second angle, i.e. research that analyses economic, social, regulatory, cultural, educational, and institutional factors and their role in shaping informal entrepreneurship worldwide. Most informal self-employment is conducted for social reasons, such as working for family, neighbours, friends, acquaintances, and colleagues, and a smaller share is conducted for unknown people (European Union/OECD, 2015).

Theoretically, the concept of informal entrepreneurship can be explained within four main streams. The first is a political economy view, which explains informal entrepreneurship as a necessity-driven venture that is unregulated and low-paid. It is usually led by those excluded from the formal labour market (e.g. Gallin, 2001; Amin et al., 2002; Davis, 2006; Slavnic, 2010; Taiwo, 2013; Williams, 2018). A significant part of the economy that is unregulated by the government is carried out by social groups who are not given equal opportunities in the labour market. These groups include women who work in household services, migrants, and ethnic minorities (European Union/OECD, 2015). The second explanation for informal entrepreneurship is the neo-liberal stream, according to which people engage in informal entrepreneurship by voluntarily exiting the formal economy. They do this to avoid high taxes, public sector corruption, and the burden of government regulations (e.g. Perry, 2007; Packard et al., 2012). The third one is the modernization stream, which sees informal entrepreneurship as a sign of the country's underdevelopment (e.g., Kabir et al., 2023). As a reaction to the previous three, the fourth stream also emerged, i.e., the post-structuralist perspective, according to which informal entrepreneurship is conducted for social, redistributive, resistance, or identity reasons (Persson & Malmer, 2006; Whitson, 2007; Round & Williams, 2008; Biles, 2009; Kudva, 2009). Overall, understanding the different streams that explain informal entrepreneurship can help policymakers and researchers better regulate informal entrepreneurship.

The most significant drivers of informal entrepreneurship stemming from empirical literature can be categorized into four main factors: economic, social, political, and institutional. Researchers have often studied the economic determinants of informal entrepreneurship, particularly macroeconomic and labour market conditions. These studies show that higher levels of GDP per capita are associated with lower rates of informality (European Union/OECD, 2015). Further, institutional factors have also proved to have a significant impact on informal entrepreneurship. Compliance with business rules and regulations can be costly and time-consuming, which can be particularly challenging for new entrepreneurs and self-employed individuals still waiting for their first revenues. Numerous studies have confirmed the negative impact of high taxation and burdensome business regulations on the informal sector (e.g. Van Stel et al., 2007; Aidis et al., 2012; Schneider et al., 2010; Thai & Turkina, 2014; Autio & Fu, 2015; Polese et al, 2022).

Omri (2020) found that economic opportunities (including financial development, FDI, and innovation), as well as governance quality indicators (including economic, political, and institutional governance), increase formal entrepreneurship and decrease informal entrepreneurship. Webb et al. (2013) found that the level of economic development is an important factor in understanding informal economic activity. They note that in emerging countries with high levels of corruption and socioeconomic instability, distrust of governments motivates informality. On the other hand, in mature economies with more congruent legal and legitimacy definitions, informal economic activity tends to have stronger legitimacy effects.

Williams (2018) supports this idea, showing that the less trust people have in formal institutions, the more likely formal firms are to compete with unregistered or informal enterprises.
According to a study by Thai and Turkina (2014), people with higher levels of education, social security, and income are less likely to engage in informal economic activities. Additionally, the study highlights the importance of a supportive culture in driving informal entrepreneurship and the influence of formal (such as regulations) and informal (such as culture) constraints. Another study by Santos et al. (2021) analysed the impact of socio-demographic characteristics and the level of inequality in European countries and the role of the financial crisis and recession in moderating the relationship between these factors and informal entrepreneurship. They show that the share of the active age population positively affects informal entrepreneurship and that the financial crisis and recession mediate between a positive effect on informal entrepreneurship and that the d informal entrepreneurship. They showed that the greater the quality of economic and political institutions, the lower the level of informal entrepreneurship. Slonimczyk (2022) also shows that informal entrepreneurship depends on the quality of institutions, i.e., the relative size of the informal sector depends negatively on the strength of enforcement and the quality of public institutions. Barra and Papaccio (2024) explore the correlation between informal economy and regulatory quality. They show that in regions with good-quality institutions, the informal economy share will decrease through the promotion and encouragement of legality in the labour market.
Further, Williams (2021) shows that individuals participating in informal entrepreneurship are more likely to be unemployed, live in single-person households, and reside in rural areas. The author studied their reasons for engaging in informal entrepreneurship and found that 5% of participants were reluctant, 20% were willing and saw it as a rational economic decision, 21% were willing but did so because they disagreed with the rules, and 54% had a combination of all these motives.
Thai and Turkina (2013) demonstrate four ways to reduce informal entrepreneurship and boost formal entrepreneurship: nurturing a performance-based culture, creating favourable conditions for economic advancement, increasing the quality of governance, and enhancing people's resources and abilities. Salvi et al. (2022) suggest that implementing standardized policies to eliminate or formalize informal entrepreneurship may only be effective if the policymakers consider the varying nature of informal entrepreneurship regarding informality and socioeconomic status of entrepreneurs across different economies. Policymakers need to comprehend the root causes of informal entrepreneurship, which are not limited to evading laws and regulations but are also influenced by cognitive and normative environments. Only by understanding these origins can policymakers formulate policies catering to different types of informal entrepreneurs across various economies.

2.2. Women and the informal economy

Women's participation in the informal sector, particularly in self-employment, is a significant aspect of the labor market. Studies have shown that women are more likely to engage in informal self-employment than men (Dimova et al., 2010). In regions like Mauritius, the informal sector has served as a crucial avenue for unemployed and retrenched women to find self-employment opportunities (Kasseeah and Tandrayen-Ragoobur, 2014). The informal sector plays a vital role in employing women, especially in regions like Africa, where it constitutes a substantial portion of female employment (Nair, 2022). For many women, particularly those with limited access to formal education and employment opportunities, self-employment in the informal sector becomes a crucial means of survival. However, this trend is not limited to a specific region, as research in India has highlighted that both men and women

predominantly work in the informal sector, engaging in various types of employment, including self-employment (Reddy et al., 2021).

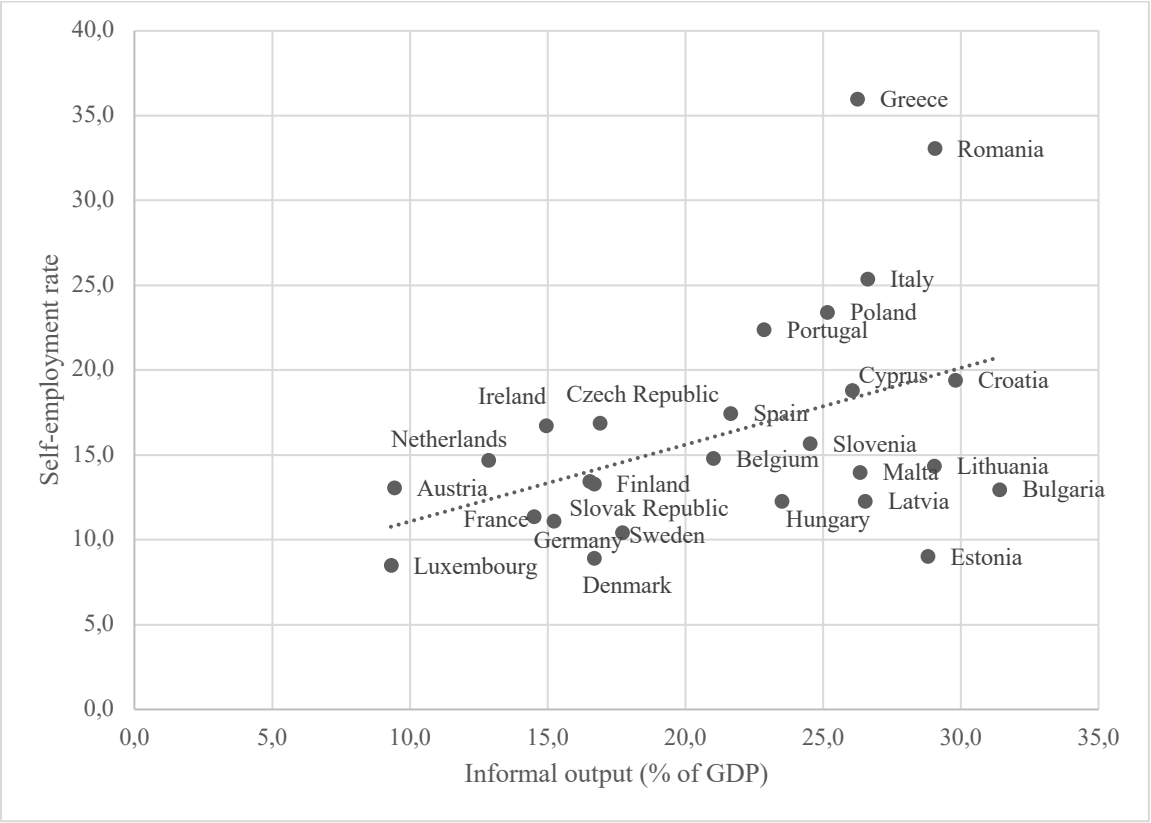
Gender disparities persist in the informal sector, with women facing challenges such as unstable earnings and lack of access to essential benefits like health insurance (Joseph et al., 2020). Williams and Gashi (2021) delve into the wage differentials between the formal and informal economy from a gender perspective. Their results show that the net hourly earnings of men in formal employment are 26% higher than men in informal employment and 14% higher for women in formal employment compared with women in informal employment. Despite these obstacles, women in the informal sector continue to contribute significantly to household income and poverty reduction efforts (Belhorma, 2018). In countries with limited formal employment prospects and a sizable informal sector, self-employment emerges as a practical income-generating option for many, including women (Banerjee and Goswami, 2019). The informal sector remains a critical source of employment for women globally, offering them opportunities for self-employment and income generation. However, gender inequalities, lack of social security, and unstable earnings are prevalent challenges that women face in the informal self-employment sector.

3. Informal entrepreneurship in EU

The informal economy is a widespread phenomenon that has become a crucial issue in the economic development policies of both developed and developing countries, according to Sultana et al. (2024). Around 20.5%[1] of the GDP in EU member countries is generated by informal economy activities in 2020, based on World Bank data, highlighting the significance of the informal economy (Elgin et al., 2021). The same database gives information on self-employment as a share in total employment as a proxy for the informal economy, as in La Porta and Shleifer (2014). Figure 1 shows the correlation between the two indicators, showing the positive relation.

[1] These numbers are estimated using dynamic general equilibrium model-based (DGE) estimates of informal output (% of official GDP).

Figure 1: Informal output (% of official GDP) vs. self-employment rate (average for 2000-2020)

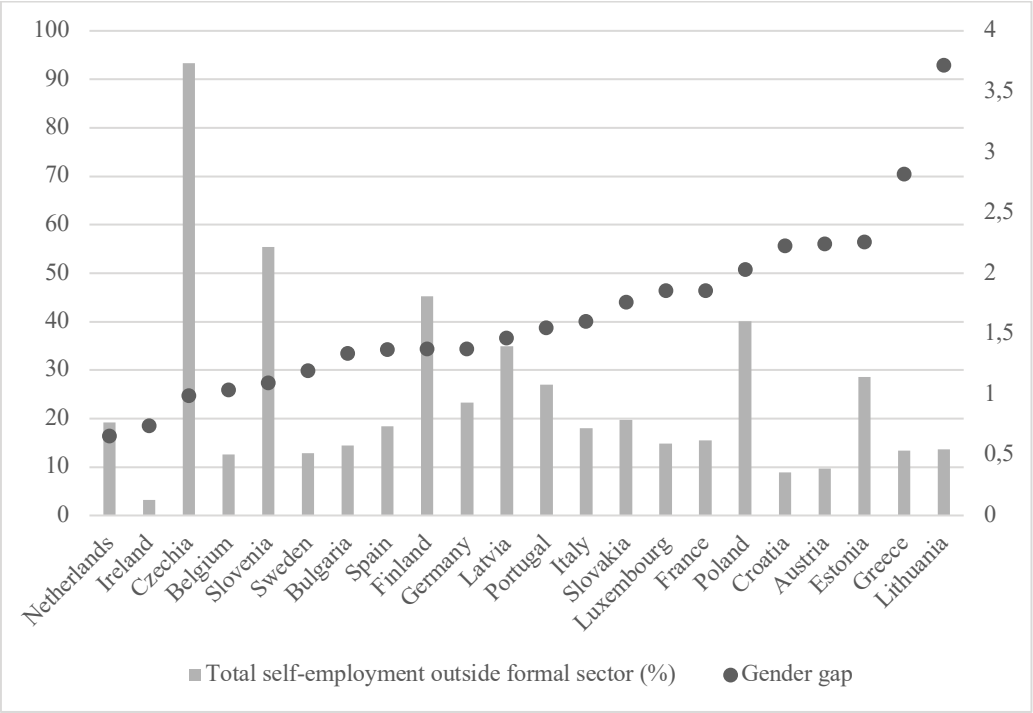


Source: Authors, based on Elgin et al., 2021 data

As self-employment generally overlaps with informal employment, and not all of the self-employed are in informal employment, in the next steps, we focus on ILO measures of self-employment outside the formal sector, which are expressed as a share of total employment and offer also the gender component (ILO, 2023; Elgin et al., 2021).

Figure 2 shows the share of the self-employed outside the formal sector (%) (left axis) and the gender gap in this variable (right axis). The gender gap is calculated as the ratio of female to male self-employed outside the formal sector. Values above 1 indicate that females' share is larger than men's. We can see that only in the Netherlands and Ireland is there a larger share of men than women in the self-employed category outside the formal sector. This is contrary to the traditional measures of entrepreneurship in the formal sector, where men are more represented.

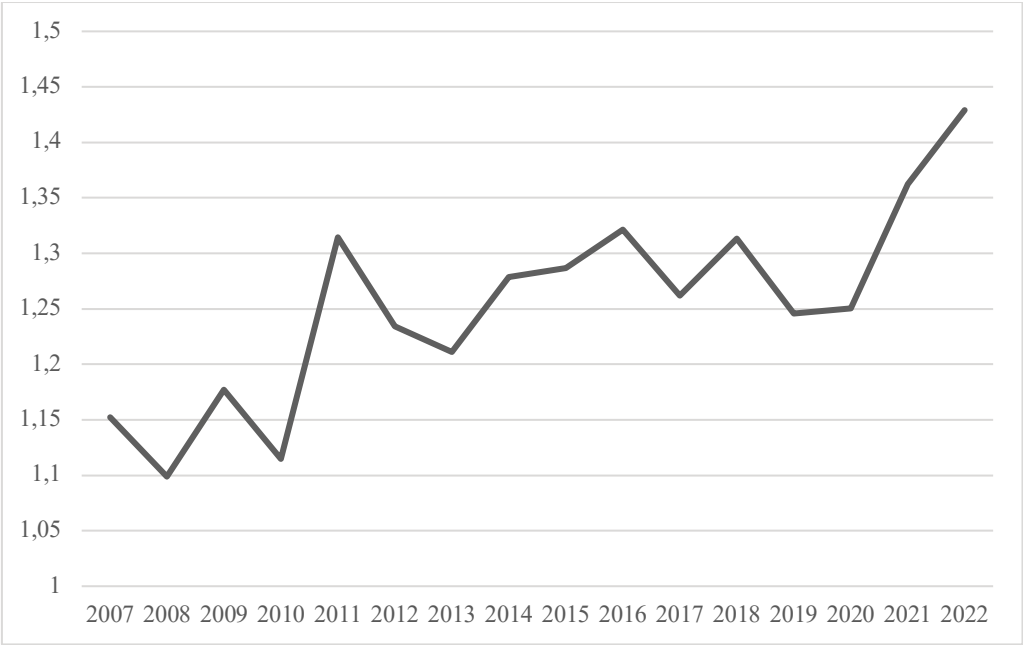
Figure 2: Total share of self-employed outside the formal sector (%) and the gender gap in self-employment outside the formal sector (F/M)



Source: Authors, based on ILO data

Regarding the long-term trend in the gender gap, Figure 3 illustrates the dynamic in the gap calculated as the ratio of the average share of female and male self-employment for EU27 countries. In the observed period, the gap in informal entrepreneurship records increase, especially in crisis periods, i.e., after the 2008 global economic crisis and the COVID-19 pandemic crisis in 2020. This could go hand in hand with the view of the political economy.

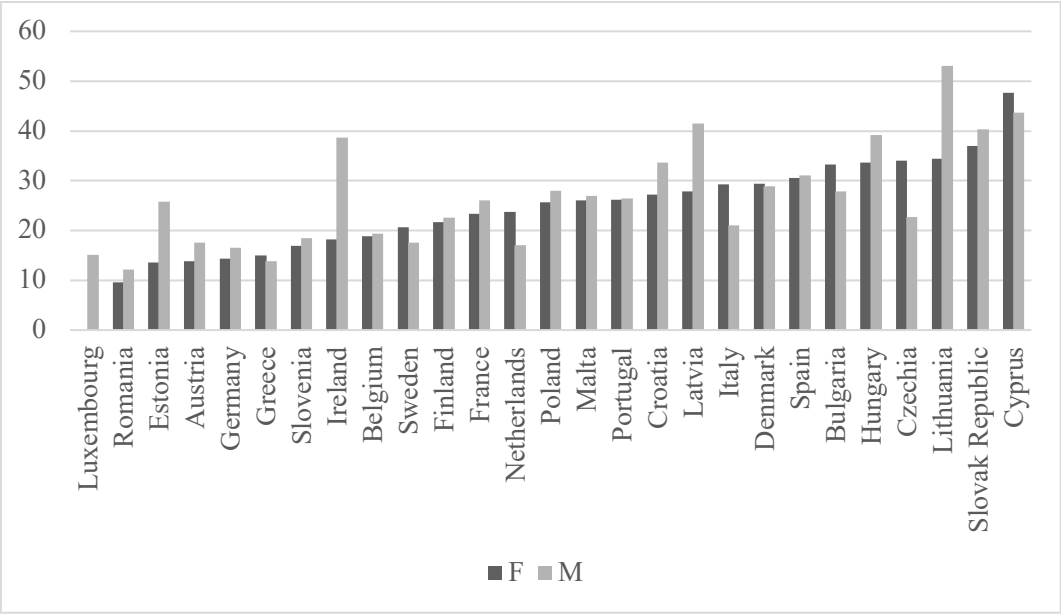
Figure 3: Gender gap in informal self-employment rates (average values for EU27)



Source: Authors, based on ILO data

Next, if we follow Williams's approach (2018), who uses data from the World Bank Enterprise Survey as a proxy for the intensity of informality's pervasiveness, we obtain the following findings, represented in Figure 4. Again, in most countries, women's share is larger.

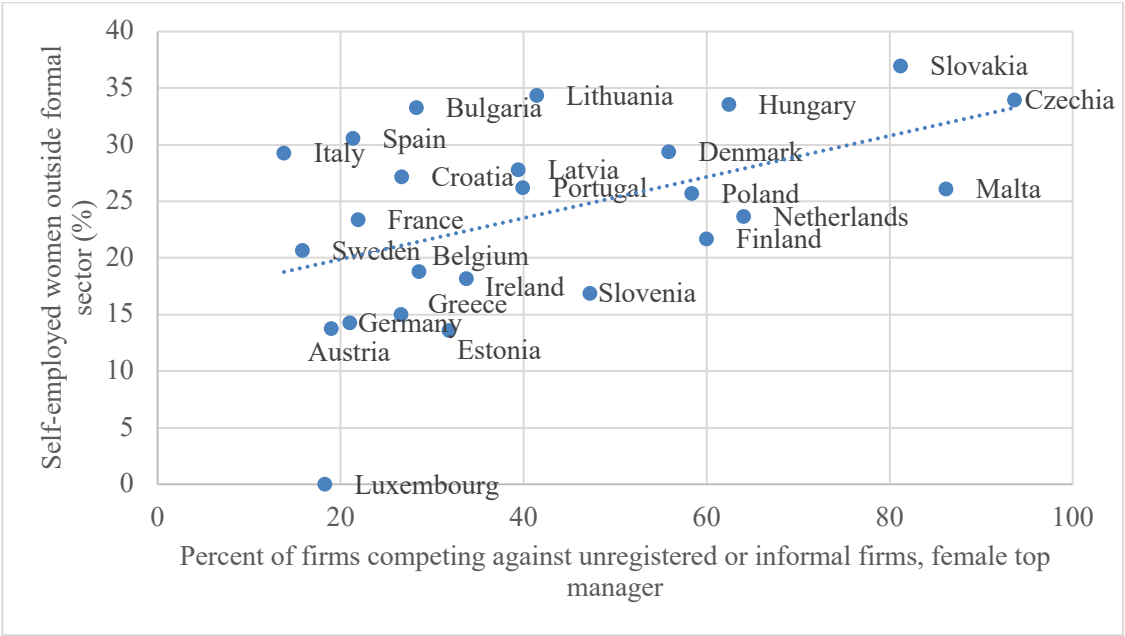
Figure 4: Intensity or pervasiveness of informality faced by the registered businesses



Source: World Bank Enterprise Survey

Although the ILOSTAT and World Bank Enterprise Survey data belong to various categories of data, i.e. objective and subjective survey based, there is a correlation between the two. Figure 5 shows the correlation between the two for women, and we can see that they positively correlate.

Figure 5: Self-employed women outside the formal sector vs. percent of firms competing against unregistered or informal firms with female top manager



Source: Authors, based on ILO and World Bank Enterprise Survey

Each method used in the literature has its advantages and limitations, often influenced by the specific context and data availability. In the context of EU countries, due to above mentioned advantages, we focus on ILO data.

We estimated the panel data model with fixed effects. The model in its general form can be written as:

$$Y_{it} = \alpha_i + \beta X_{it} + \delta_t + u_i + e_{it} \quad (1)$$

where Y_{it} is our outcome variable (self-employment outside the formal sector of women), αi is the unknown intercept for each country, Xit is a vector of predictors (unemployment rate, GDP per capita, regulatory environment, gender civil liberties and corruption), δ_t is the unknown coefficient for the time regressors (t), $u_{i,t}$ within-entity error term and e_{it} overall error term. The countries included in the analysis are Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden. The choice of the fixed, relative to random effects was based on the Hausman test. Also, we checked whether time-fixed effects are needed by performing a joint F-test, which tests if all years are jointly equal to 0, and since the Prob > F is < 0.05, we fail to accept the null hypothesis that the coefficients for the years are jointly equal to zero. In this case, time-fixed effects are needed.

Table 1: Descriptive Statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Female outside formal sector self-employment	373	41.934	24.776	2.515	97.708
Regulatory environment	375	7.49	.577	5.553	8.606
Unemployment rate	400	8.722	4.849	2.4	31.6
Corruption	400	0.145	.141	.002	.552
Gender civi lliberties	400	3.749	.193	2.912	3.939
GDP per capita (in 000)	400	24.888	16.568	3.62	86.54

Source: Authors

The unemployment rate and GDP per capita data are obtained from Eurostat. The quality of the regulatory environment is proxied by the data from the Fraser Economic Freedom of the World database (The Fraser Institute, 2023), while gender civil liberties and corruption are retrieved from the V-Dem database (Coppedge et al., 2023). The civil liberties category takes values from 0 to 4, where an increase in the variable represents an increase in the liberties. The corruption index takes values from 0 to 1, with an increase in the index implying larger corruption. We also included interaction variable between the regulatory environment and corruption as they represent the formal and informal institutions quality. Model 2, without unemployment was performed as additional robustness check, due to the potential endogeneity problem and reverse causality.

Table 2: Results of the analysis

VARIABLES	(1) Model 1	(2) Model 2 Without unemployment
Regulatory environment	2.047***	1.565**
	(0.493)	(0.673)
Unemployment	0.303**	
	(0.116)	
Corruption	15.66***	8.755*
	(4.781)	(4.655)
Gender civil liberties	-3.033***	-2.980***
	(0.769)	(0.712)
GDP per capita	1.127**	1.148**
	(0.455)	(0.463)
(GDP per capita)^2	-0.0578**	-0.0590**
	(0.0227)	(0.0232)
Reg.environment*corruption	-8.727***	-5.454**
	(2.340)	(2.484)
Observations	351	351
Number of groups	25	25
Time fixed effects	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Authors

All variables are statistically significant. First, when it comes to the regulatory environment quality, a better regulatory environment leads to an increase of the share of women's self-employment outside the formal sector. It is a finding that is rather counterintuitive. However, although an improved regulatory environment may lower the obstacles for formal businesses, it can still push some into informal self-employment due to the remaining bureaucracy. This rather paradox can happen when regulatory quality is improving, yet it is not inclusive or supportive of the entrepreneurship of marginalised groups. For example, Webb et al. (2009: 495) highlight that the informal economy exists because of the incongruence between what is defined as legitimate by formal and informal institutions.

Also, the higher unemployment rate of women results in increased informal self-employment among women, probably due to scarce formal job opportunities. From the aspect of another economic variable, by including the GDP per capita and GDP per capita squared in the analysis, we tested for a U-shaped relationship, suggesting that the impact on informal self-employment changes at different stages of economic development. The results show an inverted U-shaped relationship, i.e., that initially, as economies develop, informal self-employment of women may rise. However, after reaching a certain level of development, further development reduces the necessity for informal self-employment as more formal employment opportunities emerge, reducing reliance on the informal sector.

Corruption also increases self-employment in the informal sector, i.e. prevalent corruption can hinder access to both formal employment and business opportunities, driving women to seek

employment in the informal sector where fewer bureaucratic obstacles exist. Next, the negative sign with the interaction variable between the regulatory environment and corruption opens up a fruitful area for discussion. The result indicates that the increased quality of the business environment will result in lower informal self-employment in countries with higher corruption. When the quality of the regulatory environment improves, these reforms often include measures that reduce the opportunities for corrupt practices (such as increased transparency and stronger legal enforcement against corruption). In countries with higher corruption, where informal operations might previously have been a strategy to bypass corrupt practices, improvements in the regulatory environment can provide sufficient incentives for businesses to transition to the formal sector (Aidt, 2009; Dreher & Schneider, 2010). This relation underscores important policy implications, suggesting that merely concentrating on enhancing the regulatory environment without curbing corruption may not adequately reduce informal self-employment. Instead, comprehensive reforms addressing regulatory quality and corruption can create synergies to encourage more effective formal sector self-employment.

Finally, increasing gender civil liberties will likely facilitate women's access to formal employment and entrepreneurship opportunities, reducing the need to engage in informal self-employment. This relation underscores the role of social and legal reforms in enabling women's full participation in the economy, moving beyond informal self-employment to more secure and formally recognized employment (Kabeer, 2005).

4. Conclusion

Our panel data model analysis across 25 European countries from 2007 to 2022 has showed the complexity of the effects of regulatory environment quality, economic indicators, corruption, and gender civil liberties on women's self-employment outside the formal sector. The obtained findings highlight that an improved regulatory environment quality correlates with an increase in women's informal self-employment, suggesting that while regulatory reforms may reduce formal sector barriers, they may be more inclusive for men than women. This result points to the strategic role of regulatory quality in shaping entrepreneurial activities, especially for underrepresented groups. Next, in the domain of macroeconomic indicators, the results highlight the significant impact of women's unemployment rates and economic development stages on informal self-employment trends, illustrating an inverted U-shaped relationship with the GDP per capita variable. This indicates that economic development could initially increase informal self-employment among women, which would decline as economies reach higher development levels.

Corruption proved to be one of the critical factors driving women towards informal self-employment. Moreover, the interaction between regulatory environment quality and corruption suggests that enhancing the business environment in high-corruption contexts can affect the transition towards formal sector engagement. Next, the importance of advancing gender civil liberties is also evident, with our findings suggesting that greater gender civil liberties facilitate women's access to formal employment and entrepreneurship, thus reducing reliance on informal self-employment. This highlights the critical role of social and institutional reforms in integrating women more fully into the formal economy.

There are certain limitations related to research of such complex phenomena as informal entrepreneurship, but each limitation opens up an avenue for future research. First, while using employment outside the formal sector as a proxy for informal entrepreneurship is well-argued,

it could be enhanced by additional measures, as the distinction between informal and formal activities can be ambiguous at times. Also, it would be interesting to analyse how different aspects of identity and social attitudes and values intersect with gender within informal and formal entrepreneurship, which would call for the analysis at micro level.
Finally, as the obtained findings suggest the need for targeted policy interventions considering the complex interplay of regulatory, economic, and social factors influencing women's self-employment choices, the next step is to examine the impact of specific policies on informal entrepreneurship and gender gaps. By evaluating the effectiveness of policies which aim at reducing informal entrepreneurship, would even more stress the need for addressing the barriers to formal sector participation, and policymakers could better support the transition towards more secure and recognized forms of economic activity for women, contributing to broader gender equality objectives.

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A scientific paper

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SYSTEMS THINKING IN ENTREPRENEURSHIP EDUCATION: AN EXAMINATION OF COMPETENCIES AND PEDAGOGICAL APPROACHES FOR SUSTAINABLE TRANSFORMATION

ABSTRACT

The pursuit of the United Nations Sustainable Development Goals (SDGs) necessitates global societal transformations, prompting the need for innovative approaches guided by change agents equipped with competencies for sustainable transformation. Despite advancements, conventional educational methods are critiqued for their limitations in tackling the intricate challenges associated with it. Many scholars advocate for a fundamental shift in the education mindset, particularly in entrepreneurship, emphasizing a transition from individual organizational value creation to a holistic understanding of environmental and economic and social systems.
Our research aims to serve as a foundational exploration, systematically identifying and defining key competencies for advancing sustainable transformation in entrepreneurship education from a systems thinking perspective.
The research design employs a semi-systematic literature review following Page, M.J. et al. (2021). Our exploration underscores the widespread integration of systems thinking in social and sustainable entrepreneurship education. Despite this integration, challenges persist in effectively implementing these frameworks in practice, necessitating a systematic and holistic approach advocated by scholars. Additionally, pedagogical approaches are identified as crucial for cultivating respective competencies, with recommendations ranging from interactive, action-oriented methods to transdisciplinary approaches and the integration of soft skills. Educators can use the study's findings to enhance entrepreneurship education, better preparing learners for sustainable transformation through entrepreneurial means.

Key words: *social / sustainable entrepreneurship education, competencies, sustainable transformation, curriculum development.*

1. Change Agents for Sustainable Transformation

The pursuit of regenerative sustainability (Gibbons, 2020) requires ambitious and comprehensive transformations of societies worldwide (UNESCO, 2017). As a concept, regenerative sustainability represents the next phase of sustainability, challenging people to consciously align with living systems principles that embrace wholeness, change and relationships, as opposed to a mechanistic, reductionist worldview that perceives individuals and the world as separate (Gibbons, 2020). In this sense, regenerative sustainability goes

beyond the aspirations of simple carbon-neutral, net-zero considerations and seeks to redesign economies and societies to develop thriving ecosystems (Raworth, 2017). On this basis, we would like to use the term sustainable transformation as an umbrella term for these endeavours.

There is an urgent need for new approaches to education to facilitate these transformations (Linnér and Wibeck, 2019). This imperative for novel ways of educating a new generation of students arises from the understanding that achieving such transformations requires not only a fundamental shift in the purpose of business and the global economy, but also the cultivation of a new type of leader (Aoustin, 2023). Recognised as change agents for sustainability, these leaders purposefully address social and environmental challenges using entrepreneurial methods to embed sustainability management in organisations (Hesselbarth and Schaltegger, 2014).
Their efforts include integrating sustainability criteria into business processes and organisational structures, thereby catalysing significant change through sustainability-related projects within and beyond their organisational sphere. In addition, they actively promote the vision of sustainable development through collaboration and public outreach, thereby extending their influence to a broader societal audience (Hesselbarth and Schaltegger, 2014). These efforts are complemented by initiatives aimed at equipping leaders with the necessary understanding of the role of business in supporting regenerative change, and fostering the mindsets and skills required to drive such change (Aoustin, 2023).

In education, which has traditionally aimed to develop the mindsets, skills and competencies of these leaders, a prevailing mechanistic, reductionist worldview has promoted linear thinking (Stroh, 2015). This approach divides the world into discrete disciplines and problems into their component parts, with the assumption that optimal solutions emerge from the focused optimisation of individual components (Stroh, 2015). Since the 1980s, there has been a transformative shift in educational trends, reflecting a growing recognition of the need to address complex challenges as part of the transformation of societies worldwide. This shift has been driven by the emergence of sustainable and social entrepreneurship education (hereafter SEE) and social innovation movements (Birney et al., 2023).

Numerous entrepreneurship education scholars recognise the growing importance of learners developing competencies to generate sustainable and impactful ideas that address social, environmental and economic challenges (Zahra et al., 2009; Schaltegger and Wagner, 2011; Lans et al., 2014). SEE aims to cultivate these competencies, which include knowledge, skills, values and attitudes (Bianchi et al., 2022; Bacigalupo et al., 2016; Lambrechts et al., 2013; Hesselbarth et al., 2014). Accordingly, Lynch et al. (2021) argue for a comprehensive shift in educational mindset, urging a transition from the traditional focus on individual organisational value creation to a holistic understanding of interconnected environmental, economic and social systems.

Diepolder et al. (2021) conducted a systematic literature review on competence frameworks for sustainable entrepreneurship and identified three different frameworks proposed by Loume et al. (2017), Biberhofer et al. (2019) and Foucrier et al. (2019).
While Diepolder et al. (2021) provide a thorough review of the current state of research and highlight the importance of a focused approach in developing competency frameworks for SEE, the extent to which these frameworks integrate a holistic perspective on environmental, social, and economic systems, particularly through a systems thinking lens, remains unclear. In addition, there is ongoing debate about the prioritisation of specific competences in the design of interventions for SEE (Diepolder et al., 2021).

In light of these considerations, this paper aims to conduct a comprehensive analysis of existing research to address two fundamental research questions:

- *What competency frameworks can be identified in the literature to promote sustainable transformation within entrepreneurship education?*

- *How is systems thinking integrated into these competency frameworks to promote sustainable transformation within entrepreneurship education?*

The paper aims to identify competence frameworks that promote sustainable transformation within entrepreneurship education and to explore the integration of systems thinking principles. It enriches the scholarly discourse on impactful, sustainability-oriented entrepreneurship education.

The research provides insights into essential skills, knowledge and attitudes for learners to become change agents for sustainability. It informs educational practice, policy development and curriculum design. The study provides practical insights for aligning entrepreneurship education with the principles of sustainable transformation.

2. Towards Sustainable Transformation: Exploring Systems Thinking in Social and Sustainable Entrepreneurship

2.1. Regenerative sustainability

Since the publication of the "Brundtland Report" in 1987, the concept of sustainability has been interpreted in different ways as a fundamental concept for addressing the challenges of our rapidly changing world (UN General Assembly, 1987). Notable among these are the 17 Sustainable Development Goals (SDGs) [1] as a concrete agenda that provides a comprehensive framework to address global challenges and guide efforts towards a sustainable future by 2030, seen as both fixed targets and a vision for a better world. However, critical voices have questioned the efficacy of the SDGs, arguing that “do not support a holistic thriving living system” and that “they have been difficult to integrate synergistically, creating tradeoffs that move communities farther away from sustainability” (Gibbons, 2020). In response to these concerns, alternative models such as the Inner Development Goals[2] or the SDG Wedding Cake[3] have been proposed, reflecting ongoing efforts to refine and expand the concept of sustainability.

Moving on to recent advances in sustainability theory discourse, Gibbons (2020) refers to the concept of regenerative sustainability as the next wave of sustainability (Gibbons, 2020). According to him, there are three waves of sustainability: conventional, contemporary and regenerative. Conventional sustainability is rooted in a mechanistic worldview that treats environmental resources as serving human consumption and focuses on sustaining economic development within finite resources. In comparison, contemporary sustainability brings improvements but remains anthropocentric rather than ecocentric, addressing symptoms rather than root causes of unsustainability, and thus "shallow leverage points in systems, such as

[1] https://sdgs.un.org/goals, Accessed on 25/11/23.
[2] https://www.innerdevelopmentgoals.org/, Accessed on 6/2/24.
[3] https://www.stockholmresilience.org/research/research-news/2016-06-14-the-sdgs-wedding-cake.html, Accessed on 6/2/24.

technological, political and economic change - and supports the continued existence of unsustainable systems and mindsets (e.g. continued economic growth, management of environmental resources for human consumption, efficiency)" (Gibbons, 2020). Regenerative sustainability sees people and the environment as an interconnected system. It seeks to promote thriving living systems by aligning with nature's principles of wholeness, change and relationship. This approach emphasises the development of capacities for continued health and well-being in both human and natural components, moving away from a problem-solving mindset towards understanding living systems in a continuum of health and complexity (Du Plessis, 2012; Zhang et al., 2015; Gibbons, 2020). Building on the concept of regenerative sustainability, we like to use the term 'sustainable transformation' to capture the essence of regenerative sustainability by recognising the need for ongoing, systemic change that not only sustains, but also enhances and renews our planet and societies. It reflects a comprehensive and inclusive approach to sustainability, encompassing both the maintenance and transformation of existing systems towards a more regenerative future.

2.2. Systems Thinking

The principles of sustainable transformation are closely aligned with the principles of systems thinking, where the interconnectedness and interdependence of elements within a system are central to understanding and addressing challenges. Put simply, systems thinking recognises that societal challenges require a more holistic approach (Lynch et al., 2021).

The roots of systems thinking can be traced back to Aristotle in philosophy, when the Greek philosopher laid the foundations for this conceptual framework. Aristotle introduced the idea of holism as the basis for systems thinking, emphasising the interconnectedness of elements within a whole (Hossain et al., 2020). This holistic perspective, which considers the relationships and interdependencies between different components, sets the stage for the development of systems thinking over the centuries. In 1968, Ludwig von Bertalanffy, considered the father of general systems theory, proposed a vision for a "universal language and laws that transcend multiple disciplines and are universally applicable" (Hossain et al., 2020, p.1). Bertalanffy's contribution provided a theoretical framework that transcended disciplinary boundaries and emphasised the universality of systems principles. Building on these foundations, the concept of systems thinking has gained significant attention in various disciplines: it encompasses sociological systems theory (Luhmann, 1984), socio-technical systems theory (Schot & Kanger, 2018), institutional theory (Geels, 2004), complex systems theory (Estrada, 2023), and systemic design (Battistoni et al., 2019).

Peter Senge (1990) expanded on the concept of systems thinking in education, describing it as a conceptual framework and defining it as "a body of knowledge and tools developed over the past seventy years to make the full patterns clearer and to help us see how to change them effectively. Lynch et al. (2021) also emphasise that the complexity of society requires moving beyond traditional linear thinking, as it may be insufficient and counterproductive (Lynch et al., 2021). Consequently, integrating a systems perspective into entrepreneurship education aims to reshape learners' mindsets towards a more holistic understanding of the role of entrepreneurship in building a sustainable future (Lynch et al., 2021).

2.3. Social and Sustainable Entrepreneurship Education

Combining the principles and tenets of systems thinking theory with entrepreneurship education, scholars argue that this integration leads to the emergence of sustainable and social entrepreneurship (Birney et al., 2023). Lans et al. (2014) assert that business opportunities that address sustainability are fundamentally more complex than those that address unidimensional

issues. They further emphasise the interconnectedness between human existence and natural systems, advocating a holistic approach that considers all relevant subsystems across different domains and disciplines. Building on these insights, scholars have highlighted the increasing importance of fostering competencies and skills to generate sustainable and impactful ideas. They stress the need to address challenges across social, environmental and economic domains (Zahra et al., 2009; Schaltegger and Wagner, 2011; Lans et al., 2014). The focus on multifaceted problem-solving marks a dynamic shift towards a comprehensive and systemic approach to entrepreneurship education (Lynch et al., 2021). This shift represents not only a theoretical embedding, but also a practical orientation, where educators aim to equip learners with the essential skills to address sustainability challenges holistically, thereby fostering significant and lasting societal change.

Fourcier et al. (2019) identified four relevant bodies of literature on sustainability entrepreneurship competencies: literature on entrepreneurship education, general sustainability education, social entrepreneurship competencies, and sustainability entrepreneurship frameworks. According to the authors, all contribute valuable insights, but lack specificity and functional relevance to the practical activities of sustainability entrepreneurs. Current frameworks need to be refined to address the unique challenges and opportunities of sustainability entrepreneurship, including consideration of both environmental and social dimensions and alignment with actual processes. Diepolder et al. (2021) further emphasize in their research on competencies for sustainable entrepreneurship education that here the main purpose is to “provide entrepreneurs with skills and attitudes to evaluate business opportunities in light of environmental and societal needs”. Weinert (2001) points out that competencies cannot be taught as predetermined solutions, but are cultivated by the learners themselves through practical experience and reflective practice. Lans et al. (2014) see competences as enabling individuals to successfully perform tasks and solve real-world problems, address challenges and seize opportunities.

Furthermore, many authors use the term 'key competences' to refer to competences that are relevant and useful for everyone and in different contexts (Lambrechts et al., 2013). These competences are used to address the challenges faced by modern societies, such as globalisation, modernisation, social cohesion and sustainable development (Barth et al., 2007; Diepolder et al., 2021).

Accordingly, competency-based education concepts focus on the 'output' of educational processes, while the conventional pedagogical paradigm focuses on the 'input' (content and subjects) that students should learn (Hesselbarth & Schaltegger, 2014).

The dominant competency framework for sustainable entrepreneurship in the academic literature comes from Lans et al. (2014). Their framework has become the cornerstone of numerous subsequent studies, including those by Hesselbarth & Schaltegger (2014), Ploum et al. (2018), Filser et al. (2019), Foucrier and Wiek (2019), Hermann and Bossle (2020), and Diepolder et al. (2021).

3. Semi-systematic Literature Review

Our research design used a semi-systematic literature review (Snyder, 2019) to gain insights into the research on competency frameworks in entrepreneurship education research to answer the research questions. The review process was guided by the PRISMA 2020[4] statement, which is appropriate for semi-systematic reviews in the field of education (Page et al., 2021, p.2). It

[4] Page, M.J. et al. (2021) ‘The PRISMA 2020 statement: an updated guideline for reporting systematic reviews’, Systematic Reviews, 10(1), p. 89. Available at: https://doi.org/10.1186/s13643-021-01626-4.

allowed us to extract valuable insights from a wide range of studies in the literature, providing a comprehensive understanding of the competency frameworks and the integration of a systems thinking perspective within entrepreneurship education to facilitate sustainable change. It also allowed us to explore research gaps.

3.1. Eligibility criteria & restrictions

Our semi-systematic literature review adopted inclusive eligibility criteria and included a wide range of sources, including both traditional academic publications and grey literature. We searched SCOPUS and Google Scholar. To ensure a thorough examination of the current state of knowledge in the field, the review includes both empirical and non-empirical studies. The selected publication timeframe, from January 2013 to December 2023, ensures the inclusion of the most recent and relevant literature for a timely analysis. The PICOC (People, Intervention/Exposure, Comparison, Outcomes, and Context) framework proposed by Booth et al. (2022) was used to further guide the authors regarding the scope of the review. The 'people' category includes all sexes, ages and levels of knowledge mentioned in relevant studies. The 'intervention' aspect is not a mandatory eligibility criterion for our search, but if it is present, it focuses on subjects participating in an entrepreneurship education activity. Contrary to the typical use of the 'Comparison' and 'Outcomes' dimensions in the PICOC framework, in this study non-empirical studies and documents are used, making these dimensions less applicable. The 'Context' dimension has a global scope.
The semi-systematic literature review applied strict exclusion criteria to ensure a focused and comprehensive analysis. Publications were excluded if they were not in line with the defined research interests in order to maintain relevance to the study objectives. The research interests include identifying and analysing entrepreneurship education competency frameworks tailored for sustainable transformation, evaluating their effectiveness in fostering competency development, and examining their scholarly contributions. In addition, the integration of systems thinking perspectives into these frameworks will be explored. In order to maintain a broad perspective, articles focusing solely on specific fields of education (e.g. nursing or engineering) were excluded. Furthermore, publications that did not adhere to the predefined concepts of sustainable transformation, specifically limited to the economic dimension, or transformation limited to the technological dimension, were excluded. By implementing these exclusion criteria, the systematic literature review aimed to streamline the selection process and increase the precision and applicability of the findings within the targeted research scope.

3.2. Information sources

In January 2024, the data collection for this research relied on two primary sources of information, the bibliographic database Scopus[5] and the academic search engine Google Scholar[6], , both recognised as two of the three major bibliometric databases according to Harzing and Alakangas (2016). These platforms were chosen to ensure a comprehensive retrieval of relevant literature for the systematic review. Notably, the third major bibliometric database, Web of Science[7], was deliberately excluded from the information sources. This decision was based on a longitudinal and cross-disciplinary comparative study conducted by Harzing and Alakangas (2016), which showed analogous results for Scopus and Web of Science databases.

[5] www.scopus.com
[6] www.scholar.google.com
[7] www.webofscience.com

Using the research questions (*What competency frameworks can be identified in the literature to promote sustainable transformation within entrepreneurship education? How is systems thinking integrated into these competency frameworks to promote sustainable transformation within entrepreneurship education?*) as the basis for the search strategy, the following terms were identified:

- competencies (knowledge, skills, attitudes)
- transformations (transitions, change)
- sustainable development (sustainability, SDGs)
- entrepreneurship education (entrepreneurship learning, entrepreneurship teaching)

The selection of terms and their associated synonyms for the literature search in Scopus and Google Scholar was based on established frameworks and scientific works. For the term 'competences', the synonyms 'knowledge, skills and attitudes' were used (following Bianchi et al., 2022; Bacigalupo et al., 2016). The choice of synonyms for 'transformation', namely 'transitions' and 'change', is based on the research of Redman and Wiek (2021), who explored the competencies for driving transformations towards sustainability. The decision not to use the terms 'sustainable transformation' or 'regenerative sustainability' (Gibbons, 2020) in this study is due to their early stage of adoption. Instead, the study chooses to use the well-established and globally recognised term 'sustainable development', which dates back to the Brundtland Report (1987) mentioned earlier. The exclusion of specific terms such as 'social', 'environmental' or 'economic development' is a strategic choice aimed at maintaining a holistic focus. By concentrating on sustainable development, the research aims to comprehensively address the interrelated aspects of social, environmental and economic considerations within the broader context of sustainability. This approach allows for a more comprehensive exploration of the issue and avoids an undue narrowing of the scope to individual dimensions. 'Entrepreneurship' is treated as a stand-alone term without synonyms that would be relevant for this study. According to the UNESCO thesaurus, 'education' includes the two synonyms 'learning' and 'teaching'[8]. A title and keyword search was carried out in Scopus and Google Scholar to identify literature relevant to the study.

3.3. Search strategy and selection process

The following search string was used to search the academic bibliographic database Scopus:

- *TITLE-ABS-KEY("competency" OR "competence" OR "competencies" OR "competences" OR "attribute" OR "skills" OR "knowledge" OR "attributes" OR "capability" OR "capabilities" OR "learning outcome" OR "outcomes") AND TITLE-ABS-KEY("entrepreneurship education" OR "entrepreneurship learning" OR "entrepreneurship teaching") AND KEY("sustainable development" OR "sustainability" OR "SDGs" OR "transformation" OR "transition" OR "change") AND LANGUAGE(english) AND PUBYEAR AFT 2012.*

The search resulted in 110 documents, which were downloaded as a BibTeX file.
As for Google Scholar, Harzing's 'Publish or Perish'[9] software was used for the keyword search, as the bibliographic database itself cannot perform complex search strings such as Scopus or Web of Science (Harzing, 2020). The software searches and downloads up to 1,000 citations but has a character limit on searches. Therefore, the search string from Scopus (see above) was translated into the following keywords search:

[8] https://vocabularies.unesco.org/browser/thesaurus/en/index/E, Last accessed 4/1/2024.
[9] https://harzing.com/resources/publish-or-perish, Last accessed 9/1/2024.

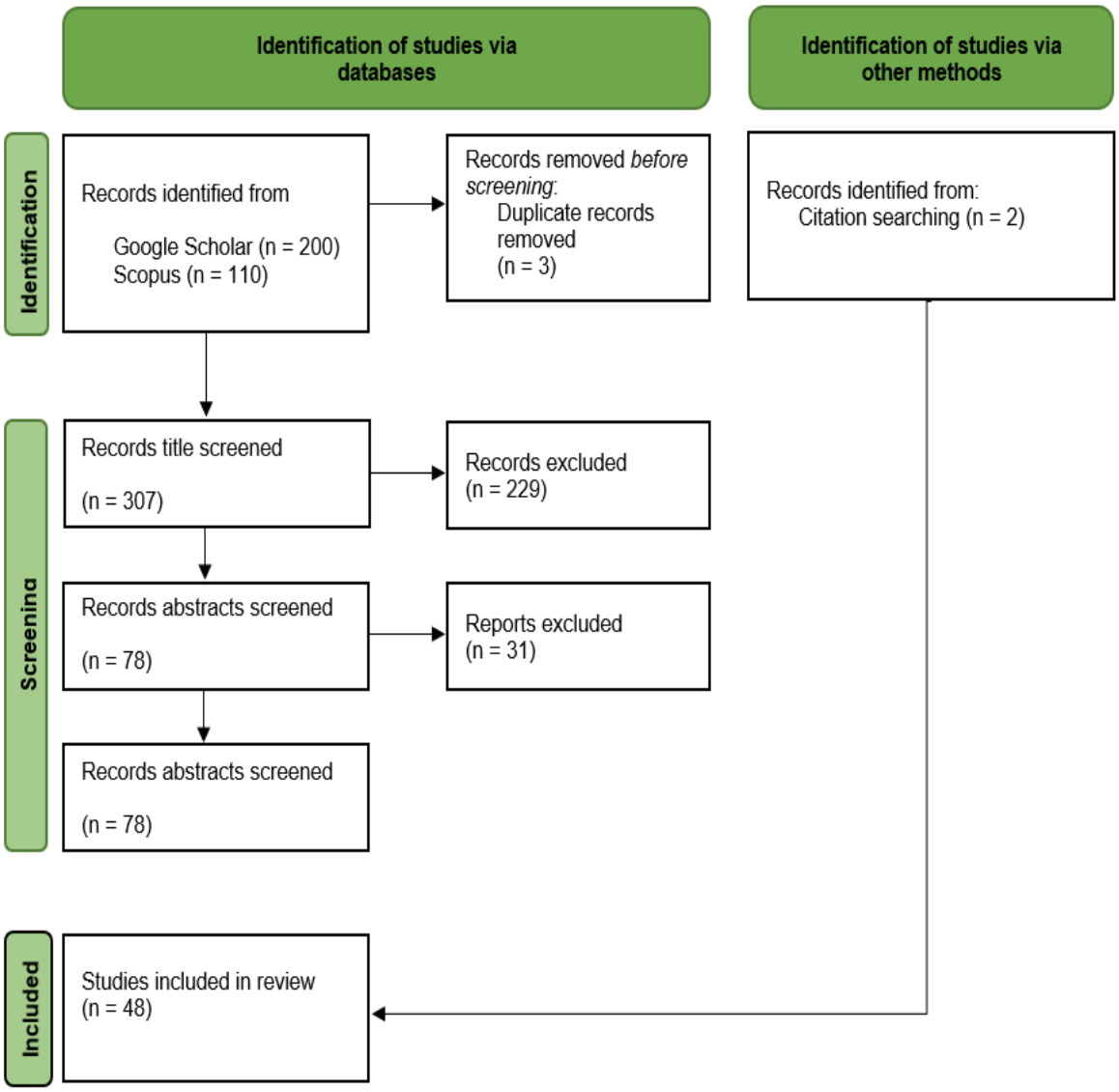
- "Competencies, skills, knowledge, attributes, sustainable development, sustainability, transformation, entrepreneurship education".

The search included all publications published between 2013 and 2024, and the maximum number of hits was set at 200, as the search term was already very narrow. The 200 records were downloaded as a BibTex file.

The results from Scopus and Google Scholar (310 in total) were then imported into MAXQDA[10], a qualitative and mixed methods data analysis software, to apply the screening process. Before starting with the screening process, three duplicate records were removed. The remaining 307 records were screened for their titles regarding the eligibility and restriction criteria excluding 229 records. From the 78 remaining records, 32 records were excluded after reviewing their abstract. Based on this, the remaining 46 articles were screened for their full text and two (Diepolder 2021 and Fourcier et al. 2019) additional records were identified. The following flowchart shows the identified, included and excluded records in each of the three phases of the PRISMA 2020 statements (identification, screening and inclusion).

[10] https://www.maxqda.com/, Last accessed 7/1/2024.

Figure 1: Systemic Literature Review Flow Diagram according to The PRIMSA 2020 statement



Source: Page et al., 2020

As 11 of the 48 selected studies were not available as full papers, a total of 37 publications were analysed and evaluated in MAXQDA after the three phases, which are listed alphabetically in the appendix. The results of the semi-systematic literature review are presented in the following section.

4. Exploring competency frameworks and systems thinking perspectives for sustainable transformation

In order to address the two research questions, a table has been constructed that lists the six most relevant competence frameworks identified through the semi-systematic literature review and their integration of a systems thinking perspective. The table consists of three columns: the first column lists the author(s) and year; the second column provides information about the referenced or developed competence framework and the associated competences; and the third column provides information about the integration of a systems thinking perspective.

Table 1: Identified Competence Frameworks and Systems Thinking Perspective for Sustainable Development in SEE

Author(s) and year	**Referenced or developed competence frameworks**	**Evidence of the integration of a systems thinking perspective**
Lambrechts et al. (2013, p.68-70)	Based on Roorda (2010): 1) Responsibility 2) Emotional intelligence 3) System orientation 4) Future orientation 5) Personal involvement 6) Action skills	• Systems orientation is highlighted as one of the six key competences. • Systems orientation involves recognising non-linear processes, thinking across time scales, distinguishing between short-term and long-term approaches, assessing the consequences of decisions and adopting a future-oriented perspective. • The authors prioritisation of 'systems thinking' stems from the inadequacy of existing competency frameworks to address interlinkages. • The importance of understanding dynamic and non-linear processes is emphasised, in line with a wider recognition of the need for competences that consider the consequences of decisions over time. • In addition, 'future-orientation' is identified as crucial, missing in the competence frameworks, requiring awareness of the long-term consequences of decisions and in line with sustainability perspectives. A systems thinking perspective is explicitly included in the competence framework, addressing the importance of interconnected system elements. Although a systems theory approach is not explicitly mentioned, the emphasis on recognising non-linear processes, understanding interconnectedness and adopting a future-oriented perspective implies an implicit integration of systems thinking principles in the development process of the framework.
Lans et al. (2014, p. 40)	Based on two focus group discussions about two literature-based lists of competences for sustainable development and entrepreneurship involving eight educators: 1) Systems-thinking competence 2) Embracing diversity and interdisciplinarity 3) Foresighted thinking 4) Normative competence 5) Action competence 6) Interpersonal competence 7) Strategic management	• Systems thinking" is prioritised as a key competence, recognising its critical role in addressing the inherent complexity of sustainability challenges. • Emphasising the interconnectedness of human existence and natural systems and advocating a holistic approach that considers all relevant subsystems across different domains and disciplines. • Emphasising that facilitating a nuanced understanding of cascading effects, inertia, feedback loops and accompanying cultures allows for a more comprehensive analysis of sustainable development issues. • Within this framework, the application of systems thinking is visible in other competences: Normative competence: Involves assessing and

Author(s) and year	Referenced or developed competence frameworks	Evidence of the integration of a systems thinking perspective
		improving the sustainability of social-ecological systems on the basis of values and principles. Action competence: Involves active participation in responsible action to improve sustainability. A systems thinking perspective is adopted from the outset, reflecting a commitment to integrating systems thinking into practical and normative aspects of sustainable development, and emphasising its relevance across different dimensions of decision-making and action. However, potential criticisms were acknowledged, such as the lack of a comprehensive systems thinking theory and the limited involvement of stakeholders in the development process.
Hesselbarth and Schaltegger (2014, p. 32)	Based on recent studies by Rieckmann, 2012 and Wiek et al., 2011: 1) Systemic thinking 2) Anticipatory thinking 3) Strategic thinking 4) Critical thinking accompanied by 5) Normative competencies 6) Interpersonal competencies	• Recognise 'systems thinking' as a critical competence within competency frameworks. • Highlighting the emergence of numerous sustainability management programmes, but noting the lack of empirical evidence on the requirements of the profession and effective methods for educating sustainability change agents. • Emphasise the need for a broader understanding of the requirements and methodologies for sustainability education, particularly in entrepreneurship. • Emphasise a holistic approach, suggesting a departure from traditional educational paradigms, in line with the evolving landscape of sustainability management programmes. A systems thinking perspective is included in the framework. However, despite the recognition of systems thinking within the competency framework, Hesselbarth & Schaltegger (2014) do not explicitly integrate this perspective into their theoretical considerations. The limited empirical evidence highlights the ongoing challenge of developing effective ways of educating sustainability change agents, and reflects a wider gap in understanding of professional requirements in this area.
Ploum et al. (2018, p. 114)	Based on Hesselbarth & Schaltegger (2014), Lans et al. (2014), Osagie et al. (2016) and Wesselink et al. (2015): 1) Strategic management competence and action competence	• Highlighting the consistent inclusion of 'systems thinking' competence in the four competence frameworks they reference. • Emphasising the importance of considering the interconnectedness and interdependence of different elements within the field of sustainable development from a systems thinking perspective. • Observe that descriptions of competences in the

Author(s) and year	**Referenced or developed competence frameworks**	**Evidence of the integration of a systems thinking perspective**
	2) Embracing diversity and interdisciplinary competence 3) Systems thinking competence 4) Normative competence 5) Foresighted thinking competence 6) Interpersonal competence	literature on education for sustainability are often divorced from specific contexts and designed for universal applicability across study programmes and different educational settings. • It argues for a broader consideration of the systemic context, recognising the relevance of work environments for the meaningful application of sustainability challenges and tasks. A systems thinking perspective is consistently included in the competence frameworks highlighted by Ploum et al. (2018), emphasising the interconnectedness and interdependence inherent in sustainable development. They advocate for holistic competence descriptions that transcend program-specific boundaries, highlighting the systemic context for effectively addressing sustainability challenges in diverse work settings.
Foucrier and Wiek (2019, p.1-8)	Based on Wiek et al. 2016, Hesselbart & Schaltegger 2014, Lans et al. 2014, Osagie et al. 2016, Mindt & Reickmann 2017, Ploum et al. 2018, Biberhofer et al. 2018, Morris et al. 2013, Wiek et al. 2011a, Willard et al. 2010, Chell et al. 2007, Miller et al. 2012, Fantini et al. 2001, Salgado et al. 2018, Lans et al. 2011, Mitchelmore et al. 2010, Lambrechts et al. 2013, Wu 2009, Bernhardt et al. 2015, Afshar et al. 2017, Waldron 2016 and Moreau & Mertens 2013, the authors introduced a process-oriented competence framework tailored for sustainability entrepreneurs, comprising five distinct phases of entrepreneurial activity: As for the sustainability competencies related to the distinct phases: 1) exploration: System-thinking competence; Value-thinking competence; Future-thinking competence; Interpersonal competence 2) planning: System-thinking competence; Value-thinking competence; Future-thinking competence; Strategic competence; Interpersonal competence;	• Adopted a 'systems thinking' perspective from the outset, shaping their conceptualisation of sustainability entrepreneurship. • Introducing the term "regeneration" to differentiate their framework, emphasising real-world entrepreneurial processes. • Focus on transformational rather than incremental improvements, actively contributing to the improvement of interconnected social and environmental systems. • Empowerment of the workforce and community signals a holistic view of the interrelated elements within the wider system. A systems perspective is an integral part of Foucrier et al.'s (2019) framework, guiding sustainability entrepreneurship towards holistic solutions that address interconnected social and environmental challenges while fostering community and workforce empowerment.

Author(s) and year	Referenced or developed competence frameworks	Evidence of the integration of a systems thinking perspective
	Integration competence 3) establishment: Strategic competence; Interpersonal competence; Integration competence; Implementation competence 4) development: Future-thinking competence; Strategic competence; Interpersonal competence; Integration competence; Implementation competence 5) consolidation: System-thinking competence; Value-thinking competence; Future-thinking competence; Strategic competence; Interpersonal competence	
Moon, Walmsley and Apostolopoulos (2022)	Based on EntreComp and GreenComp: EntreComp competence area and competencies: 1) Ideas and opportunities: Spotting opportunities; Creativity; Vision; Valuing ideas; Ethical and sustainable thinking 2) Resources: Self-Awareness and Self-Efficacy; Motivation and perseverance; Financial and economic literacy; Mobilizing resources 3) Into Action: Taking the initiative; Planning and management; Coping with uncertainty ambiguity and risk; Working with others; Learning through experience GreenComp: 1) Embodying sustainability values: Valuing sustainability; Supporting fairness; Promoting nature 2) Embracing complexity in sustainability: Systems thinking; Critical thinking; Problem framing 3) Envisioning sustainable futures: Futures literacy; Adaptability; Exploratory thinking 4) Acting for sustainability:	• Mentioning "Systems Thinking" as a GreenComp competence. No further explanation or link to a systems thinking perspective.

Author(s) and year	Referenced or developed competence frameworks	Evidence of the integration of a systems thinking perspective
	Political agency; Collective action; Individual initiative	

Source: Authors

5. Discussion - A Call for Comprehensive Pedagogical Integration

The exploration of competency frameworks in entrepreneurship education for promoting sustainable transformation shows that systems thinking is prevalent in such competency frameworks. Authors like Lambrechts et al. (2013), Lans et al. (2014) and Foucrier et al. (2019) prioritise systems thinking as a foundational competence. Lambrechts et al. (2013) highlight its importance in recognising the interconnected elements within a system, fostering a holistic understanding that is essential for addressing the complexity of sustainable development. Lans et al. (2014) extend this perspective to sustainable entrepreneurship, highlighting the need for a comprehensive approach that actively contributes to the improvement and regeneration of interconnected social and ecological systems. Foucrier et al. (2019) echo these sentiments by incorporating a systems thinking approach to sustainability entrepreneurship, which envisages aligning business activities with critical sustainability thresholds.

In addition, Foucrier et al. (2019) explicitly engage with the concept of 'regeneration'. Their focus is on comprehensive or transformational approaches that envision going beyond minimising negative impacts to actively contributing to the improvement of interconnected social and ecological systems.

Despite this progress, challenges remain in the practical implementation of competency frameworks. Garcia-Feijoo, Eizaguirre, and Rica-Aspiunza (2020) call for a systematic and holistic approach in entrepreneurship schools to fully integrate sustainability into education, research, operations, and outreach. The need for a robust sustainable management agenda, as advocated by Kolb, Fröhlich, and Schmidpeter (2017), further reinforces the importance of a comprehensive strategy in entrepreneurship education for sustainable transformation.

Pedagogical approaches play a crucial role in cultivating competencies for sustainable transformation. Lambrechts et al. (2013) propose a multifaceted framework that combines interactive, action-oriented and research-based methods in line with a systems thinking perspective. Lans et al. (2014) highlight the importance of further research on the practical implementation of competency-based curricula, while Hesselbarth & Schaltegger (2014) advocate transdisciplinary approaches and the integration of soft skills. The gap in Foucrier et al.'s (2019) framework regarding pedagogical approaches emphasises the need for constructive alignment with effective learning and teaching environments.

6. Conclusion - Towards a Holistic Approach

In conclusion, the competency frameworks identified in the literature demonstrate a collective emphasis on systems thinking as a key element in promoting sustainable transformation in entrepreneurship education. The inclusion of this perspective is in line with the research question and illustrates its importance in promoting a holistic understanding of the interrelated elements within the wider system. However, a more systematic and comprehensive approach is needed in entrepreneurship education to fully integrate sustainability in all facets, as highlighted

by Garcia-Feijoo, Eizaguirre and Rica-Aspiunza (2020) and Kolb, Fröhlich and Schmidpeter (2017).

The pedagogical approaches proposed by the different authors provide valuable insights, emphasising the importance of interactive, action-oriented and research-based methods. The identified gaps and recommendations for further research highlight the evolving nature of entrepreneurship education for sustainable transformation. Bridging these gaps will contribute to the development of responsible change agents capable of managing the economic, social and environmental impacts of their decisions. Going forward, a concerted effort is needed to align pedagogical approaches with effective learning environments and to ensure the seamless integration of systems thinking into competency frameworks to promote sustainable transformation in entrepreneurship education.

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THE CHARACTERISTICS OF THE TOP DECILE WAGE EARNERS IN CROATIA

ABSTRACT

International research on top incomes predominantly explores variations in income shares at the top, with a broad emphasis on cross-economy comparisons to highlight heterogeneity. In contrast, detailed analyses focusing on the specific attributes of top wage earners within individual countries are less common. Notably, Croatia has been overlooked in these discussions. This paper aims to address this gap by uncovering the distinctive characteristics of the highest decile of wage earners in Croatia, diverging from the more common approach of comparing across multiple economies to instead provide an in-depth look at a single country. Accordingly, the aim of the paper is to reveal the main characteristics of the top decile wage earners in Croatia. For this purpose, the paper uses the probit model and data from the EU-SILC 2020 survey. We analyse persons who received employment income and who worked all 12 months of the year. The results show that the top decile wage earners receive about a quarter of the total employment income. The probit analysis shows that gender, age, settlement size, education and economic activity of the main job have a significant impact on belonging to the top decile wage earners group. In other words, men, elderly persons, those living in densely populated areas, those with tertiary education and those working in financial intermediation are significantly more likely to be in the top decile wage earners group than others.

Key words: *top wage earners, probit model, Croatia.*

1. Introduction

The exploration of income inequality and the distribution of wealth has long been a critical area of study in economics, particularly given its implications for social policy, economic stability, and the overall health of a nation's economy (Acemoglu & Robinson 2012; Atkinson, 2015; Piketty 2014; Scheidel 2017; Stiglitz 2012). Among the various dimensions of this inquiry, the examination of top income earners holds a distinct place, offering insights into the mechanisms of wealth accumulation and the socio-economic characteristics that differentiate these individuals from the broader population. Despite the global relevance of such studies, the specific focus on the characteristics of top wage earners within individual countries, especially

those not typically highlighted in international research, is less common. Croatia, with its unique economic landscape and transition history, represents a compelling case for such a study.

This paper seeks to bridge the existing research gap by analysing the characteristics of the top decile of wage earners in Croatia. The focus on this particular group is driven by their disproportionate influence on economic indicators and policy outcomes. Leveraging data from the EU-SILC 2020 survey and employing a probit model for our analysis, this study aims to conduct a detailed examination of the factors associated with higher wage earnings in Croatia. This endeavour is timely and relevant, given the current debates on economic policy, labour market trends, and income distribution within the country.

The methodology of this study entails a comprehensive review of demographic, socio-economic, and geographical variables that could influence an individual's likelihood of being among the top wage earners. Concentrating on individuals who were consistently employed throughout 2019, our research offers insights into how stable employment conditions can lead to higher income levels. This methodological approach ensures that the findings of this study are pertinent for discussions on employment stability and labour market policies.

Our findings emphasize the critical importance of factors such as gender, age, educational attainment, urbanization, and the sector of employment in the achievement of high wages in Croatia. These results underscore the necessity for focused educational policies, urban development initiatives, and sector-specific economic measures to address income inequality and promote a more equitable distribution of wages. Furthermore, by providing empirical evidence from a country that has received limited attention in the global discourse on top income earners, this study contributes valuable insights to the broader body of literature.

To facilitate a comprehensive understanding of our findings, the paper is structured as follows: Section 2 offers an in-depth review of the relevant literature, setting the stage for our investigation. Section 3 outlines the methodology, detailing the data source, the analytical approach using the probit model, and the definition of variables. Section 4 presents the analysis results, diving into the characteristics of Croatia's top decile wage earners and the factors influencing their income levels. Finally, Section 5 integrates these findings with the wider research landscape and concludes the paper, summarizing the main insights and suggesting directions for further research.

2. Literature review

The investigation of income inequality, particularly at its highest levels, plays a pivotal role in understanding economic trends across different countries, shedding light on how socio-economic factors influence the distribution of wealth among the top earners. Global studies, such as Atkinson & Leigh (2007)'s examination of Australia's top income shares, show us how shifts in socio-economic conditions can significantly influence income distribution. These insights are directly relevant to Croatia, suggesting that exploring local socio-economic factors is essential for understanding the country's unique income distribution patterns.

Further research, like that of Brewer et al. (2007), highlights the role of external economic factors, such as market fluctuations, on the wealth of top earners in Great Britain. This analysis demonstrates the vulnerability of top income groups to wider economic patterns, offering a

comparative perspective to understand the factors driving income growth among Croatia's top earners. The link between global financial movements and individual income levels underscores the significance of external economic factors in our examination of Croatia's top decile of wage earners.

The topic of gender disparities within the highest tiers of income distribution has drawn considerable attention, with researchers like Atkinson et al. (2018) shedding light on the global issue of women's underrepresentation in these lucrative segments. This enduring gender gap, also observed in Sweden by Boschini et al. (2017), and the investigation of the glass ceiling in the United States by Guvenen et al. (2020), underscores pervasive inequalities that transcend national boundaries. These studies highlight the need for a detailed gender analysis in the Croatian context to fully grasp the scale and impact of gender disparities among top earners, echoing a wider demand for equality and representation at the highest income levels.

Furthermore, the influence of education and professional experience on securing top income positions has been underlined by Debowy et al. (2022), who demonstrate the significant, though diverse, role of formal education on income in Israel. This diversity suggests varying effects of educational attainment among different demographic groups, indicating a nuanced relationship between education, experience, and income levels. This discussion is expanded by Passaretta & Triventi (2023), who explore the gender earnings gap among Italy's educational elite, further highlighting the pivotal role of educational trajectories in shaping income disparities. These findings stress the need to examine the educational and professional backgrounds of Croatia's top earners to decode the elements driving their financial success.

Occupational and industry-specific factors are pivotal in determining income levels at the top, as highlighted by Denk (2015a) and Du Caju et al. (2010). Their investigations into the income of Europe's top earners and the differences in wages across industries shed light on the importance of sectoral and occupational dynamics in affecting income levels. These insights are particularly relevant for analysing Croatia's highest wage earners, suggesting that industry and occupation might be key factors in income differences.

Furthermore, the impact of demographic shifts is a crucial aspect of understanding the dynamics of income distribution. Research conducted by Srdelić & Dávila-Fernández (2022) explores the complex interplay between demographic changes, particularly aging populations, and economic growth in six European Union countries. Their findings reveal that demographic trends can have varied effects on economic growth in different EU states, with aging populations showing negative impacts on growth in some cases, while others may experience positive outcomes under certain conditions. This perspective on the influence of demographic trends on economic patterns adds depth to our examination of income inequality among top earners, highlighting how broader macroeconomic and demographic trends can shape income distribution.

Integrating these various strands of research, our literature review places the study of Croatia's top decile wage earners in the context of a wider academic dialogue on income inequality. This approach not only sheds light on the complex nature of income disparities but also enhances our understanding of the socio-economic factors that influence top-level income distribution. By doing so, it fills a significant gap in the existing literature and furthers the discussion on socio-economic fairness.

3. Data and methodology

The analysis uses data from the EU statistics on income and living conditions conducted for 2020 (EU-SILC 2020). EU-SILC is a mandatory survey that enables a comparative analysis of income statistics, indicators of poverty and social exclusion for all EU countries. The survey is conducted on an annual basis using a rotating panel sample of randomly selected private households. The data contains information on demographic, socio-economic and spatial characteristics for each member of the household. The collected sample is weighted in such a way that each person from the sample is assigned an appropriate weight, and in this way, the sample is projected onto the entire population. The reference period for income variables is the previous calendar year, so in this study all income variables refer to 2019.[1]

The paper analyses the characteristics of 10% of recipients with the highest employment income.[2] For this purpose, a binary indicator dependent variable is introduced, which with 1 indicates 10% of persons with the highest employment income, and with 0 other persons. Only persons who were employed for all 12 months of the year are taken into account. The explanatory variables used for the analysis of the determinants of the top decile wage earners are taken based on research Denk (2015a). The list and definitions of the used variables are given in Table 1.

Table 1: The list of variables used in the analysis (authors')

Variables	Definition	Values
Dependent variable:		
Top decile wage earner	A binary indicator variable indicating whether the observed person is among the 10% of persons with the highest employment income	1 = 10% of persons with the highest employment income; 0 = bottom 90%.
Explanatory variables:		
Gender	A binary indicator variable indicating the individual's gender.	0 = women; 1 = men.
Age	A categorical variable indicating the age group of the observed persons.	1 = 18 to 29 years; 2 = 30 to 39 years; 3 = 40 to 49 years; 4 = 50 to 59 years; 5 = 60 years and more.
Education status	A categorical variable for the education status of the observed persons.	1 = primary education; 2 = secondary education; 3 = tertiary education.
Area of living	A categorical variable which describes the degree of urbanization of the respondent's place of residence.	1 = thinly-populated area; 2 = intermediate area (at least 300 inhabitants per km2 and a minimum population of 5,000); 3 = densely populated area (at least 1 500 inhabitants per km2 and a minimum population of 50,000).
Economic activity of the main job	A categorical variable which describes the economic activity of the main job for respondents who are currently at work.	1 = Agriculture and Fishing; 2 = Mining, Manifact. And Utilities; 3 = Construction; 4 = Wholesale and retail; 5 = Hotels and restaurants;

[1] The last available survey is EU-SILC 2022, which contains income variables from 2021. However, EU-SILC 2020 is the last survey that contains income variables unaffected by the COVID period. As such, EU-SILC 2020 is currently most appropriate for this research.

[2] In this paper, employment income includes gross employee cash or near cash income and gross non-cash employee income. Furthermore, instead of the term employment income, we also use the term wage.

Variables	Definition	Values
		6 = Transport and communication; 7 = Financial intermediation; 8 = Real estate and business 9 = Public administ. And defence 10 = Education; 11 = Health and social work; 12 = Other.

Source: Authors

There are certain shortcomings of the survey data used which also represent certain research limitations. Namely, it is a well-known fact that income data is underrepresented on the right tail of the distribution. One of the reasons is the lower willingness of persons with higher incomes to participate in the survey, as well as the reporting of lower incomes than they actually are. Using the example of Croatia, Ledić et al. (2022) showed certain methods of data correction that aim to improve the precision of data on the right tail of the distribution. They used EU-SILC 2018 data and found that capital income is the least represented in the survey data, while employment and pension income are the most represented. They illustrate that the EU-SILC data captured 93% of the aggregate employment income from the administrative source. As regards the number of recipients of employment income, the EU-SILC data captured 90% of the total number of recipients from the administrative source. In their paper, the data correction method improved the survey data on employment income amounts so that the corrected data captured 101% of the aggregate employment income from the administrative source, while the total number of recipients remained the same after data correction.

In our paper, we use the original survey data instead of the corrected survey data taking into account the following facts. This research is more oriented to the characteristics of the persons with the highest employment income than to precise amounts of employment income. Employment income is used only when constructing the dependent variable, that is when determining the persons who are among the 10% of persons with the highest amount of employment income. Therefore, even though the employment income data in the survey are underestimated at the very top of the income distribution, it is still of sufficient quality to successfully identify the top 10% of people with the highest employment income. Furthermore, the research by Ledić et al. (2022) showed that the data correction methods correct only the employment income amounts, but the number of recipients remains the same even after the correction data method. In addition, the correction methods would also correct the socio-economic characteristics of persons, which would consequently reduce the precision of the obtained results.

On the other hand, the advantage of survey data compared to administrative data is that it provides a wider set of available variables, e.g. administrative data does not contain a gender variable. Considering all the above facts, we conclude that it is best to use original survey data for this research purpose.

To assess the determinants of top decile wage earners, a probit regression model is conducted. For each person i, the estimated probability of the probit model is defined as follows:

$$P_i = Prob(y_i = 1) = Prob[x_i\beta + \varepsilon_i > 0] = Prob[\varepsilon_i > -x_i\beta] = \\ = F(x_i\beta),$$

where y is the dependent binary indicator variable, X_i is a vector of explanatory variables, β is the parameter vector, ε is the error term and $F(\cdot)$ is the cumulative distribution function of ε (Maddala, 2001). In the probit model, it is assumed that the error terms ε follow a standard normal distribution, so the function $F(\cdot)$ is defined as follows

$$F(x_i\beta) = \Phi(x_i\beta) = \int_{-\infty}^{x_i\beta} \frac{1}{\sqrt{2\pi}} \exp\left(-\frac{t^2}{2}\right) dt .$$

The marginal effects of a unit change in the k - th explanatory variable are:

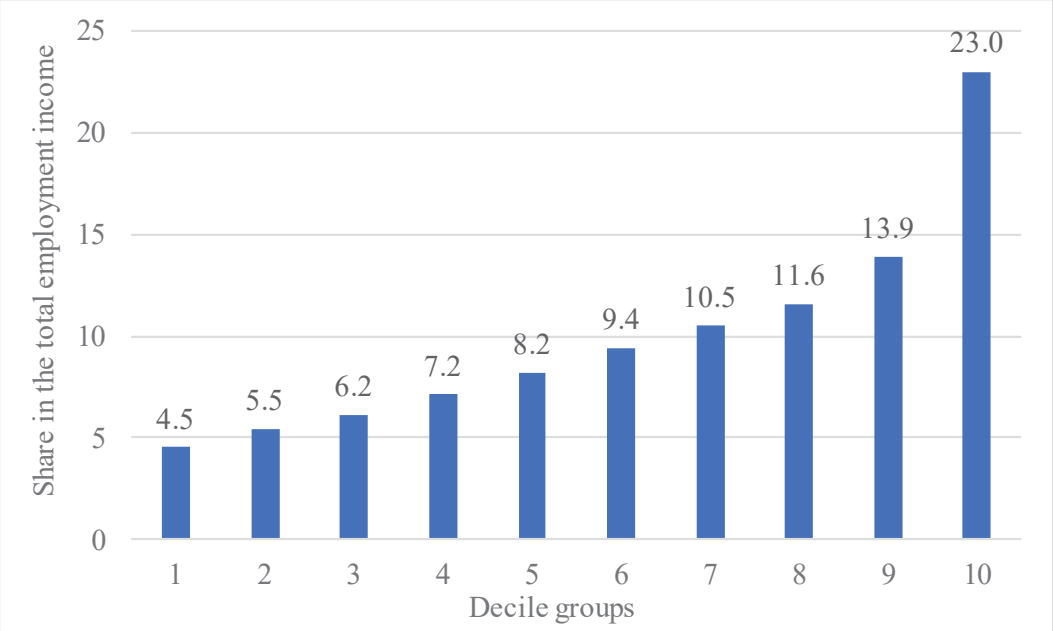
$$\frac{\partial P_i}{\partial x_{ik}} = \beta_k \phi(x_i\beta),$$

where $\phi(\cdot)$ denotes the standard normal density function.

4. Results

The results section begins with a descriptive analysis of the dependent variable. In Figure 1, persons who worked all 12 months in the year are divided into decile groups according to the amount of their employment income. The dependent variable is constructed in a way that with the value 1 are denoted persons who are in the tenth decile group, while persons from the first nine decile groups are denoted with 0. The results from Figure 1 show that persons placed in the tenth decile group (top decile wage earners) earn almost a quarter of the total employment income of all observed persons. The total amount of employment income falls as we descend towards the lower decile groups. Employed persons from the 9th decile group earn 13.9% of the total employment income, while those from the first decile group earn only 4.5%. The biggest jump in total employment income is between the ninth and tenth decile group; the total employment income earned in the tenth decile group is by 9 percentage points higher than in the ninth. On the other hand, the difference between the first and ninth decile groups is also the same, the total income earned in the ninth decile group is about 9 percentage points higher than in the first.

Figure 1: Distribution of the employment income according to decile groups (%)



Source: Authors' work based on the EU-SILC 2020 survey

What are the main determinants of the top decile wage earners, who earn a quarter of the total employment income? In order to get an answer to that question, we first analyse the results of descriptive statistics that show the distribution of the dependent variable according to certain demographic, socio-economic and spatial determinants. Table 2 presents these descriptive results, which indicate that men are more frequently in the group of top decile wage earners than women (13.2% compared to 6.1%). Persons over the age of 65 are much more frequently to be in the top decile wage earners group than others; 16.2% of those aged over 65, about 11% of middle-aged persons (aged 30-59) and 4.2% of those aged 18-29 are in the top decile wage earners group. Those with tertiary education are much more often found in the top decile wage earners group than those with primary and secondary education (24.0% tertiary educated persons compared to 3.8% primary and 4.7% secondary educated persons are in the top decile wage earner group). Densely populated areas appear to have a much higher proportion of top decile wage earners than other areas. As for the economic activity of the main job, it turned out that the top decile wage earners most often work in the financial intermediation and in transport and communication.

Table 2: Distribution of the wage earners in Croatia, % of survey respondents

	Bottom 90%	Top 10%
Total	90.0	10.0
Gender		
Female	94.0	6.1
Male	86.8	13.2
Age in years		
18-29	95.8	4.2
30-39	89.1	10.9
40-49	89.0	11.0
50-59	89.8	10.2
65+	83.5	16.5
Education		
Primary	96.2	3.8
Secondary	95.3	4.7
Tertiary	76.0	24.0
Area of living		
Thinly populated area	93.6	6.4
Intermediate area	92.5	7.5
Densely populated area	83.4	16.6
Economic activity of the main job		
Agriculture and Fishing	96.5	3.5
Mining, Manifact. And Utilities	91.6	8.4
Construction	86.2	13.8
Wholesale and retail	93.0	7.0
Hotels and restaurants	92.5	7.5
Transport and communication	80.2	19.8
Financial intermediation	72.6	27.4
Real estate and business	89.4	10.6
Public administ. And defence	90.0	10.0
Education	94.6	5.4
Health and social work	91.2	8.8
Other	97.6	2.4

Source: Authors' work based on the EU-SILC 2020 survey

To evaluate whether there are the statistically significant determinants of the top decile wage earners, Table 3 shows the results of a probit regression analysis. Starting with the demographic variables, the results show that the probability of belonging to the top decile wage earners group is greater among men and older age groups. The marginal effect reveals that the probability of being a top decile wage earner is 8.7 percentage points higher for men than women. Relative to persons aged 30-39, those older than 65 are 4.4 percentage points more likely to be in the top decile wage earners group, while for those aged 18-29 this probability is lower by 4.2 percentage points. Place of living is also statistically significant with those living in density populated areas being more likely than others to be a top decile wage earner. Persons living in densely populated areas are 4.0 percentage points more likely to be a top decile wage earner than those living in thinly populated areas.

Research for other countries also found a gender wage gap, particularly at the top of the wage distribution. Blau & Kahn (2017) concluded, based on panel data for the United States from 1980 to 2010, that the gender wage gap decreased over the years.[3] This gap decreased significantly at the middle or bottom of the wage distribution, while it remained significant at

[3] Similar results were obtained by Blau & Kahn (2000).

the top of the distribution. The same results were obtained by Atkinson et al. (2018), who conducted research on a sample of eight countries. They report that the presence of women at the top of the wage distribution increased over the years but grew more slowly as we moved to the very top. On a sample of 18 EU countries Denk (2015a) also concludes that men are more likely to be among the people with the highest wages. Regarding age, Denk (2015a) confirmed the same result, pointing out that older persons are more likely to be among the top earners. Similar results were obtained by Brewer et al. (2007) for the United Kingdom and Fortin et al. (2012) for Canada. They showed that in the UK those in their 40s are more likely to be among the top earners, while in Canada it is more likely for persons between 35 and 64 years old.

Regarding the socio-economic variables, the results show that the probability that a person is a top decile wage earner is higher for those with tertiary education and those working in financial intermediation, transport and communication, and construction. More precisely, persons with a tertiary level of education are 21.4 percentage points more likely to be top wage earners than those with secondary education. The probability of being a top decile wage earner is 11.8, 7.5 and 7.3 percentage points higher for persons working in financial intermediation, transport and communication, and construction (respectively) relative to those working in public administration and defence.

A study conducted for Israel also found that highly educated persons are more likely to belong to the top decile wage earners group (Debowy et al., 2022), and the same was shown for the group of 18 EU countries in the research conducted by Denk (2015a). Kaplan & Rauh (2010) showed that the top earners in the USA work in the financial sector, which was also found in the research for EU countries conducted by Denk (2015b). Similar results were obtained in another study conducted by Denk (2015a), in which it was determined that those who work in finance and insurance, information and communication, and professional services are more likely to belong to the group of top wage earners. Additionally, Astrov et al. (2019) in their research covering eight European countries (including Croatia) state that financial services are one of the highest-paid jobs in almost every country.

Table 3: Probit regression analysis of the top decile earners in Croatia

	Coefficient (Standard error)	Marginal effect
Gender (RC: Female)		
Male	0.622 (0.079)***	0.087
Age in years (RC: 30-39)		
18-29	-0.393 (0.149)***	-0.042
40-49	0.168 (0.098)*	0.024
50-59	0.148 (0.099)	0.021
65+	0.288 (0.135)**	0.044
Education (RC: Secondary)		
Primary	0.277 (0.524)	0.030
Tertiary	1.159 (0.077)***	0.215
Area of living (RC: Thinly populated area)		
Intermediate area	-0.004 (0.087)	-0.001
Densely populated area	0.273 (0.087)***	0.040
Economic activity of the main job (RC: Public administ. And defence)		
Agriculture and Fishing	-0.318 (0.255)	-0.032
Mining, Manifact. And Utilities	0.181 (0.125)	0.024
Construction	0.469 (0.153)***	0.073
Wholesale and retail	0.121 (0.153)	0.016
Hotels and restaurants	0.236 (0.234)	0.032
Transport and communication	0.479 (0.139)***	0.075
Financial intermediation	0.686 (0.233)***	0.118
Real estate and business	0.040 (0.180)	0.005
Education	-0.515 (0.174)***	-0.046
Health and social work	0.139 (0.156)	0.018
Other	-0.545 (0.251)**	-0.047
Constant	-2.475 (0.158)***	
Number of observations	4,965	
Prob > chi2	0.000	
R2	0.214	

Significance: *p<0.05, **p<0.01, ***p<0.001.

Source: Authors' work based on the EU-SILC 2020 survey

5. Conclusion

This paper is the first to analyse the characteristics of the persons with the top wages in Croatia. International studies have primarily focused on the distribution of income shares among top earners (e.g. Piketty, 2003; Joyce et al., 2019), leaving a distinct gap regarding the profiles of these individuals. Among the few, Denk's (2015a) investigation into the characteristics of top wage earners across 18 EU countries notably excluded Croatia, highlighting a significant gap in the literature. Additionally, while studies such as those by Brewer et al. (2007) in the UK, Godechot (2012) in France, and Fortin et al. (2012) in Canada have provided descriptive analyses of top earners, similar research focusing on Croatia has been absent. Our study seeks to bridge this void, contributing not only to the understanding of Croatia's economic landscape but also enriching the global dialogue on income distribution.

Employing data from the EU-SILC 2020 survey and utilising a probit model, this research estimates the defining characteristics of individuals within the top 10% of earners by employment income. Focusing on individuals with stable employment throughout the year, the study presents an in-depth descriptive analysis of the top decile wage earners' profiles.

Subsequently, the probit model discerns the attributes significantly associated with belonging to this high-earning group.

The findings reveal a higher likelihood of being among the top decile wage earners for men, older individuals, those with higher educational attainment, residents of densely populated areas, and employees within specific sectors such as financial intermediation, transport, communication, and construction. Notably, the gender disparity is pronounced, with men having an 8.7 percentage points higher chance than women to be in this group. Age also plays a critical role, with individuals aged 40-59 being approximately 2 percentage points more likely to be top earners compared to those aged 30-39. The advantages conferred by tertiary education and urban living are significant, enhancing the probability of high wage earning by 21.5 and 4.0 percentage points, respectively.

Given the contributions and findings of this study, several avenues for future research emerge. Firstly, further exploration into the underlying causes of the identified gender disparity among top wage earners in Croatia is warranted. Understanding the structural or societal barriers that contribute to this gap could inform policies aimed at promoting gender equity in the labour market. Secondly, an investigation into the longitudinal trends of income distribution among top earners could offer insights into the stability of these patterns and their evolution over time. Such analysis would be particularly relevant in the context of economic fluctuations and policy changes. Lastly, comparative studies involving Croatia and other countries with similar economic structures or transition histories could elucidate the unique or shared factors influencing top earners' profiles, enriching the global discourse on income inequality.

By addressing these gaps, future research can build upon the foundation of this study, broadening the understanding of income disparities and contributing to the formulation of strategies aimed at fostering socio-economic equity.

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A scientific paper

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EDUCATION IN THE 21ST CENTURY: TRANSFORMATION OF LITERACY THROUGH THE DIMENSION OF ARTIFICIAL INTELLIGENCE

ABSTRACT

This paper explores the complex interplay between contemporary literacy and the role of artificial intelligence (AI) in primary education and considers the possibilities offered by AI.
The aim of this research is to examine the views of students of the Faculty of Educational Sciences of the University of Osijek on the use of AI in education, to determine the level of prior knowledge of the concept of AI in education.
Furthermore, the secondary goal of this research is to determine the willingness of future teachers to integrate technologies based on AI in their future teaching, and to determine whether there are differences in this between students of different modules (developmental, informatics and foreign language).
Conducted at the Faculty of Education, University of Osijek, the study involves the active participation of 160 students from all years of the Teacher Education program. The chosen methodology for data collection involves the use of surveys administered through Google online forms, providing a streamlined and efficient approach to gathering and analyzing research data.
This research has potential relevance for educational policies, as the information gathered through the research will allow decision makers to better understand the perspectives and needs of future teachers and to direct resources towards areas that could have the greatest impact on improving the quality of education. Likewise, the research and its results will enable further research on the role of AI at all levels of education.

Key words: *AI, education, modern literacy, teachers, students.*

1. Introduction

Artificial Intelligence (AI) is a branch of science and technology that creates intelligent machines and computer programs to perform various tasks that require human intelligence. AI has changed people's lifestyles, making them more productive through various applications, used in fields such as education, law, healthcare, security, and others, with its own advantages

and disadvantages. While AI brings many benefits, the increase in technology usage also brings certain drawbacks. The modern world relies successfully on AI and its applications, and AI will be a key factor in shaping the future, with future versions expected to have many more features than current ones (PK., 1984). AI is becoming a key factor in the educational system of the 21st century, given the rapid growth of AI, there's an urgent need to understand how educators can effectively utilize AI techniques for student academic success. This paper reviewed AI research in education from 2010 to 2020, identifying three dimensions of research: development, extraction, and application, along with four research trends. Challenges in AI education include technical aspects, teacher and student roles, and social ethical issues, serving as valuable references for educational researchers, students, and AI developers. Collaboration between educators and AI engineers is crucial to bridge the gap between technique and pedagogy. (Zhai et al., 2021), but the initial settings were set in the last century by anticipating that AI will enhance the effectiveness of the system itself and facilitate insights into human learning and teaching, as well as accelerate the emergence of new methods. (Woolf, 1991). As Lozano and Blanco Fontao point out (2023) in research, AI has revolutionized the ways in which we perceive, practice and develop literacy. The traditional understanding of literacy, as the skills of reading and writing, expands to a new dimension emphasized by Abdelghani et al. (2022), where AI deeply affects the interpretation, analysis and creation of information.

According to research by the authors Jauhiainen and Guerra (2023), AI changes the dynamics of education, enabling an expanded understanding of literacy through the integration of technological tools into the learning process. Pelaez et al. (2022) emphasize that AI not only encourages the development of new skills, but also transforms the ways in which students communicate and create content. Education has undergone a significant transformation, driven by the rapid advancement of AI technologies (Delanerolle et al., 2021). The integration of AI into education has generated considerable interest and debate, particularly regarding its impact on literacy acquisition, pedagogy, assessment, and educational equity (Holstein & Doroudi, 2022). As AI continues to permeate various aspects of our daily lives, its impact on education requires thorough research and analysis. Through the work of authors Dong et al. (2022), it is clearly pointed out that AI is becoming a key aspect of educational programs, providing an opportunity for personalized learning, data analysis in education, and autonomous educational systems. This transformation of literacy, they suggest, fosters critical thinking, problem solving, and creativity among students.

This paper will examine how AI is transforming literacy in contemporary education. Through the analysis of relevant sources and a survey among students, various aspects of this phenomenon will be explored. The goal is to investigate and understand the complexity of AI's impact on literacy and educational processes, looking at that impact, first of all, through the attitudes of future teachers.

The aim of this research is to examine the views of students of the Faculty of Educational Sciences of the University of Osijek on the use of AI in education, to determine the level of prior knowledge of the concept of AI in education.

Furthermore, the secondary goal of this research is to determine the willingness of future teachers to integrate technologies based on AI in their future teaching, and to determine whether there are differences in the aforementioned between the modules.

2. Review of relevant literature

A literature review on the use of AI in education provides extensive insight into various aspects of this topic. A number of studies highlight the potential of AI, especially through the

application of generative AI such as GPT-3, in education from an early age (Kartal, 2024; Abdelghani et al., 2022; Jauhiainen and Guerra, 2023)

Study by Abdelghani et al. (2022) focused on using GPT-3, an advanced AI model, to stimulate children's curiosity and encourage questioning. GPT-3 is used as part of pedagogical agents - digital tools or software systems that have a role to support learning and interaction with students. Through interaction with GPT-3, children are encouraged to ask questions. This interaction with AI acts as support for teachers or other educational resources. The idea is that through talking with AI, children develop their curiosity and questioning skills, which can be key to their cognitive development and learning. This kind of interaction with pedagogical agents encourages active learning through exploration and questioning, instead of just passively receiving information. This emphasizes the potential of technology to stimulate children's curiosity and develop their skills in the learning process. Lozano and Blanco Fontao (2023) analyze the perceptions of students and future teachers about the adaptation of the educational system to the increasing penetration of AI. Their research offers both student and teacher perspectives. Jauhiainen and Guerra (2023) provide an example of the use of generative AI and ChatGPT in teaching for children, providing evidence of the successful implementation of this technology in a school environment. Research by Pelaez et al. (2022) examined the key characteristics and attributes needed for learning through AI in primary and secondary schools. They have identified important traits that would be essential to developing what they call "Turing teachers". "Turing teachers" refers to the concept of AI that has the ability to adapt, interact and support students in a way that is similar to or even surpasses the abilities of human teachers. The identified attributes include things like adaptability to the learning of different students, the ability to adapt lessons to individual needs, effective interaction with students, and the ability to generate content adapted to different learning styles. This work helps identify key features that should be implemented in future educational technologies or systems to support learning through AI and create an environment that supports individual student needs in a way that is similar to or better than traditional teachers. Studies, such as those conducted by Greenwald et al. (2021), suggest that the majority of students have a positive attitude towards the use of technology in daily life. Their findings indicate that the acceptance of technology in society is increasing, and young people are becoming increasingly open to using new technological tools. Furthermore, Kuleto et al. (2022) analyze teachers' attitudes towards the potential of AI, which provides insight into the acceptance of this technology in the educational context. Dong et al. (2022) explore the application of AI in English multi-modal online reading (an approach that uses multiple different modalities, such as text, images, audio or video, to provide a richer reading experience, and refers to an approach that integrates more type of information or content to support different learning styles or provide deeper understanding) through a multi-criteria decision support system, highlighting the complexity of technology in supporting different forms of learning. Zhai et al. (2021) provides an overview of the application of AI in education from 2010 to 2020, which provides a broader context for progress and application. Kartal (2024) explored the impact of ChatGPT on the thinking skills and creativity of teachers and students through narrative inquiry. The study unveiled the advantages of collaborative creation between humans and computers and critical analysis in maximizing the educational benefits of ChatGPT. By fostering collaboration and critical thinking, AI tools like ChatGPT facilitate personalized learning experiences that promote student engagement and motivation in education. Pellas (2023) study adds to our understanding of how technology, particularly generative AI platforms, can improve writing skills and confidence in future educators. It emphasizes the potential of AI in educational contexts, suggesting opportunities for integrating technology to support student writing and narrative intelligence. Ali et al. (2019) discussed three AI education projects for primary and middle school students, focusing on

constructionism, ethics, and creativity. They expandined curricula for PopBots and AI and Ethics, while developing and evaluating new creative games in AI for creativity, aiming to transfer insights across projects. The author Fitria (2021) emphasizes the importance of the human factor in education for the development of character and social skills, while also highlighting the significance of adapting to technological advancements to avoid being replaced by them. Various advancements have occurred in artificial intelligence learning materials, ranging from print-based formats like Student Worksheets to technology-based ones such as Flash and E-Learning, necessitating computer access. Despite their effectiveness, these formats have limitations, as the complexity of AI content requires supplementary media for comprehensive understanding beyond visual design. Moreover, educational media should facilitate self-directed learning, exemplified by mobile learning, without temporal or spatial constraints (Syahrizal et al., 2024).
Along with Woolf's (1991) work "AI in Education" as fundamental research, these papers enrich the understanding of how AI changes and shapes education, highlighting various aspects of the application of this technology in learning and teaching.

3. Methodology and research issues

This study aims to investigate the attitudes and understanding of students regarding the use of AI in education. To achieve this, four hypotheses have been formulated.

The first hypothesis (H1) assumes that students have a positive attitude towards the use of AI in education.

The second hypothesis (H2) suggests that students are familiar with the concept of AI in education.

The third hypothesis (H3) predicts that students are willing to integrate AI-based technologies into their future teaching practices.

The fourth hypothesis (H4) is specific to students in module B, predicting that they will show a statistically significant readiness to integrate AI into education.
(*modules*: A - *developmental, B - informatics and C - foreign language)*

In order to examine students' attitudes and their understanding of AI in education, an anonymous survey was conducted via an online questionnaire. The survey was conducted using a Google online form for easier and quicker data collection. Anonymity of the survey ensured openness and honesty in respondents' answers. The survey was attended by 160 respondents at the Faculty of Education, University of Osijek, with a sample comprising students from all years of the Teacher Education program. Research was conducted in March, 2024. The selection of students from different academic years ensured diversity in the sample and provided a broader perspective on attitudes and understanding of AI in education. Although the question of gender is important in such surveys, in our case it was omitted because the number of male students was negligible, therefore this question was omitted from the survey questionnaire. Questions asked in the questionnaire are:
Your year of study at teacher training college? Select a module. A/B/C I grew up in: rural/urban area. Self-assessment questions: I can use the computer and its tools independently. I quickly and easily master new things in the world of technology. I believe that the development of technology makes everyday life easier. I believe that the availability

of technology leads to the loss of basic knowledge (eg calculations). I am familiar with the possibilities offered by artificial intelligence. I use the possibilities provided by artificial intelligence for the purpose of studying. How familiar are you with the concept of artificial intelligence? Artificial intelligence has the potential to improve the individualization of teaching. The integration of artificial intelligence in education contributes to more efficient monitoring of student progress. The rapid evolution of technology makes the teaching profession less relevant. Artificial intelligence can help develop new forms of interaction between teachers and students. The loss of the human touch in teaching is a major concern when integrating artificial intelligence into the educational process. How open are you to adopting AI-based technologies in your future work as a teacher? How open are you to using new methods and tools in teaching? The detailed structure of the respondents is shown in table 1. Given that the questions in the questionnaire are based on the Likert type, which can be analyzed by parametric or non-parametric analysis methods, the answers to the questions were additionally tested for the criterion of normality, which is one of the conditions for the application of parametric analysis. Based on the Shapiro-Willks test, we determined that the normal distribution criterion was not met (all variables were $p < 0.001$), and therefore non-parametric statistical methods were applied. The frequency distribution and median were calculated and the chi-square test was calculated.

In order to determine the significance relationships between categorical variables after a significant chi-square test, a post hoc analysis was made based on adjusted residuals with Bonfferoni correction (Shan & Gerstenberger, 2017).

Table 1: Description of the structure of respondents (N=160)

Variables		Absolute frequencies (numerical)	Relative frequencies (percentage)
Year of study	1.	44	27.5
	2.	32	20
	3.	30	18.75
	4.	28	17.5
	5.	26	16.25
Module	A	60	37.5
	B	60	37.5
	C	40	25
The middle of growing up	Urban	64	40
	Rural	96	60

Source: Authors

Structure of respondents

The structure of the respondents included students from all 5 years of teacher studies, from 3 modules and 2 environments. Although the question of gender is important in such surveys, in our case it was omitted because the number of male students was negligible, so that question was omitted from the survey questionnaire. The detailed structure of the respondents is shown in Table 1.

Methods used

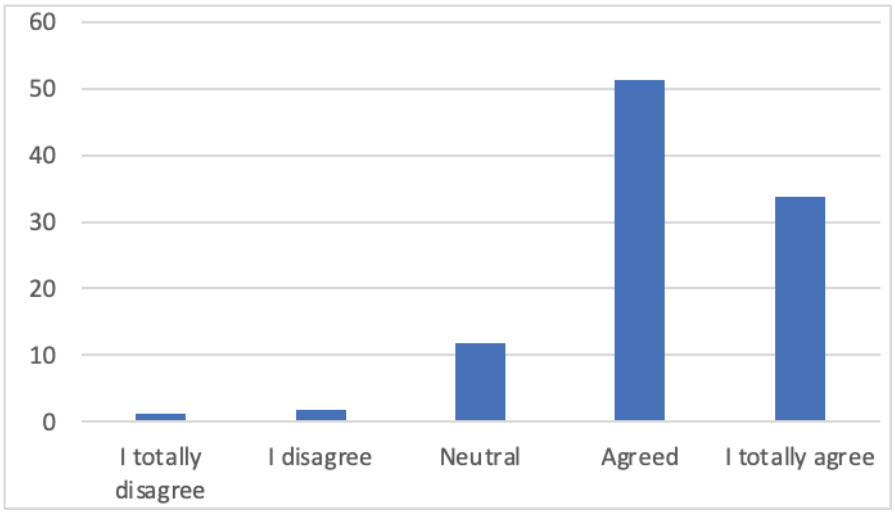
Given that the questions in the questionnaire are based on the Likert type, which can be analyzed using parametric or non-parametric analysis methods, the answers to the questions

were additionally tested for the criterion of normality, which is one of the conditions for the application of parametric analysis. Based on the Shapiro - Willks test, we determined that the criterion of normal distribution was not met (for all variables $p < 0.001$), and therefore non-parametric statistics methods were applied. The frequency distribution and median were calculated and the chi-square test was calculated, as well as a post- hoc test based on adjusted standardized residuals and their significance with Bonfferoni correction.

4. Results and discussion

Based on the answer to the question "do you think that the development of technology makes everyday life easier" (Graph 1), we can conclude that the median answer is "Agreed". It suggests a widespread acknowledgment of technology's capacity to streamline tasks and improve overall convenience, further supporting the notion of technological advancement as a facilitator of ease and efficiency in everyday activities. If we combined the positive answers "Agreed" and "I totally agree", a total of 85% of the respondents would answer positively and thus confirm the first hypothesis "Students have a positive attitude towards the use of AI in education", i.e. we confirm hypothesis H1.

Graph 1: The development of technology makes everyday life easier

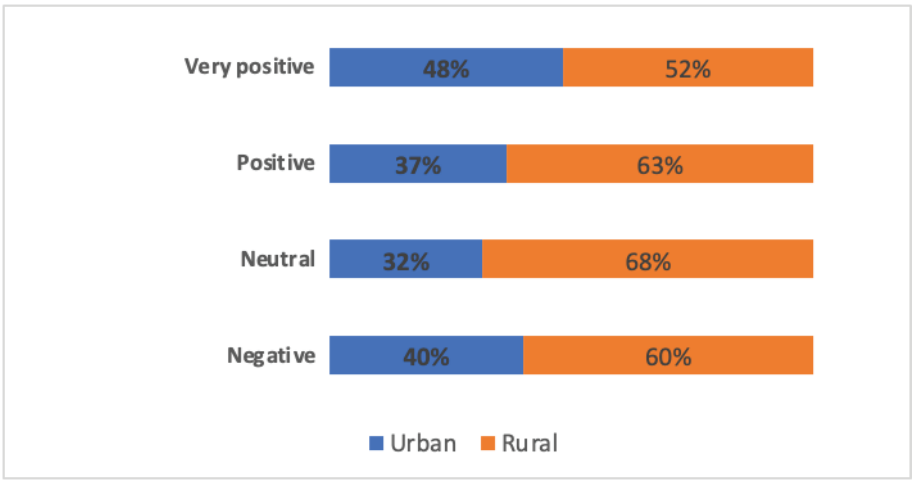


Source: Authors

In order to create a clearer idea of each segment of the attitude towards the use of technology in everyday life, a contingent table was made with the characteristics of the respondents. The chi-square test was used to prove the non-existence of statistically significant differences in attitude and place of growing up and choice of study direction. Due to the small number of respondents with the attitude "totally disagree" and "disagree", we combined these two categories into one new category "negative attitude" (Graph 2).

Comparing the attitudes that technology makes everyday life easier according to the variable "place of growing up", based on the absence of significance $p>0.05$, the null hypothesis was not rejected, i.e. we confirm that there are no differences in attitudes between students from rural and urban areas, and we can fully assert that attitudes about the influence of technology development in everyday life are not related to the place of growing up, which is a common prejudice. We can only single out a slightly higher share of neutrally determined respondents from the rural part, but the difference is not statistically justified.

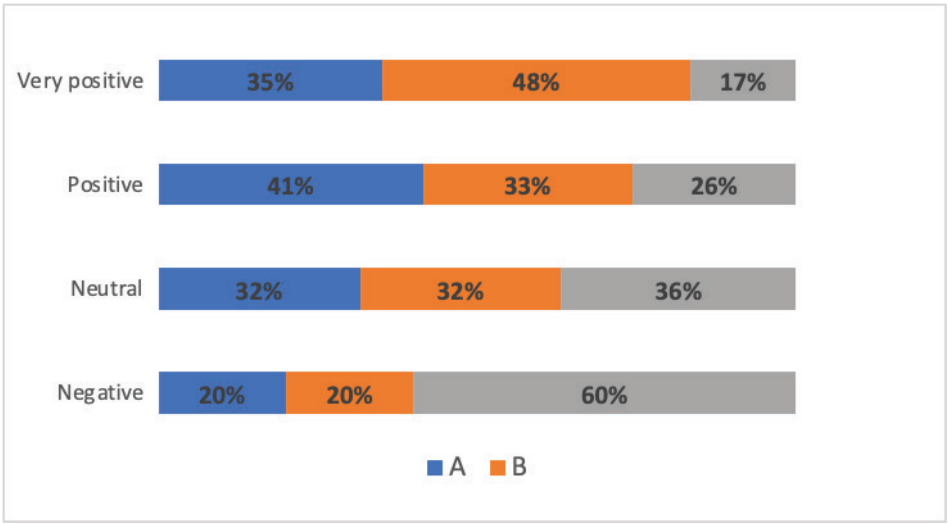
Graph 2: Attitudes about the development of technology and the facilitation of everyday life according to the place of growing up ($\chi 2 = 2.45$, significance = 0.483)



Source: Authors

No justified differences were found in attitudes about the development of technology and its impact on everyday life according to the enrolled module, and we can safely claim that the observed attitudes are not different from the expected ones and that we did not reject the null hypothesis. It is interesting to note that the proportion of respondents with a negative attitude increases in module C, i.e. among students who enrolled in the language module, while the opposite is true in module B who attend the IT module, which was to be expected (Graph 3).

Graph 3: Attitudes about the development of technology and the facilitation of everyday life according to the enrolled modules ($\chi 2 = 8.711$, significance = 0.1905)

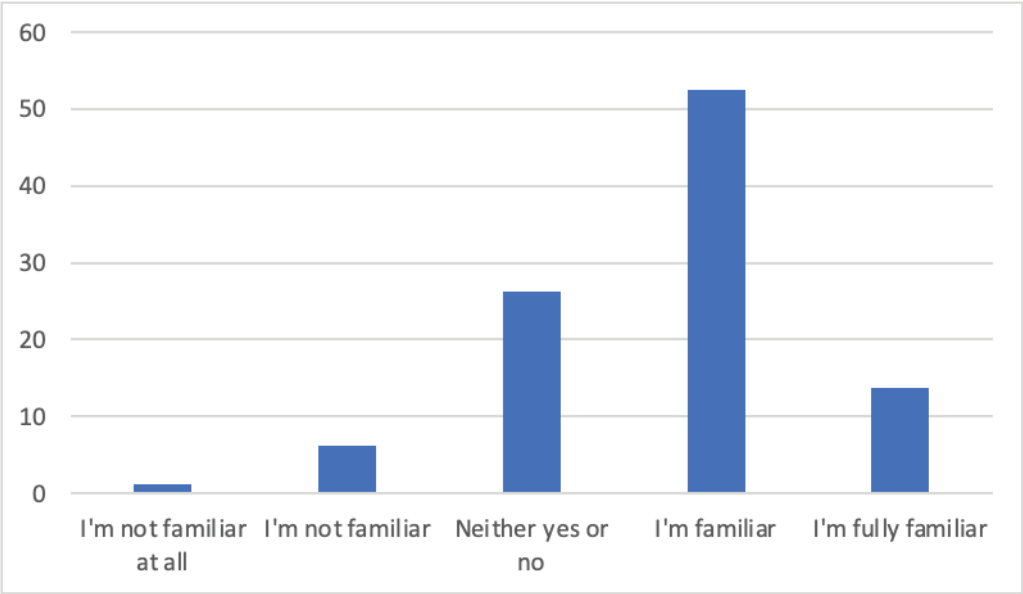


Source: Authors

When introducing new technologies, it is important to assess the state of familiarity with newspapers, and especially with AI. Based on the answer to the question "How familiar are you with the concept of AI?" we can gain an insight into the familiarity of the students. The studied population of students had a median answer of "neither I am nor not familiar", while they were quartiles were "neither yes or no" and "I am familiar". If we took the two positive

categories "I am familiar" and "I am fully familiar" we would get a total of 36.25% of the surveyed students, which is less than 50%. Based on the positive answers, we can conclude that students are not familiar with the concept of AI, and we must reject the assumed hypothesis that students are familiar with the concept of AI in education (Graph 4).

Graph 4: How familiar were you with the concept of AI?

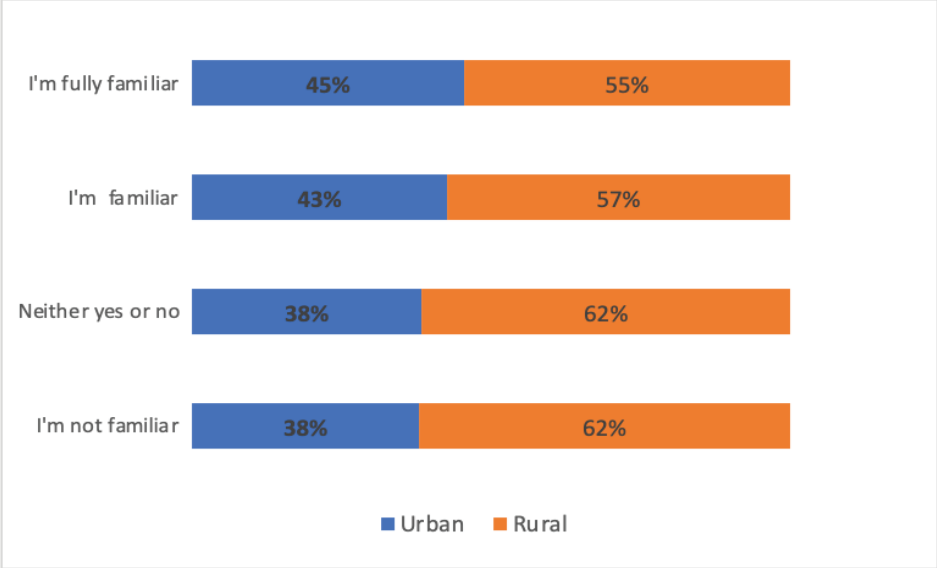


Source: Authors

In order to create a clearer idea of each segment of familiarity with the concept of AI in education, a contingent table was created based on the place of growing up and enrollment module. The chi-square test was used to prove the absence of statistically significant differences between the attitude and the place of growing up or choosing the direction of study. Due to the small number of respondents with the attitude "I am not familiar at all" and "I am not familiar", we combined those two categories into one new category "I am not familiar" (Graph 5).

Comparing attitudes towards the variable "place of upbringing", the null hypothesis was not rejected, i.e. we confirm that there are no differences in familiarity between students coming from rural and urban areas, and we can fully assert that familiarity with the concept of AI in education is not related to place growing up, which is a common prejudice. We can only single out that there is a slightly higher proportion of students who are not familiar with the concept, and they come from rural areas, but the difference is not statistically justified.

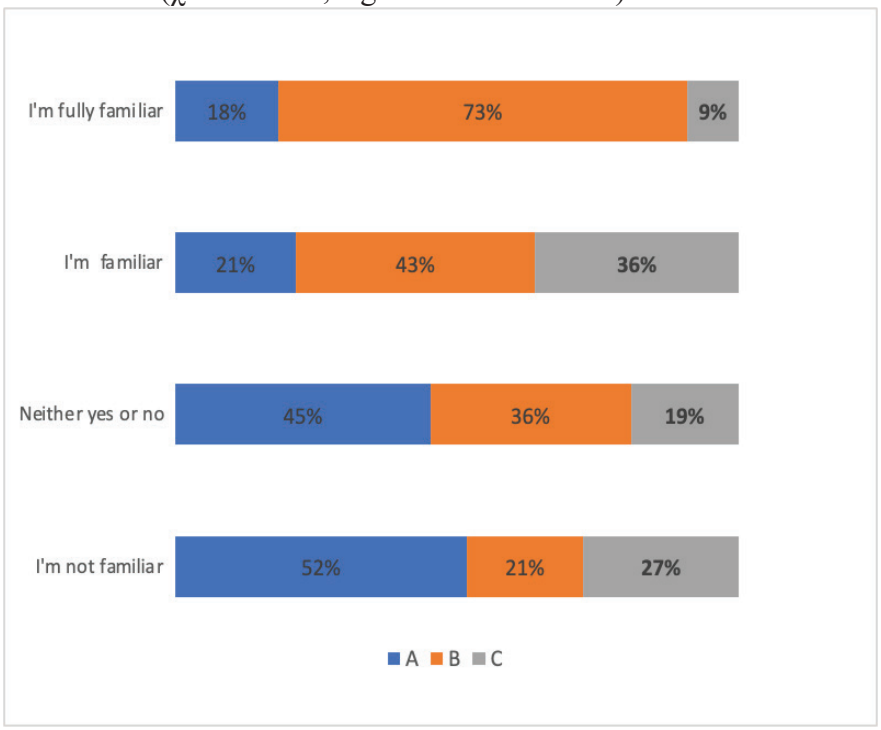
Graph 5: Attitudes about familiarity with the concept of AI by place of upbringing ($\chi 2$ = 0.398, significance = 0.9407)



Source: Authors

A statistically significant difference ($p < 0.01$) is found in the variable representing "enrolled modules" and we can reject the null hypothesis of no differences between students enrolled in modules and determine that students of different modules are not equally familiar with the concept of AI in education. Based on graph 6, we confirm with certainty that in module A there was a larger share of students than expected who were not familiar. As was to be expected, significantly more than the expected number of students was “fully familiar” with the concept of AI in education within module B, which is to be expected because they also enrolled in the IT module. We found that module C students were statistically justified to be less "fully familiar" with the concept of AI in education than the expected number. Therefore, it can be argued that students of modules A and C have negative prejudices towards the concept of AI in education.

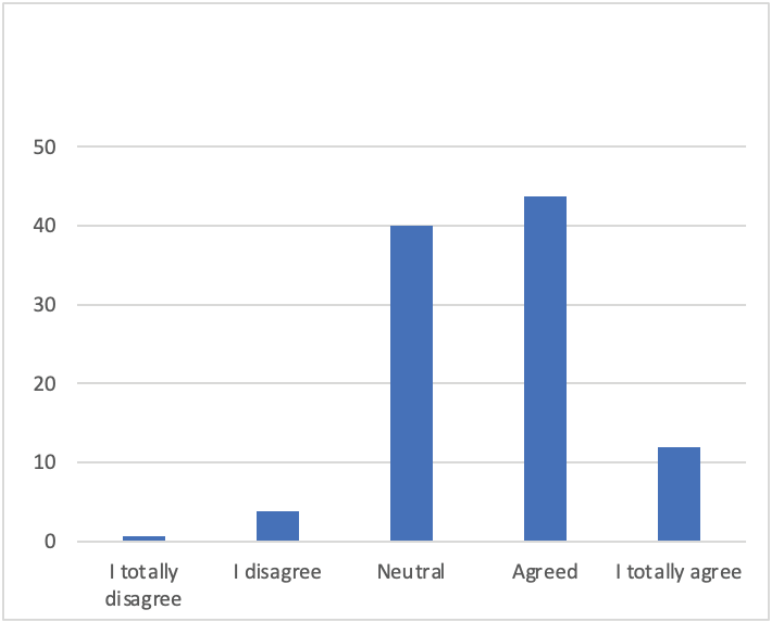
Graph 6: Attitudes about familiarity with the concept of AI according to enrolled modules ($\chi 2 = 17.855$, significance = 0.0066)



Source: Authors

On the basis of graph 7, it can be seen that students mostly "agreed" with the statement that they are open to the adoption of technologies based on AI in their future work, but the percentage of those who "totally agree" and "agreed" is also quite high (55,63%). This result indicates that students are ready to integrate technologies based on AI in their future teaching, confirming the assumed hypothesis. This data justifies the median, which is "agreed", while the largest number of respondents, 50% of them, answered "neutral" and "agreed".

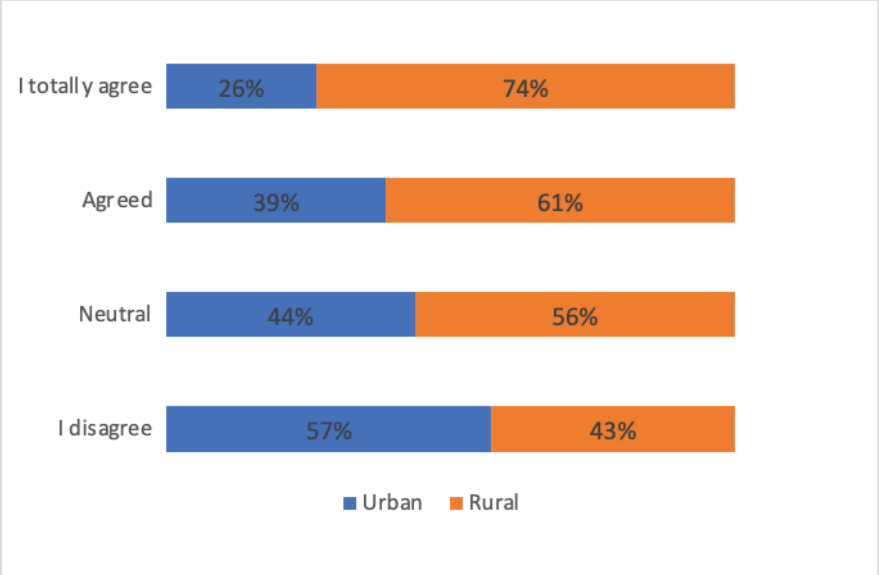
Graph 7: Attitudes and openness to adoption technology based on AI in the future work as teacher



Source: Authors

Graph 8 shows attitudes related to the adoption of technology based on AI in future work in relation to the place of upbringing. From the graph, it can be seen that the number of respondents, i.e. students from urban areas, is increasing with negative attitudes, while the opposite is true for students from rural areas, i.e. the number of students from rural areas has positive attitudes about the introduction of technology based on AI in future work in class. In accordance with the above, it is valid that the empirical value of the chi-square is smaller than the tabular value of the chi-square test (7.82), which means that with a significance of 5 percent, we can accept the initial assumption that there is no connection between the place of upbringing of students at the observed faculty and the adoption of technologies for future work. Therefore, there is no statistically significant dependence and we accept the null hypothesis that all students belong to the same group.

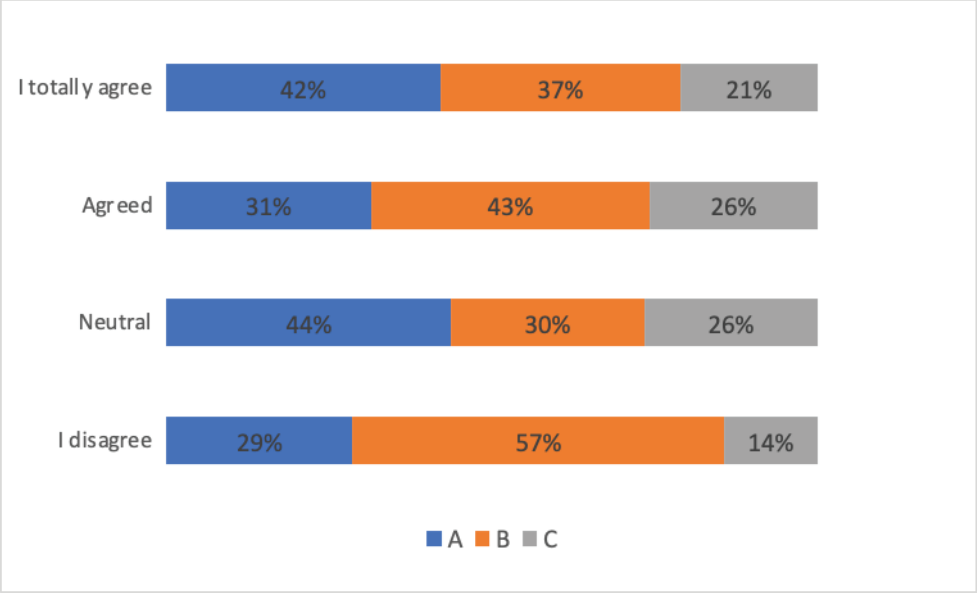
Graph 8: Adoption of technologies based on AI in future work by place of upbringing ($\chi 2$ = 2.774, signif. = 0.4278)



Source: Authors

The non-parametric chi-square analysis did not establish a connection between the adoption of technologies based on AI according to the enrolled modules, i.e. no statistically significant differences were established, so it can be concluded that the level of attitude about the adoption of technologies is not related to the type of enrolled module, i.e. the null hypothesis was not rejected (Graph 9).

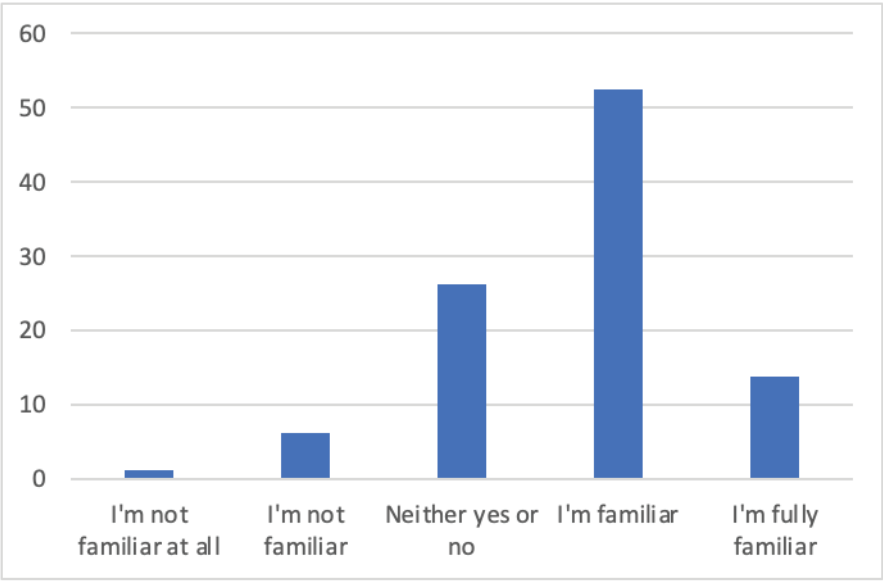
Graph 9: Adoption of technologies based on AI in future work according to enrolled modules ($\chi 2 = 4.427$ signif. = 0.619)



Source: Authors

Familiarity with the possibilities offered by AI confirms that students are familiar with the concept of AI. Based on the answer to the question, we can conclude that the median answer of the surveyed student population is "agreed". The largest number of students, 52.5% of them, agree that they are familiar with the possibilities offered by AI. For the sake of a deeper analysis and to gain a better insight into these attitudes, a chi-square test was made to determine whether the students of the B module, that is, of the IT major, are better and more significantly prepared for the integration of AI in education. Due to the small number of respondents with the attitude "I am not familiar al all" and "I am not familiar", we added a new category "I am not familiar", while the categories "I am fully familiar" and "I am familiar" were combined into one variable "I am familiar" (Graph 10.).

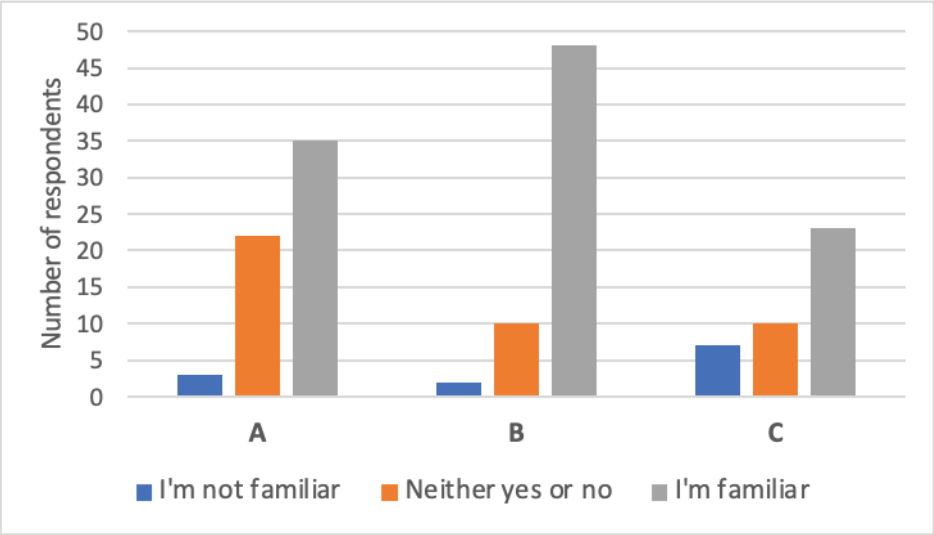
Graph 10: Attitudes about familiarity with the possibilities offered by AI



Source: Authors

A statistically significant difference is found in the variable representing "enrolled modules" (signif. < 0.01), and we can reject the null hypothesis that there are no differences between students enrolled in modules in familiarity with AI. In order to determine more precisely which module influenced the differences achieved, a post hoc test was performed based on the adjusted residual values and the corrected Bonfferoni test, which was p=0.00556 < 0.01. Based on the residuals, we determined that the students of module C were statistically less familiar with the possibilities of AI in education than the expected number. Therefore, it can be argued that language module C students have a negative attitude towards familiarity with the possibilities of AI. Graph 6 shows that members of that module are most represented in the segment of negative familiarity, while their share is significantly smaller in the segment of very positive familiarity. What is surprising and acts as a warning is that there is a significantly higher than expected representation of students of the basic A module, at the significance level of p=0.10. Students of the informatics module are the most represented group in familiarity with the possibilities of AI and had statistically justified (p=0.004380 < 0.00556) more than expected in the category of familiarity with the possibilities of AI in education. Since students of module B were justifiably more familiar with the possibilities, we confirm the assumed hypothesis H4: students of module B will show a statistically significant willingness to integrate AI in education (Graph 11).

Graph 11: Familiarity with the possibilities offered by AI according to enrolled modules ($\chi 2$ = 14.568, significance = 0.0057)



Source: Authors

The use of a combination of quantitative methods enabled a deeper understanding of students' attitudes and readiness for using AI in education and provided valuable insights for further research and practice development.

5. Conclusion

The study shed light on students' perspectives regarding the integration of AI in education. It revealed a prevailing positive sentiment among students towards the use of AI, with many acknowledging the role of technology, including AI, in simplifying daily life. This positive attitude suggests a general openness among students towards embracing technological advancements in educational settings. However, the study also uncovered varying levels of

familiarity with AI concepts among students. A notable proportion admitted to having limited prior knowledge of AI before the research. This finding underscores the importance of educational institutions and programs in bridging the knowledge gap and raising awareness about AI and its potential applications in education. Despite the disparities in familiarity, students expressed a willingness to incorporate AI-based technologies into their future teaching practices. This indicates a recognition among students of the potential benefits AI can offer in enhancing the learning experience and improving educational outcomes. It also reflects a proactive attitude towards adapting to technological advancements in the field of education. Interestingly, the study identified significant differences in familiarity and attitudes towards AI among students enrolled in different modules. Those in informatics-related modules demonstrated higher levels of familiarity and more positive attitudes towards AI compared to their peers in others. This highlights the influence of academic specialization on students' perceptions and readiness for AI integration in education. Overall, the findings underscore the importance of addressing the knowledge gap and fostering a positive attitude towards AI among students, regardless of their academic background. Integrating AI-related content into teacher education curricula is essential to AI future educators with the necessary knowledge and skills to effectively leverage AI in their teaching practices. Moreover, continued research and educational initiatives are crucial for promoting the responsible and ethical use of AI in education, ultimately benefiting both students and teachers alike.

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A scientific paper

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IMPLICATIONS OF COUNTRY-OF-ORIGIN FOR INTERNATIONAL BUSINESS IN WARTIME CONDITIONS

ABSTRACT

Successful engagement in the international market necessitates a well-conceived international marketing strategy. To thrive in the international market, enterprises must scrutinize consumer habits and preferences, enabling them to adapt products and advertising to the international market and implement successful integrated marketing communication. The research topic explores the influence of the brand's country-of-origin on consumer perceptions of brand quality and how the invasion of Russia into Ukraine affects the operations of Lukoil Croatia Ltd. The research aim is to examine how the country-of-origin affects consumers and their purchasing decisions, analysing the impact of brand strength in a war situation. Systematic observation of secondary data sources, including relevant scientific literature, is conducted to achieve the research aim. Empirical research is conducted to provide primary data on consumer perception relevant to the research topic, and descriptive statistics is applied to present research findings. The research methodology involved a comprehensive survey administered to a representative sample of Croatian consumers. The survey aimed to assess consumer perceptions of product quality, attitudes toward the Russia-Ukraine conflict, and the potential impact on their preferences for Lukoil Croatia products. In line with the objectives of primary research, the following hypotheses have been formulated: The country-of-origin significantly influences consumer perceptions of brand quality (H1), and the invasion of Russia into Ukraine will not impact the operations of the multinational company Lukoil Croatia Ltd (H2). This research contributes to the understanding of the interplay between country-of-origin, consumer attitudes, and business operations in the context of the Russia-Ukraine conflict. The findings emphasize the need for businesses to carefully navigate geopolitical challenges and underscore the resilience of Lukoil Croatia Ltd in maintaining its market position despite external socio-political factors. Further research is recommended to explore additional dimensions of consumer behaviour in response to geopolitical events and their implications for multinational corporations.

Key words: *brand, integrated marketing communication, Lukoil, international marketing, country-of-origin.*

1. Introduction

The global marketplace presents a dynamic landscape for enterprises seeking expansion beyond their domestic boundaries. Enterprises, having optimized their production capacities within the confines of their domestic markets, often contemplate venturing into the international market to sustain growth, foster development, and secure a competitive edge. However, such endeavours necessitate a meticulous approach to international marketing strategies and formulating a comprehensive marketing mix. These essential components are necessary for the successful integration of companies into the international market to be attainable. Key to the successful navigation of international markets is the acquisition and analysis of pertinent information concerning the specific environments of target countries. In this regard, enterprises must undertake thorough assessments to discern the intricacies of their prospective markets.

Moreover, implementing integrated marketing communication (IMC) strategies emerges as a critical factor in enabling effective communication with internal stakeholders and external market actors. Central to the discourse of international marketing is the enduring inquiry into the influence of a product's country-of-origin on consumer attitudes and preferences. Scientists and marketing experts alike have long delved into this domain, seeking to unravel the complexities of how the origin of a product shapes consumers' perceptions and purchasing decisions. Within this context, this paper focuses on exploring the impact of the country-of-origin on consumer attitudes, with empirical research serving as the primary methodological approach. In particular, this study directs its attention to the repercussions of Russia's invasion of Ukraine on the business operations of Lukoil Croatia Ltd, a subsidiary of the renowned global conglomerate Lukoil. By examining the interplay between geopolitical situations and consumer preferences, this research sheds light on the intricate dynamics shaping international business environments and consumer behaviours.

1.1. Literature review

Understanding international marketing is important for companies embarking on conquering international markets, as companies without well-executed and planned international marketing cannot sustain and/or succeed. Grbac (2009) defines international marketing as "the process of creating and exchanging value between business entities and their customers in international markets." Grbac (2009) also emphasizes the importance of international marketing for successful business operations in international markets by stating that "international trade cannot successfully take place without international marketing, which is influenced by the rules and specifics of international trade." Thus, for companies to thrive in international markets, they must have a well-developed marketing mix in the target market known as the 4Ps (product, price, place, promotion). The main focus is on the product, which is also the first element of the marketing mix, with the other elements being tailored to the product. Kotler et al. (2014) define a product as "anything that can be offered in the market to satisfy a want or need, including physical goods, services, experiences, events, people, places, properties, organizations, information, and ideas." Companies can choose to conquer international markets with standardized products that require more promotion and are intended for a broad consumer group or customized products that do not require high promotion costs because their recognizability is built on differentiation and product characteristics, thus commanding a higher price than standardized products. Price is the only element of the marketing mix that brings profit to the company, while the other elements incur costs. According to Vranešević (2008), pricing represents a broad concept aimed at

quantifying the value of a product in monetary terms. The same author (Vranešević, 2008) states that managing prices is a complex task as it involves determining the value of a product that will be acknowledged and embraced by both suppliers and consumers. Determining the price for a company can be very challenging; the price of a product must be profitable and accepted by consumers simultaneously. The characteristic of the price is that the decision to change the price can be realized very quickly and adapted to the market conditions. Distribution as an element of the marketing mix is essential because, without well-developed distribution channels, companies could not place their products in targeted markets and present them to consumers promptly. Companies use promotion to introduce their products to potential consumers, create product awareness in consumers' minds, influence purchasing decisions, and generate profits. Vranešević (2008) explains that promotion encompasses communication between a company and its clients or the general public. Its main objective is to inform, persuade, and ultimately impact customer decisions.

Successful business operations and development in international markets are influenced by well-developed strategic management; companies need to explore the economic, political, socio-cultural, legal and state environments and communication-technological environments. Companies without strategic management cannot properly assess the target market and, therefore, cannot make the correct decisions regarding product placement. For companies to successfully operate in international markets, their job does not stop with placing their products on the international market; companies must raise awareness among potential consumers about their products. Companies must position their products in consumers' minds to achieve sales goals and strengthen the brand. To succeed in this, companies use an adapted promotional mix (advertising, sales promotion, personal selling, publicity, and public relations) for the target market. In modern times, the Internet offers companies numerous opportunities such as presenting products, building company image, creating a recognizable brand, selling products, and getting acquainted with the target market.

The perception of a brand, and therefore the creation of the product's price, can also be influenced by the country-of-origin. The country-of-origin can give additional value to the brand or reduce it from its real value, depending on whether products from a certain country are recognized as quality or non-quality. A developed brand is a precious part of a company's intangible assets, and constructing a recognizable brand is lengthy. According to various authors (Gregorić & Skendrović, 2012; Keller, 2016; Johnson & Grunert, 2018; Chernev & Blair, 2019), a brand is the result of a trademark's impact, which resonates in consumers' minds through meticulous management, effective promotion, and widespread utilization, capturing their attention and evoking both tangible and intangible attributes. Every brand consists of elements (name, logo, slogan, etc.), and each element is important for creating recognizability. The brand's market value increases with its recognizability, and its country-of-origin also influences its value. According to Kotler and Kotler (2015), "measuring brand market value and managing it today is one of the main marketing activities of companies". A company that has built a brand becomes more competitive and contributes to better company operations by creating higher prices, a base of loyal customers, and easier entry into new markets. The product's country-of-origin also contributes to all of the above. Grbac (2007) states, "the country-of-origin as a product characteristic indicates the country in which the product is produced". The country-of-origin can positively or negatively affect consumers' perception of the brand. For example, Germany is synonymous with quality, France with fashion and art, Italy with design, and China with cheap and non-quality goods. Countries have also become aware of this trend and have decided to invest money to manage the image more effectively. Krajnović et al. (2015) state, "the impact of the country-of-origin on the

buyer's perception of the product has been extensively researched since Ernest Dichter commented that the phrase "Made in..." can have a great influence on the acceptance of the product." Evidence of the power of the "Made in…" label can be seen from the example of China, which, to avoid negative associations with their products, instead of "Made in China," labelled them "Made in PRC," which is an abbreviation for the People's Republic of China. A positive image of the country-of-origin gives additional value to products, providing consumers with confidence in the quality of the product. Therefore, the country's image is an important part of the international business process, and marketing communication strategies are shaped and applied according to the country's image. A positive image of a country allows the company to build a competitive advantage during business internationalization (e.g., Swiss watches, Italian fashion, German cars, etc). The market value of a brand and the country-of-origin are connected by the fact that in the minds of consumers, there are sets of associations related to the brand's country-of-origin. Therefore, the consumer creates a positive or negative image of the brand (Smith & Brown, 2018; Lee & Lee, 2019; Došen et al., 2003; Wang & Kim, 2020).

The country-of-origin is pivotal in brand creation and consumer perception. It serves as a potent tool for enhancing the market value of brands, particularly benefiting those from developed countries, while potentially diminishing the perceived value of brands originating from less-developed regions. In light of the pervasive process of globalization, marketing experts endeavour to penetrate the "black box" of consumer behaviour to better position products in the market. Research indicates that the country-of-origin of a product can sway consumers' purchasing decisions. Consumers may form perceptions of a product's quality or lack thereof based solely on its country-of-origin, even without prior experience with the product. The country-of-origin can signify quality and safety to consumers, thereby influencing their purchasing decisions.

Consequently, the country-of-origin can either enhance or diminish the perceived value of a product, thereby impacting its market positioning and consumer appeal (Nanić, 2015; Eisenmann & Kupfer, 2018; Rodrigues & Rosário, 2019). The concept of a brand is widely recognized in contemporary discourse. For some, a brand represents a product; for others, it embodies an image or recognizability. Both interpretations hold merit. Companies utilize brand elements to differentiate their products from similar offerings in the market. A well-established brand constitutes a valuable intangible asset for companies, and building a recognizable brand is a lengthy process.

Simply put, a brand can be defined as a "name, term, symbol, or design, or a combination of these, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors" (Kotler and Kotler, 2015:144) or as "a mark that customers use to distinguish one product from another and commonly use to assess quality during purchase" (Krajnović et al., 2015:88). A brand is also defined as "a name, phrase, symbol, design, or a combination thereof, intended to identify goods or services of a seller and to make them distinguishable" (Grbac, 2009:252). Moreover, a brand can be understood as "the effect of a trade mark which, through careful management, successful promotion, and extensive use, penetrates consumer minds to draw attention and create tangible and intangible attributes" (Gregorić and Skendrović, 2012). It is essential to distinguish between brand name, brand mark, and trademark. The brand name is the title which consumers can refer to a brand (e.g., Puma, Coca-Cola, Milka, Škoda). The brand mark is typically a symbol or graphic representation that makes the brand recognizable in the market. For instance, Puma's sports apparel and footwear are recognized by its puma symbol, while Adidas is identified by its

distinctive three stripes prominently featured on its products. To safeguard their distinct brands, companies register trademarks, granting exclusive rights to use the registered mark on their products. Trademarks protect both the products and the consumers. Established brands offer several advantages to companies. They enhance competitiveness, foster brand loyalty, differentiate products from competitors, increase overall company value, and allow for higher pricing due to perceived quality, leading to increased profitability.

Additionally, companies with established brands find it easier to penetrate distribution channels, facilitating the introduction of new products (Kotler and Kotler, 2015). International expansion is inevitable for brands seeking further growth and development, maintaining a competitive edge in economies of scale and productivity. In today's globalized world, companies aspire to globalize their brands. Global branding strategy can be described as an approach where companies advertise their products globally with limited adaptations to local markets (Krajnović et al., 2015:90).

Customers in the international market assess products based on various attributes, among which the country-of-origin holds significant importance. As previously mentioned, the country-of-origin is a crucial characteristic that contributes to establishing a brand's market value. The country-of-origin can positively or negatively influence the market value of a product, depending on its image. The country-of-origin, defined as "an attribute indicating the state where the product is manufactured", notably affects consumers' perception of the product. Certain stereotypes associated with a country can positively or negatively impact the success of a product (Grbac, 2007:257).

The country of brand origin refers to the place where a product is produced and originates, while the country's image influences consumers' perceptions and attitudes toward the product. Therefore, the country-of-origin significantly shapes consumers' perceptions of product quality, leading to their purchasing decisions. However, with the globalization trend prompting companies to relocate production to countries with lower manufacturing costs, the significance of the country-of-origin is diminishing.

Consequently, the country of brand origin is gaining prominence, as consumers attach greater importance to it than to the country of production. This shift underscores how the country of brand origin influences consumer perceptions and purchase decisions, as it is associated with the brand's image, while the country of production is linked to the product's manufacturing aspect. Nevertheless, the country-of-origin continues to impact consumer behaviour and perceptions of quality. For example, a study by Ivanović and Arnaut (2022) on Toyota automobiles uncovered a decrease in demand for cars made outside of the country where they were designed, namely Japan. Thus, a positive country image adds value to products and instils consumer confidence in their quality. Therefore, the country's image is crucial to international business expansion, shaping marketing communication strategies and contributing to competitive advantage.

The market value of a brand and the country-of-origin are intertwined, with consumers forming associations with the country of brand origin that influence their perception of the brand. Brands constitute intangible assets for companies, with a well-established brand adding value, recognition, and reducing advertising costs while ensuring higher sales. The consumer's perception of the product's quality and value, and their purchasing decision, are influenced by their attitude toward the country-of-origin. The connection between brand country-of-origin and brand market value manifests in three ways.

The first approach considers the process of aggregate brand country-of-origin (Pappu et al., 2007; Rosenbloom & Haefner, 2009). The second is the cognitive approach to brand market value (Keller, 1993; Samiee, Shimp & Sharma, 2005), while the third constructs a new theoretical framework of brand market value in assessing the market value of the country-of-origin (Zeugner-Roth et al., 2008; Rajh, 2019:521).

1.2. The subject of the paper and development of the hypotheses

The focus of this study encompasses the realms of international marketing, integrated marketing communication, the influence of country-of-origin on consumer attitudes, and the repercussions of Russia's invasion of Ukraine on the operational dynamics of Lukoil Croatia Ltd. The overarching objective of this paper is to delve into the intricacies of international marketing through a scientific literature, examining the impact of integrated marketing communication on brand establishment and scrutinizing the influence of country-of-origin on consumer brand perception. Through empirical inquiry, facilitated by a structured survey questionnaire, the study aims to dissect the effects of country-of-origin on consumer attitudes, as well as to assess the ramifications of Russia's invasion into Ukraine on the business operations of Lukoil Croatia Ltd.

Aligned with the research objectives, two hypotheses have been formulated:
H1: The country-of-origin significantly influences consumer perceptions of brand quality.
H2: The invasion of Russia into Ukraine will not impact the operations of the multinational company Lukoil Croatia Ltd.

2. Research Methodology

The research methodology involves a dual approach: theoretical exploration of the domains above and primary investigation utilizing a survey instrument tailored to elicit consumer perceptions and sentiments regarding the brand, its origin, and the operational activities of Lukoil Croatia Ltd. Focusing on the defined research subject encompassing the influence of brand country-of-origin and international marketing on consumer attitudes, a combination of historical method, analysis, synthesis, comparison and description methods, along with survey methodology, has been employed. The theoretical framework of this research is based on available secondary sources of information from the company's official website and scientific literature. Utilizing the historical method, scientific literature authored by domestic and foreign experts contributing to the understanding of international marketing and the evolution of its multidimensional nature, has been examined. Through the analysis method, international marketing, integrated marketing communication, and the significance of brand country-of-origin in international marketing have been delineated. The synthesis method has facilitated a deeper comprehension of international marketing and its implications for companies seeking entry into the global market. The descriptive research has elucidated how international marketing impacts business operations, while the comparative method has facilitated conclusions regarding actions companies can undertake to successfully integrate into international markets. Additionally, primary research was conducted using a survey questionnaire. The primary research involved voluntary participants (N=164), comprising 96 females and 68 males. The survey questionnaire, containing 17 questions, utilized closed-ended and semantic differential scale questions to explore participant attitudes. The questionnaire was administered anonymously to voluntary participants expressing their views

on the impact of brand's country-of-origin and Russia's invasion of Ukraine on the operations of Lukoil Croatia Ltd.
Furthermore, the research methodology involves the synthesis, analysis, and description methods. To ensure the reliability of findings, the Cronbach Alpha coefficient was computed using SPSS software. The survey was conducted using Google Forms from May to June 2022, disseminated through social media platforms (Viber, Facebook, WhatsApp), and email invitations to participate in the anonymous research.

3. The Impact of Russia's Invasion of Ukraine on Lukoil Corporation's Operations

As the second-largest Russian oil company, Lukoil is under intense scrutiny from its business partners and consumers due to Russia's invasion of Ukraine. As a result of the ongoing situation, Lukoil faces significant challenges. Traders across the countries where they operate are avoiding Russian crude oil due to potential sanctions. Before the war, Lukoil held a strong market position in the EU, owning three large refineries in Italy, Bulgaria, and Romania, as well as a 45 percent stake in another refinery in the Netherlands, along with hundreds of gas stations stretching from Romania to Belgium. However, the European prospects for the Lukoil company are increasingly jeopardized as sanctions against Russian crude oil and petroleum products come into effect, while suspicions surrounding all dealings associated with Moscow continue to mount. The Lukoil board of directors issued a public statement regarding Lukoil's stance on the Russian invasion of Ukraine, expressing sincere sympathy for all victims affected by the tragedy. They strongly support a permanent ceasefire and the resolution of the conflict through serious negotiations and diplomacy (https://www.lukoil.com/PressCenter/Pressreleases/Pressrelease/statement-of-lukoil-board-of-directors). Lukoil is the first Russian company to publicly oppose the war in Ukraine. In summary, Russia's invasion of Ukraine could significantly affect Lukoil's business operations, leading to international sanctions and calls for boycotts in various countries. The company faces substantial challenges as it navigates through this crisis.

4. Research results

The study involved voluntary participants (N=164), comprising 96 female and 68 male individuals. Most respondents were of 26 to 35 years old, with 69 individuals, constituting 42.2% of the sample. Similarly, an equal number of respondents were within the age brackets of 36 to 45 years and 18 to 25 years, representing 19.5% of the participants each, followed by a slightly lower number in the age categories of 46 to 60 years and those older than 61 years. Furthermore, the study examined the highest level of education among the participants. The most significant proportion of respondents had completed secondary education, with 63 participants accounting for 38.4% of the sample. Following secondary education, most respondents had completed vocational or university undergraduate studies, comprising 38 individuals, or 23.2% of the participants. The smallest number of respondents had primary or vocational education, with the least number having completed postgraduate university or scientific studies.

Cronbach's Alpha coefficient was utilized to measure reliability in this study. In order to establish reliability as accurately as possible, two reliability measurements were conducted. The first pertained to assessing the influence of country-of-origin on brand perception, while

the second focused on the impact of Russia's invasion of Ukraine on the business operations of Lukoil Croatia Ltd.

Cronbach's Alpha coefficient in the first part of the primary was calculated based on 59 items, where respondents provided ratings ranging from 1 to 5, with 1 representing "Strongly Disagree" and 5 representing "Strongly Agree". Additionally, respondents were asked questions to express their personal attitudes and preferences. The reliability coefficient for testing the hypothesis "The country-of-origin significantly influences brand quality" was determined to be 0.810, indicating an outstanding level of reliability.

Table 1: Cronbach's alpha coefficient – Country-of-origin of the brand (H1)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,810	,749	59

Source: Authors

The analysed data (H1 hypothesis) confirm the assertions whose arithmetic mean is greater than 3, representing a neutral stance toward the statement, while the assertions whose arithmetic mean is less than 3 are rejected. Confirmed assertions:
- The brand represents quality to me.
- The brand represents recognition to me.
- The brand represents a good price-quality ratio to me.
- When choosing a brand, I pay attention to the quality it delivers.
- When choosing a brand, I pay attention to the price of the product.
- When choosing a brand, I pay attention to the country-of-origin of the brand.
- The country-of-origin of the brand represents product quality to me.
- The country-of-origin of the brand represents delivery of products according to verified quality standards to me.
- I do not pay attention to the country-of-origin of the brand.
- The country-of-origin of the brand represents the technical correctness of the product to me.
- The decision to purchase the brand is made based on the country-of-origin of the brand.
- The decision to purchase the brand is made based on recommendations.
- The decision to purchase the brand is made based on informed quality.
- The decision to purchase the brand is made based on brand loyalty.
- The decision to purchase the brand is made based on internet advertising.

Assertion disproven:
- The decision to purchase the brand is made based on television advertising.

To confirm or reject the hypothesis, Tables 2 and 4 display the results of the t-test, including the following questions: The brand represents quality to me; The brand represents recognition to me; When choosing a brand, I pay attention to the country-of-origin of the brand; The country-of-origin of the brand represents product quality to me; The country-of-origin of the brand represents delivery of products according to verified quality standards to me; I do not pay attention to the country-of-origin of the brand; The country-of-origin of the brand represents the technical correctness of the product to me; The decision to purchase the brand is made based on the country-of-origin of the brand.

Table 2 presents the t-test results conducted to assess hypothesis H1, which examines the significant difference in the influence of the country-of-origin on consumer perceptions of brand quality. The t-test was performed at a significance level of α=0.05. It is observed that all p-values, i.e., Sig. (2-tailed) are below the specified significance level, indicating the statistical significance of the variable in the model at a 5% significance level.

Table 2: T-test (Hypothesis H1)

One-Sample Test

	Test Value = 3						
			Significance			95% Confidence Interval of the Difference	
	t	df	One-Sided p	Two-Sided p	Mean Difference	Lower	Upper
Brand - Quality	10,676	163	<,001	<,001	,872	,71	1,03
Brand - Recognition	14,657	163	<,001	<,001	1,140	,99	1,29
Country-of-origin - Quality	8,420	163	<,001	<,001	,665	,51	,82
Country-of-origin – Technical accuracy	8,497	163	<,001	<,001	,640	,49	,79
Country-of-origin – Standardized quality	8,122	163	<,001	<,001	,579	,44	,72
Country-of-origin – No attention is paid	-1,579	163	,058	,116	-,134	-,30	,03
Buying a brand – Country-of-origin	2,671	163	,004	,008	,226	,06	,39

Source: Authors

Based on the t-test results, hypothesis H1 is supported, indicating that the country-of-origin significantly affects consumer perceptions of brand quality. As a result, it can be perceived that consumers are attentive to the country-of-origin when evaluating brands and finding assurance in product quality. Additionally, the findings indicate a preference among consumers for products originating from countries associated with high-quality standards.

Table 3: Cronbach's alpha coefficient – Lukoil Croatia Ltd (H2)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,798	,792	4

Source: Authors

In the second part of the primary study, Cronbach's Alpha coefficient was calculated based on 4 items, where respondents provided answers regarding their attitudes (with the option to choose one response). As seen in the Table 3, the reliability coefficient for testing the hypothesis "Impact of Russia's invasion of Ukraine on the business operations of Lukoil Croatia Ltd" was determined to be 0.792, indicating that the reliability can be considered good.

The following Table 4 shows the t-test results conducted to test hypothesis H2. Table 4 depicts the p-values for all variables, denoted as Sig. (2-tailed), fall below the predetermined significance threshold, indicating statistical significance of the variable within the model at a 5% significance level.

Consequently, the findings suggest that the variable holds substantive importance within the model. Through the employed t-test, hypothesis H2 is validated, indicating that the invasion of Russia into Ukraine will not exert a discernible impact on the operations of the multinational company Lukoil Croatia Ltd.

Table 4: T-test (Hypothesis H2)

One-Sample Test

	Test Value = 0						
			Significance			95% Confidence Interval of the Difference	
	t	df	One-Sided p	Two-Sided p	Mean Difference	Lower	Upper
Use of Products from Lukoil	28,903	163	<,001	<,001	2,805	2,61	3,00
Lukoil (declaration)	25,468	163	<,001	<,001	3,189	2,94	3,44
Attitudes and Lukoil	25,476	163	<,001	<,001	3,091	2,85	3,33
Lukoil operations	24,003	162	<,001	<,001	2,221	2,04	2,40

Source: Authors

Specifically, while the invasion altered consumer attitudes, it did not yield a significant effect on the operational aspects of Lukoil Croatia Ltd.

5. Discussion

Based on both primary and secondary research, it is concluded that the country-of-origin influences consumer perception of product quality, potentially affecting the product's market value (brand). The findings of this study support earlier research results (Elliott & Cameron, 1994; Kalicharan, 2014; Jackson & Lee, 2019; Nagashima, 2019; Yurdagel & Baycur, 2023), which have already established a positive correlation between the country-of-origin and consumer perceptions of quality and market value of products. Countries have begun investing in enhancing their country image to mitigate adverse effects or reinforce positive effects of country-of-origin. Previous research by Elliott & Cameron (1994) demonstrated that companies from less developed countries attempt to deceive consumers to influence product purchases. Consequently, China started labelling its products as "Made in PRC," and Slovakia as "Made in EU." This survey-based research conducted on 164 respondents illustrates the significant role of the country-of-origin in evaluating product quality, which aligns with prior research by Hien, N. et al. (2020). The substantial impact the country-of-origin can have on a company's operations and product sales is exemplified by global consumers' decision to boycott products from the well-known Russian company Lukoil Ltd due to Russia's invasion of Ukraine. Findings from Reshetnikova et al. (2024) reveal that the attitudes of over a third of respondents from Poland and Ukraine towards brands offered in the Russian market were not influenced by the Russian invasion of Ukraine, with respondents expressing a greater inclination to purchase brands offered in Russia. Similar results were obtained in the primary

research conducted for this study. It was observed that consumers in Croatia disapprove of Russia's invasion of Ukraine, yet this sentiment does not significantly impact the operations of Lukoil Croatia Ltd. The power of integrated marketing communication is also evident from the analysis of results from the primary research, showing that consumers in Croatia are more willing to use products from Lukoil Croatia Ltd after the company publicly expressed non-support for Russia's invasion of Ukraine.

5.1. Limitations and contribution of the research

It is important to acknowledge certain limitations of this study. Firstly, the research focuses primarily on the context of wartime conditions, which may limit the generalizability of the findings to other geopolitical situations or peaceful environments. Additionally, the study's scope may not encompass all relevant factors influencing consumer behaviour and brand perceptions, suggesting potential avenues for further research to explore additional variables and contexts. This study aims to contribute to a better understanding of the dynamics of international business amidst political tensions and conflicts, emphasizing the importance of branding strategies and risk management in such circumstances.
In conclusion, while this study contributes valuable insights into the dynamics of international business and consumer behaviour, particularly regarding the implications of country-of-origin in wartime conditions, it also underscores the need for further research to deepen our understanding of these complex phenomena and their implications for marketing practice and theory.

6. Conclusion

The findings of this research underscore the profound implications of the country-of-origin for international business operations, particularly in the context of wartime conditions. Through the application of t-tests, the empirical analysis substantiates the hypotheses posited in this study. Both hypotheses have been validated as the p-values for all variables, represented as Sig. (2-tailed), are found to be lower than the predetermined significance threshold. This signifies the statistical significance of the variables within the model at a 5% level of significance. Firstly, H1 is confirmed, revealing that the country-of-origin exerts a significant influence on consumer perceptions of brand quality. This underscores the importance of branding strategies that capitalize on favourable associations with specific countries. Moreover, the results support H2 by indicating that the invasion of Russia into Ukraine will not disrupt the operations of the multinational company Lukoil Croatia Ltd. As a result, it highlights the resilience of certain businesses in navigating geopolitical turmoil.
Furthermore, the research elucidates that consumers demonstrate a discernible preference for products originating from countries perceived as synonyms of quality, aligning with the broader implications of our study, emphasizing the role of country-of-origin as a source of assurance for consumers in terms of product quality.

The contributions of this research are multifaceted and have significant implications for both the academic community and businesses. The research underscores the significance of country image enhancement strategies adopted by countries to mitigate negative effects or leverage positive associations with their country-of-origin. For businesses, this implies the need to align marketing efforts with the perceived image of the country-of-origin to enhance product appeal and market competitiveness. The study also provides insights into consumer behaviour, particularly in response to geopolitical events such as Russia's invasion of Ukraine.

It reveals how consumer attitudes and purchasing decisions can be influenced by perceptions of a company's association with a particular country-of-origin.
The analysis of primary research results demonstrates the power of integrated marketing communication in shaping consumer perceptions and attitudes towards brands. This suggests that businesses can effectively manage their brand reputation and consumer sentiment through strategic communication efforts. These findings are crucial for advancing academic understanding of the impact of country-of-origin on consumer behaviour and market dynamics. Moreover, they offer actionable insights for businesses to tailor their marketing strategies, product branding, and communication efforts to leverage the country-of-origin effect and enhance competitiveness in the global marketplace. By reaffirming earlier research, this study adds credibility and strengthens the existing literature in this field. Given these findings, it is clear how this research paper reinforces and contributes to the existing body of literature.

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THE VOICE SEARCH OPTIMIZATION AS A NEW STRATEGY OF DIGITAL MARKETING IN RETAIL

ABSTRACT

In today's rapidly changing digital world, the marketing landscape constantly evolves. To stay competitive in such a dynamic market, businesses must keep up with trends and anticipate the future. A significant trend in the coming years will be the surge in voice search and its impact on Search Engine Optimization (SEO). This encompasses optimizing content for natural language patterns, featured snippets, and local search to ensure visibility in voice search results. This shift requires understanding the conversational nature of voice queries and adapting content to provide concise, accurate, and informative responses. Anticipated as a game-changer in how people interact with search engines, this trend steers from typing queries into a search bar. Instead, users can voice their questions, and their virtual assistant provides the most relevant answer. This change in search behavior demands companies to optimize their websites for voice search and retailers to adapt their strategies to evolving consumers. As voice search becomes an integral part of everyday life, businesses not optimizing for this type of search are missing out on significant opportunities. The article aims to explore the importance of implementing and optimizing voice search, specifically highlighting its crucial role in the retail sector. Therefore, the study aims to identify practical advantages and impacts on retailers and consumers associated with voice search implementation in retail. It also seeks to create a conceptual framework for integrating this technology into retail companies' information systems. The study's findings serve to validate the introduced conceptual framework that presents a recommendation to retailers in the potential optimization of voice search in their marketing strategies to gain an insight into which aspects of the business such optimization would affect. These results are valuable for practitioners and researchers, offering concrete examples of the impact of getting familiar with some benefits, challenges, and risks associated with voice search patterns in retail. The provided framework is a practical tool for AI specialists in Marketing and R&D units in the retail sector, offering clear guidelines for initiating and overseeing projects to integrate voice search into a company's information systems.

Key words: *voice search optimization, retail, conceptual framework, digital marketing.*

1. Introduction

Technological innovations of the last decade played a major role in shaping different business systems. It is difficult to imagine a single business system in which the Internet and the use of modern technologies are not represented (Manco-Chavez et al., 2020). New technologies have made a revolution in almost all functional units of the company, especially in those departments whose business is related to the relationship with end users. Innovations force companies to rethink the way they operate because, among other things, consumer demands change with the advent of new technologies (Manco-Chavez et al., 2020; Varadarajan et al., 2010). After all, they contributed to the variety of options for purchasing products (Kautish et al., 2023). In addition, the options for research when purchasing are also growing, which has created a completely new dimension of consumer shopping (Aschemann-Witzel, 2018; Chen & Chang, 2023). Based on this, retail companies must recognize ways of implementing technologies supporting offline and online channels to improve the shopping experience (Grewal & Serafeim, 2020). Retailers have rarely been among the first to adopt new technologies as such innovations have fueled several significant disruptions in the sector (Varadarajan et al., 2010). Regarding innovation, the most significant changes in the retail sector are visible in the information capability, which is connected to the use of new technologies for marketing purposes to focus more on the consumers themselves (Nakata & Zhu, 2006). Using modern tools and techniques, the concept of marketing has changed in companies in many sectors, including retail (Kautish et al., 2023). Starting from the traditional view of marketing activities in which Kotler, 2000 emphasizes that the basis of marketing is "the identification and satisfaction of the needs of people and society in a profitable way" in which companies and customers change interests and goals in the market while creating consumer values (Kotler, 2000), up to today's modern marketing activities that develop dynamically (Kotler et al., 2021). In this way, based on contemporary digital transformation trends and disruptive models, marketing has become extremely digitized, also called Marketing 5.0. (Dwivedi et al., 2021) and one of the focuses of digital marketing is the creation of consumer trust and loyalty through the Internet and digital technologies (Pagani et al., 2019; Varadarajan et al., 2010). An important feature of digital marketing for companies is that consumers who buy on the Internet become users of products and services themselves (Kannan & Li, 2017), but also routers for companies because they generate content that interacts with the brand via the Internet, with the use of a digital device (López García et al., 2019). The adoption of new technology aims to extract useful information from users and offer opportunities to increase the online experience based on which an important relationship with retailers is established (Sharma et al., 2020), as technology can serve as a point of differentiation for retailers (Savastano et al., 2019). Also, the recent COVID-19 pandemic forced retail stores to close, causing shoppers to embrace online channels (Lavuri, 2021). Consequently, the impact of the pandemic and digital transformation became catalysts for technology adoption as retailers had to rethink their business models to adapt to new market challenges (Quinones et al., 2023; Shankar et al., 2021).

As a result, today's customers can order online through voice assistants, use augmented reality to virtually try on products, have packages delivered by autonomous vehicles and drones, or shop in stores without a cash register (Kautish et al., 2023). It is certainly important to emphasize that the newer technologies used in the business of retail stores have a strong connection with marketing strategies (Dwivedi et al., 2021) because the right actions would contribute to greater customer trust in retail technologies (Pagani et al., 2019; Shankar et al., 2021). Such a technology that has recently gained more and more importance in retail stores and is becoming an option for consumer research when shopping online is voice search

(Kautish et al., 2023; AIContefy, 2023). This type of technology works using a Voice Assistant (VA) or a smart speaker that represents an automated chat agent to perform certain tasks for individuals, which is most often a purchase-motivated search (Jang et al., 2022; Mari, 2020). Thus, the very act of placing an order online using voice search is called voice shopping (Mari et al., 2020; Sun et al., 2019).

A study conducted by Capgemini's Institute for Digital Transformation revealed that 25% of respondents are willing to use voice search over traditional typing into a search engine (GorjianKhanzad & Gooyabadi, 2022). In addition, doing the same study, Capgemini's Institute for Digital Transformation noted that 51% use voice assistance services via smartphones, while 35% of respondents used voice assistants to purchase groceries, home care products, and clothing (GorjianKhanzad & Gooyabadi, 2022). Internet search engines in their menus have the option of multiple selection of search methods, so among other things, voice search is one of the more recognizable methods (Schöni, 2017). According to a survey conducted by Google in 2012, out of 1500 Internet advertisers, even 90% were engaged in optimization for search engines and 81% were invested in sponsored links, so one of the models that the company has for achieving a high rank among the results is Search Engine Optimization (SEO), in which the goal is to achieve a high ranking among search results without paid and sponsored ads (Lammenett, 2017; Quinones et al., 2023). Also, the study from AIContefy revealed that as many as 55% of surveyed teenagers use voice when searching the Internet on smartphones (AIContefy, 2023). Using voice as a means of search has various potential advantages (Guy, 2016). Although typing usability has improved in recent years, voice queries will still be significantly easier and faster for most mobile users. In a survey by Guy, 2016, 78% of teenagers who used voice search cited its usefulness for multitasking as a key motivating factor (Guy, 2016). In his study, Chen believes that VAs are a new channel for the distribution of online content for retailers and that they will be forced to provide users who do not want to type with the possibility of a more convenient purchase via voice (Chen et al., 2021). AI-enabled VAs offer unique perspectives, and consumers may be driven to use them for purchasing or purchasing activities for functional, hedonic, social, or cognitive reasons (Kautish et al., 2023). With customers, such attractive research methods develop a certain wow effect, which retailers should certainly use in terms of orienting and improving digital marketing according to customers' word of mouth (WOM) and, as well what customers want when shopping online (Morotti et al., 2022). Recent estimates estimate that nearly 120 million US residents use VAs as a way to search the Internet (Kautish & Rai, 2019). Despite the promising integration of VA into a simple environment, the potential of incorporating a ready voice assistant into a more complex retail system has not been sufficiently explored (Kautish et al., 2023).

The motive of this research came from the need for deeper research on the use of voice search and its optimization as a driver of new marketing strategies and initiatives in the retail sector. The main goals of this research are related to contributing to the current scientific knowledge about voice search as a component of digital marketing to which retailers pay more and more attention and importance to spreading the popularity of such a technological tool among consumers. Also, to identify practical advantages and impacts on retailers and consumers associated with voice search implementation in retail. The purpose of the research is to design a conceptual framework that would represent a recommendation to retailers about the effects for them, but also for the users themselves, if retailers decide to apply voice search optimization in their digital marketing strategies. The observed methodology used elements of research from Varadarajan et al., (2010) who in their study developed a conceptual model of

the process of implementing interactive technology in the retail sector to identify the effects of marketing strategy optimization for attracting consumers.

After an introduction in which the emergence of new technologies in the retail sector is generally explained, a review of the literature for works dealing with the issue of voice optimization strategy in the observed industry follows. The third chapter highlights key findings related to the effects of VSEO on retailers and users. In the fourth chapter, we explain how is the conceptual framework designed through textual analysis and obtaining clusters based on the results of the literature review. The fifth chapter presents the results of the research itself, in which the frameworks for the effects of the voice optimization strategy on the marketers, but also on the users themselves, are presented. Finally, in the sixth chapter, a conclusion is drawn along with research limitations and recommendations for future studies.

2. Literature Review

Modern technologies have accelerated the precision and efficiency of human efforts in business. Technologies such as artificial intelligence (AI), Internet of Things (IoT), augmented reality (AR), virtual reality (VR), and others have produced new principles of digital business in the retail sector (Dwivedi et al., 2021; Schöni, 2017). Marketing activities have gained a new dimension of their activity with the emergence of new technologies, and digital marketing is used to increase the efficiency of business processes in retail ecosystems (He et al., 2023). In this way, artificial intelligence algorithms are used to better understand consumer behavior, inventory control, sales forecasting, and distribution channel optimization (Rana et al., 2021). For marketers of content and SEO, voice search marketing has quickly emerged as one of the most popular subjects. Taking into account the fact that 72% of Americans are familiar with voice search, companies should pay more attention to voice search optimization (PricewaterhouseCoopers, 2019).

For retailers, VSEO is becoming an increasingly important component in digital marketing when creating a mix of activities to improve sales and achieve a stronger relationship with customers (AIContefy, 2023). This work provides an overview of the literature related to voice search optimization activities in the retail sector and their effects on users, as well as on retailers themselves. Certain studies provide an overview of the strategies of retailers who used voice search optimization by users to strengthen relations with the target customer segment. Ramadan, 2021 explains Amazon's strategy as an indication of implementing this type of optimization for retailers. Amazon has adapted its Alexa voice search system to the maximum, which consumers have recognized its practicality and simplicity, and at the same time, it controls the entire path that the user takes to purchase products from Amazon (Ramadan, 2021). In this way, it leads e-retailers to advance an AI-based ecosystem in their online shopping. Many multinational companies such as Apple, Google, and Microsoft have connected voice bots with delivery systems to influence the user when searching for the desired content and to present the system as convenient and fast (Rana et al., 2021). Talwar et al. 2022, conducted a study on the development of marketing strategies using voice optimization methods for different customer segments in an online store. They found a gender bias towards voice search in the sense that men use the voice option on the search engine for desired content more, while women do it less (Talwar et al., 2022). They allude to a certain masculinity when typing on search engines. In 2010, Google created a user guide for VSEO and it refers to the main focus points for users that include keywords, and URLs to get as

close as possible to users with a personalized approach and to make such an option user-friendly (Sultan, 2010).

Quinones et al. 2023, in their study on the strategies of successful retailers, state that voice search users trust successful retailers like Amazon and Zara the most because they experience the best experience for the products and services they want when shopping at their online shops. Also, they identify four main items that contribute to VSEO in retail, namely: product superiority, improved customer experience, speed of purchase execution, and operational excellence (Quinones et al., 2023). They also point out that the symbiosis of new technological approaches in digital marketing improves the hedonic context of buying desired products and the content itself becomes more personalized for end users. Chen et al. 2021, in their empirical findings, claim that more than half of surveyed users associated voice bots with a fun and interactive shopping experience. They explain how this contributes to the current social distancing that retailers use to improve the user shopping experience and encourage contactless payment as much as possible, which would most significantly affect the practicality of voice search (Chen et al., 2021).

The study by Sun et al. 2019, has a slightly different context. 2019, which explores the impact of voice search on the entire process from the search stage to the transaction itself. He emphasizes that in this whole process, the greatest convenience for the user would be that VA enables multitasking and making purchases, while from the point of view of retailers, this can increase consumption due to facilitating product finding and completing the transaction without using hands (Sun et al., 2019). However, as a possible obstacle, they state that VSEO is optimal only for those retailers who properly implement this kind of strategy in their business, which refers to the most successful retailers (Kautish & Rai, 2019). Those retailers who fail to adequately maintain this type of optimization will have a problem with the difficulty of developing algorithms which could lead consumers not to decide to make a purchase (Sun et al., 2019). The time spent by consumers on online shopping is a very important determinant of the implementation of VSEO as a digital marketing strategy for retailers (Chen et al., 2021; Guy, 2016). Guy, 2016 believes that consumers no longer want to waste time manually typing in searches, especially when they're on the go, and marketers need to consider this carefully when creating content. Therefore, saving the consumer's time is a key factor in the purchase decision of voice search. Also, he believes that voice search digital marketing based on providing the best possible results in internet search is an important component in the strategy of generating results because these results lead to the sharpening of that market segment that tends to become loyal (Guy, 2016). The analysis also revealed that there is a growing trend of voice search for certain health issues, which could be useful for pharmacists who are ready to implement VSEO for their products (medicines, health preparations) in their online shops (Guy, 2016).

As stated, VAs function by reacting to a voice representing a specific user request sent in its natural language form (Mari et al., 2020). Kautish & Rai 2019, state that precisely one of the most important items, which is why more and more users trust such technologies, is the language user's naturalness. Each user has a different diction, color of voice, and tone of speech, even so, this does not represent an obstacle to artificial intelligence based on established algorithms, because with the voice search technique, the quality of the voice is not important, despite that the structure is (Kautish et al., 2023). This shows the maximum adaptability of voice bots according to the nature of the user's voice, which makes them feel more trust and less awe of the technology itself (Kautish & Rai, 2019). A study by Chung et al. 2020, shows how successful fashion retailers such as Prada, Louis Vuitton, and Tommy

Hilfiger are offering AI-based VA for their consumers as strong growth of voice searches in fashion shopping has been observed (Chung et al., 2020). Furthermore, Aslam gives the example of one of the most important British shopping chains, ASOS, which launched a combination of VAs and VR assistants to help customers choose the right holiday gift or find the right size of the desired product. He adds the example of the Japanese retail company Uniqlo, which in partnership with Google provides the services of Google's voice assistant that helps customers find product recommendations according to their wishes (Aslam, 2023).

The latest study by Kumar et al. 2024, suggests that voice search is not only limited to products. Kumar et al. 2024, believe that voice search will increasingly be used, in addition to the specific products of retailers, for their services, such as the delivery of certain products (Siebert et al., 2020), which would further influence customer loyalty and engagement (Filieri et al., 2023; Kumar et al., 2024). Emotional experiences are an increasingly important item in the digital marketing of retailers, which is why they want to adopt new models and technologies in every possible way, which tend to help retailers reach end users, rather than requiring users to research and find them (Kumar et al., 2024). In this way, the influence of users' awe at voice assistant technology would be suppressed and cause a wow effect on the added value of the retailer-consumer relationship (Filieri et al., 2023; Kumar et al., 2024). Morotti et al. 2022, give an interesting view on VAs in the sense that in fashion stores they should be implemented physically in the branch and in combination with the help of robots to give users accurate location instructions where the desired product should be located without physical inquiries to the employees of the retail store branches. They even found that there is a readiness for VA technology such as Amazon's Alexa, physically on the shelves to facilitate product finding in stores and to strengthen interaction with new technologies (Morotti et al., 2022). They also state that the most commonly used VA are Amazon's Echo and Apple's Siri.

3. The Effects of VSEO on Retailing: An Overview

This chapter provides a summary of all reviewed literature on the effects of voice searches for business optimization in the retail sector. The studies that were reviewed to develop the concept of using optimization in voice searches by consumers are different, and numerous methods and ways were used in which the authors investigated certain effects in retail. Based on the reviewed papers and their key findings, we have shared research that presents its implications as the effects of voice search optimization (VSEO) on users, given in Table 2, and on retailers, given in Table 1.

3.1. The Effects on Retailers

As for the actual effects of VSEO on retail customers, they refer to those features of interactive technologies that, when applied, leave a strong impact on final consumption. The team from AI start-up AIContenfy's R&D department believes that voice search provides faster results compared to text search, hence they emphasize that speed is one of the crucial factors that enable customers to search simply and easily while multitasking wherever they are and whatever they are doing, which would result in a more efficient the experience of buying desired products (AIContefy, 2023). Also, for customers this is a practical way to find the desired products, especially for those who perform multiple tasks at the same time, and even more importantly for those who have limited mobility. Potential consumers who are not able to type the desired product into the search engine due to their mobile handicap can search for the desired product in a very practical and fast way in just a few seconds

(PricewaterhouseCoopers, 2019; AIContefy, 2023). Likewise, Moon et al. 2019, believe that in the future, voice search will make online shopping more accessible to a wider range of customers, including those with language barriers or people with disabilities. Voice search could play a very important role for those who are not sufficiently technically aware or have less developed digital skills (Moon et al., 2019). Because of this, voice search would allow consumers to use their natural language on devices without the existence of certain user unacceptability, because the conversational interfaces of digital devices are constructed in an intuitive way to understand voice concerning content, and not to the quality of pronunciation (Bokolo Jr., 2024; Moon et al., 2019).

Table 1: Effects of VSEO on Retailers

Study	**Research focus**	**Research methods**	**Key findings**
(Varadarajan et al., 2010)	Effects of Interactive Technology on Retail Strategy	Set of case studies related to retail business	Voice assistant technologies in the retail sector can develop more effective and customized digital marketing programs. Creating a potential opportunity to counteract the negative effect of WOM. Maintaining a high level of popularity in internet search rankings.
(López García et al., 2019)	Main ways in which users can be gained and retained by using Digital Marketing in retail	The Delphi method with in-depth interviews	Generating voice search user content on the internet store through optimization in the retailer's digital marketing policy.
(Rana et al., 2021)	Consumers' intentions in the adoption of artificial intelligence technologies in online shopping	A Literature review	Using AI tools like Chatbots, Recommenders, Virtual Assistance, and Interactive Voice Recognition (IVR) helps create improved brand awareness, better customer relationship marketing, and personalized product modification.
(Dwivedi et al., 2021)	The behavior of consumers and retailers under the influence of modern marketing.	Interviewing several leading experts in digital marketing	The application of the VSEO strategy in the businesses of retailers has a positive effect on the popularity of their content and the achievement of a competitive advantage in the market.
(Quinones et al., 2023)	Technological innovation for post-pandemic retailers	Qualitative study through in-depth interviews and focus groups with 20 retail managers; A survey of 168 marketing and retail experts	Four key competitive strategies for retailers: product superiority, improved user experience, frictionless shopping experience, and operability excellence
(Guy, 2016)	Accuracy of voice search results on commercial search	A query log analysis of half a million voice	Voice search enables more efficient creation of content on retailers' websites. Influence on the creation of

Study	Research focus	Research methods	Key findings
	engines	queries was issued to the mobile application of a commercial web search engine in the USA, over six months.	customer loyalty and the discovery of new target segments.
(Kautish et al., 2023)	Consumer motivation in using voice search on fashion store websites	Data collected from 538 users of digital voice assistants for online shopping of fashion Products	VAs contribute to retailers' strengthening relationships with consumers and the loyalty effect.
(Morotti et al., 2022)	Determinants of the application of digital marketing strategies in fashion regarding the development of new technologies	Combination of archival and survey data from Amazon VA's Alexi	Optimizing digital marketing according to customer preferences based on their voice search history.
(Schöni, 2017)	The impact of digital marketing on consumer behavior	Case Study: Swiss Premium Department Store	Retailers can provide personalized recommendations of products and services based on previous purchasing habits and consumer preferences in voice queries.
(Lockett, 2018)	Internet marketing to strengthen the relationship between retail companies and consumers	In-depth interviews with 4 retail store managers	VSEO contributes to retailers' greater popularity of content on the Internet and better achievement of competitive advantage.
(Talwar et al., 2022)	Convenience of VAs for Food Delivery Apps (FDAs)	Data collected from 500 users of FDAs in Great Britain	Marketers can target and tailor their business to specific products that are closer to women as gender bias has been identified in the use of voice search on FDAs.
(Chung et al., 2020)	Adapting Voicebots in Luxury Stores	Data collected from 337 users of Voicebots in luxury stores	Marketers and managers in the luxury context can adopt the Voicebot whether e-service agents provide desired outcomes

Source: Authors

3.2. The Effects on Users

Implementing VSEO in retail is key to achieving significant consumer impact. Appel et al. 2020, found that retailers who adjust their business and marketing activities using search optimization systems show a significant willingness to innovate and a desire to realize the ability to adapt to technological changes (Appel et al., 2020). This can enable marketers to be recognized by voice search users and position them ahead of the competition, which would ensure longer-term success in the market (Eslami et al., 2022). Lockett 2018, mentions that

based optimization for voice search allows retailers to adjust their marketing strategies to better adapt to the dynamics of consumer demands. Retailers who apply this type of optimization to their digital marketing activities would have more popularity in search results, which at the same time gives them a better chance of achieving a competitive advantage in the market (Dwivedi et al., 2021; Lockett, 2018). In addition, greater popularity results from greater visibility of online content, which would mean that a greater number of users who search individual retailers on the Internet would enable them to better recognize the product brand (Eslami et al., 2022).

Table 2: Effects of VSEO on Users

Study	**Research focus**	**Research methods**	**Key findings**
(Moon et al., 2019)	Modern technologies in the context of people with disabilities	A literature review	People with disabilities and certain physical handicaps will use the voice search method when shopping online in the future.
(Xu et al., 2021)	Techniques of artificial intelligence and machine learning systems in the domain of Internet search.	Set of case studies in different sectors	Artificial intelligence algorithms contribute to the most accurate and credible internet search results during the growing number of experiential voice searches by customers.
(Quinones et al., 2023)	Technological innovation for post-pandemic retailers	Qualitative study through in-depth interviews and focus groups with 20 retail managers; A large-scale survey of 168 marketing and retail experts	The possibility of voice search when shopping online creates a sense of hedonism and practicality among consumers because the content seems more personalized to them.
(Chen et al., 2021)	The role of AI on online user experience and customer satisfaction	A large-scale survey of 425 online consumers	Online shopping through voice search provides an interactive and fun shopping experience for customers, thus their satisfaction with the content on the web increases.
(Talwar et al., 2022)	Convenience of VAs for Food Delivery Apps (FDAs)	Data collected from 500 users of FDAs in Great Britain	Consumers show a willingness to order food via voice search on FDAs.
(Chung et al., 2020)	Adapting Voicebots in Luxury Stores	Data collected from 337 users of Voicebots in luxury stores	Voicebots provide interactive and engaging brand/customer service encounters.
(Sun et al., 2019)	Impacts of Consumer Adoption of Voice Search as a New Approach for Online Shopping	Alibaba's large-scale archival data of consumer-level purchase records	By using voice search: consumption increases, especially among the younger population (<25); increased use via smartphone; increased use by people with disabilities.

(Guy, 2016)	Accuracy of voice search results on commercial search engines	A query log analysis of half a million voice queries was issued to the mobile application of a commercial web search engine in the USA, over six months.	Voice search enables users to more conveniently search for desired content and execute transactions, and encourages multitasking, especially among young people.
(Kautish et al., 2023)	Consumer motivation in using voice search on fashion store websites	Data collected from 538 users of digital voice assistants for online shopping of fashion Products	The use of VAs among consumers is caused by the ability to recognize the natural language of each user, which increases the credibility of the technology and the motivation of consumers
(Morotti et al., 2022)	Determinants of the application of digital marketing strategies in fashion regarding the development of new technologies	Combination of archival and survey data from Amazon VA's Alexi	Consumers get a more powerful shopping experience with those retailers that have VAs on their websites.

Source: Authors

On the other hand, the power of consumers today is reflected in the posting of reviews about purchased products and the contents of retailers on Internet sites (Dwivedi et al., 2021). Namely, reviews are a very significant item in the retail sector because they directly affect the circle of trust, brand reputation and what is today WOM (Filieri et al., 2023; Pagani et al., 2019). All of the above is extremely important for retailers because in this way they can direct their business towards improving the system itself, so it is important for retailers to find ways to understand consumer reviews and create their content based on them. Varadarajan et al. 2010, believe that interactive types of technologies such as voice search can help to improve the efficiency of digital marketing through bots that give recommendations and fulfill wishes according to user queries. In this way, marketers can suppress potential bad reviews and the negative effect of WOM, while increasing popularity among target segments (Filieri et al., 2023; Kautish et al., 2023; Varadarajan et al., 2010).

4. The Research Method

On the basis of 22 selected relevant papers to the mentioned topic, a qualitative analysis of the literature was carried out, which aims to determine the effects of VSEO application in marketing activities in the retail sector, for both sides, of retailers and users. For each of the articles shown in Table 1 and Table 2, a textual analysis was performed with a full screening of the methodology and key findings, to obtain relations between the method used and the results with the effect of VSEO on users or retailers, which are a prerequisite for constructing a conceptual model. Furthermore, cluster analysis was performed to obtain specific groups among the findings in the articles. QDA Miner software is used for qualitative analysis of literature. For matching layers of items in cluster networks, Jaccard's coefficient was used, and cluster analysis was performed on selected studies to clarify specific clusters for the

effects of VSEO on retailers and as well for the effects of VSEO on users. This kind of analysis should give a better insight into the possible conceptual framework for marketers when applying the voice optimization strategy in retail and its effects on users. In this research, it is necessary to determine certain homogeneous groups following the author's findings in the reviewed literature, therefore we apply the Silhouette principle to obtain clusters and their mutual distances. Groups or clusters of VSEO effects differ from each other, even units within the same group have similar characteristics. In our work, a non-hierarchical cluster analysis is applied, in which clusters are determined before the actual analysis is carried out using established variations related to differences in the findings of individual authors in the reviewed literature.

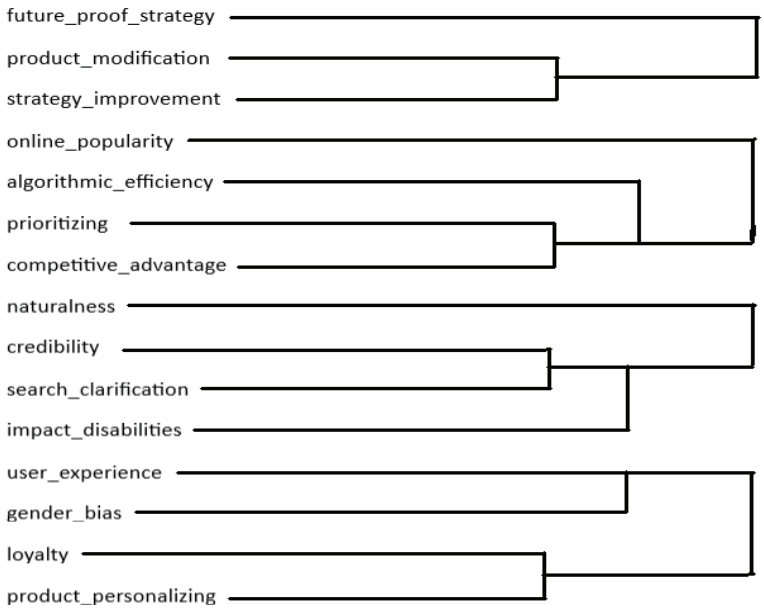
5. The Results

On the reviewed studies, this paper presents a model of the VSEO effects that illustrates how retailers can improve their business and the effects that such a retail strategy would have on end users. The model shows the effects of VSEO related to the efficiency of retail operations in the form of improved competitiveness and what aspirations this would have on end users. The model does not observe the effects of improving competitiveness achieved by certain entities from the external environment (cooperators, suppliers, competitors), even by an internal digital marketing strategy. In this paper, the proposed model is based on research from Varadarajan et al., (2010) who investigates the effects of strategy optimization for the adoption of interactive technologies in the retail sector. This approach gives a certain recommendation to retailers in the potential optimization of voice search in their marketing strategies to gain an insight into which aspects of the business such optimization would affect. Moreover, the observed model does not take into account the resources marketers use to implement a voice search optimization strategy, but provides an overview of the benefits of its implementation of such optimization. About the resulting clusters, the textual analysis and the selection of appropriate elements in the clusters will construct conceptual frameworks for the effects of VSEO on users and retailers.

5.1. Clustering

According to the textual analysis using the Jaccard matching model, out of a total of 22 reviewed papers, 12 of them were found to refer to the effects of VSEO on marketers, while 10 articles were found to mention the effects of VSEO on users in their findings. Dealing with the issue of VSEO, 22 studies were included, and the attributes of their key findings are divided into those that show the effects of VSEO on users, and the effects of VSEO on the retailers themselves, with the fact that it should be emphasized that the key findings of certain studies included considerations about the effects of VSEO on users, but at the same time on retailers. This analysis resulted in the grouping of key findings of VSEO effects on retailers into 4 clusters, while 3 clusters were obtained for VSEO effects on users. Below, the Silhouette principle for determining clusters using the k-Means algorithm was implemented, with an error of 0. 381.

Figure 1: Text Analysis for VSEO's Effects on Retailers of Papers' Key Findings Grouped in Clusters



Source: Authors

In the analysis conducted for findings on the effects of VSEO on retailers, 12 articles were included, which were grouped into 4 clusters. Through textual analysis, we obtained connections between elements related to key findings about the effects of VSEO on retailers, and their grouping into clusters is shown in Figure 1. Table 3 shows k-means values for the obtained four clusters for key findings in articles related to the effects of VSEO on retailers, with an average mean value of 0.41. Cluster related to Future-Proof Strategy, which contains elements of Product Modification and Strategy Improvement. The value of the Product Modification element is closer to the k-means average value of 0.41 and enters that cluster, while Strategy Improvement is not close enough to the average value and that element is not part of the cluster.

Table 3: K-Means Values for Clusters of VSEO's Effects on Retailers

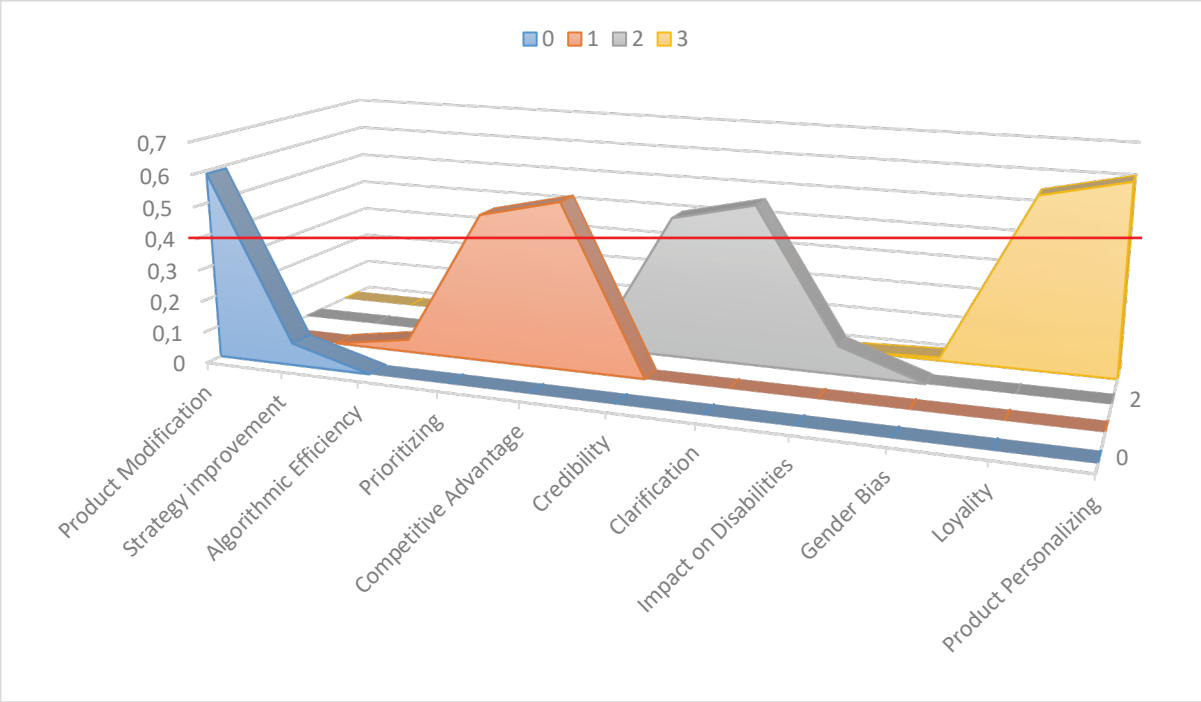
Clusters		**0**	**1**	**2**	**3**
Future-Proof Strategy	Product Modification	0.53			
	Strategy Improvement	0.29			
Online Popularity	Algorithmic Efficiency		0.25		
	Prioritizing		0.41		
	Competitive Advantage		0.56		
Naturalness	Credibility			0.58	
	Clarification			0.39	
	Impact on Disabilities			0.20	
Users' Experience	Gender Bias				0.05
	Loyalty				0.50

Clusters		0	1	2	3
	Product Personalizing				0.67

Source: Authors

In the obtained Online Popularity cluster, the element Algorithmic Efficiency is not close enough to the average value, hence the elements Prioritizing and Competitive Advantage, which are closer, affect the cluster itself more. The Naturalness cluster contains Credibility and Clarification elements that are closer to the average value and affect the cluster itself more, while the Impact on Disabilities element does not have a sufficient effect on the entire cluster due to its greater distance from the average value. In the obtained User Experience cluster, the element Gender Bias is not close enough to the average value, so the elements Prioritizing and Competitive Advantage, which are closer, affect the cluster itself more.

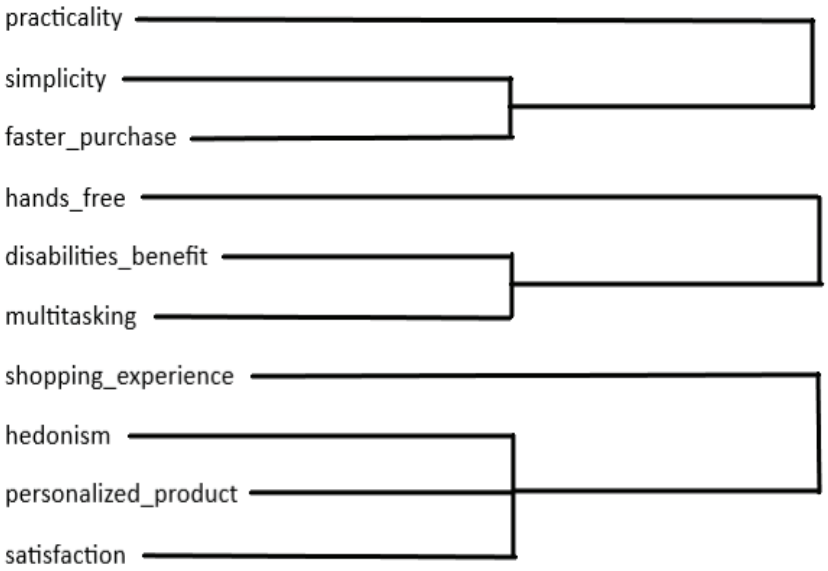
Figure 2: Plot of Clusters for VSEO's Effects on Retailers



Source: Authors

Figure 2 shows the distances about the k-means value of the average value of 0.41 (red line). It is established that there is an imbalance of those elements of Strategy Improvement, Algorithmic Efficiency, Impact on Disabilities, and Gender Bias, which have a weaker impact on a particular cluster, and for that reason, they are excluded when constructing a conceptual framework for the effects of VSEO on retailers. Those elements in each cluster that are closer to the average value have a greater influence on that group and were taken as a prerequisite in constructing the conceptual framework.

Figure 3: Text Analysis for VSEO's Effects on Users of Papers' Key Findings Grouped in Clusters



Source: Authors

The analysis was conducted for findings on the effects of VSEO on users of voice searches, where 10 articles were included, which were grouped into 3 clusters. Based on the textual analysis, the connections between the elements related to the key findings on the effects of VSEO on users were observed and groups of elements were created, which are shown in Figure 3. The k-means values for the three obtained clusters related to the key findings for those articles that consider the effects of VSEO on users are shown in Table 4. The calculated average value, which takes into account the distances of individual elements in the group, is 0.78. The Practicality cluster contains Faster Purchase and Simplicity elements that influence the group and are close to the average value.

Table 4: K-Means Values for Clusters of VSEO's Effects on Users

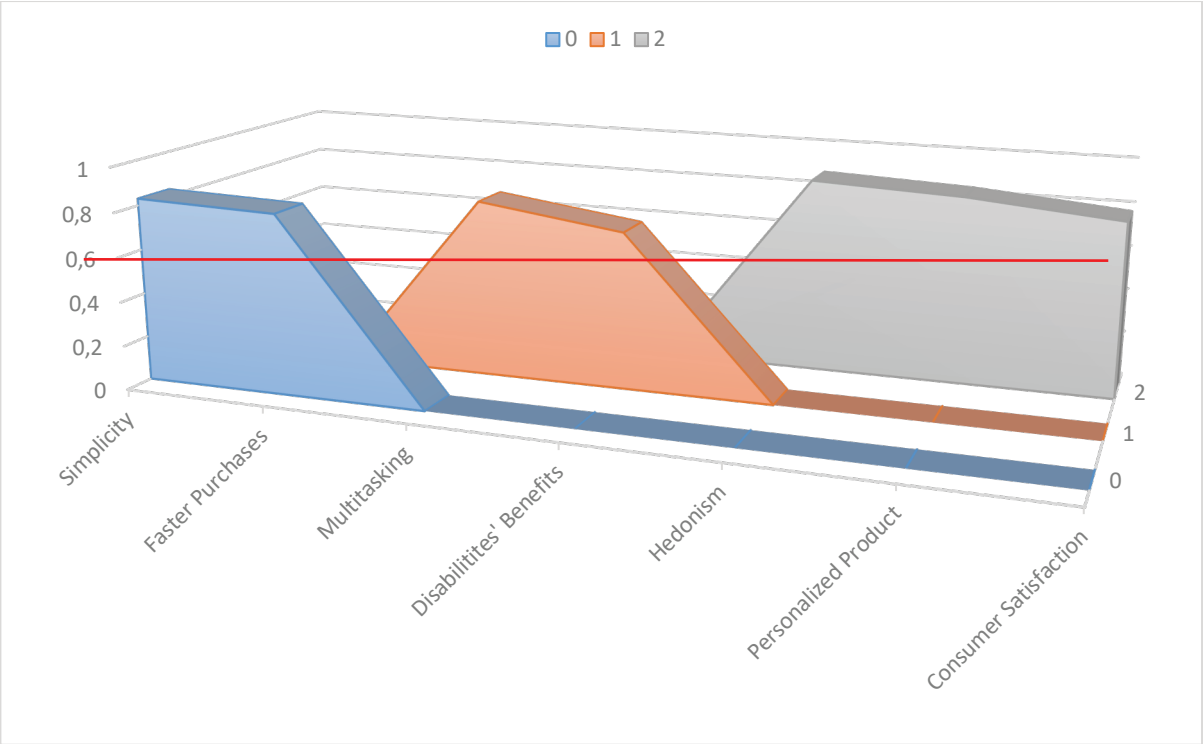
Clusters		**0**	**1**	**2**
Practicality in Using	Simplicity	0.83		
	Faster Purchases	0.81		
Hands-Free Solution	Multitasking		0.80	
	Disabilitites' Benefits		0.71	
Powerful Shopping Experience	Hedonism			0.88
	Personalized Product			0.85
	Consumer Satisfaction			0.79

Source: Authors

The Multitasking element in the Hands-Free cluster is closer to the average k-means value of 0.78 and enters that cluster, while the Disabilities Benefit is not close enough to the average value and that element is not part of the cluster. The Shopping experience cluster contains as many as three elements, namely: Personalized Product, Hedonism, and Satisfaction. All three

elements of the Shopping experience cluster are close to the average value and are an influential part of the mentioned cluster.

Figure 4: Plot of Clusters for VSEO's Effects on Users



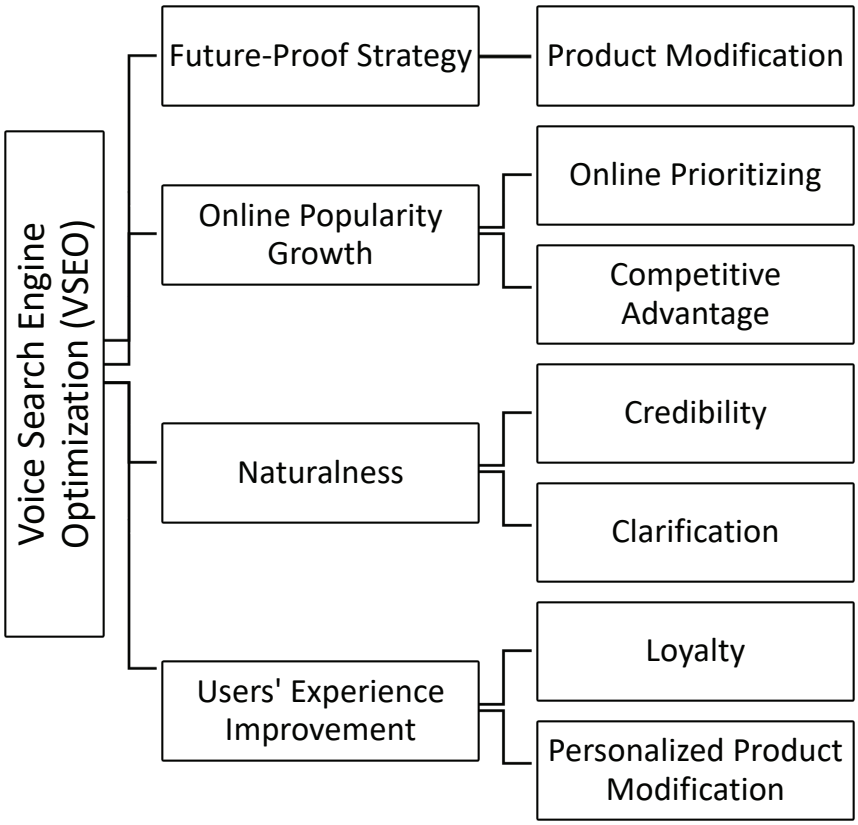
Source: Authors

The distances concerning the k-means value from the average, which is 0.78 (red line), are shown in Figure 4. The elements are quite balanced in all grouped clusters, only in the Hands-Free cluster, the Disabilites' Benefits element is not part of that cluster because it is further from the average value. Also, one can see a strong influence or close to the average value for the elements in the Practicality and Shopping Experience clusters, so the elements in the mentioned clusters are influential in the group.

5.2. Conceptual Framework Designing

Concerning the obtained clusters using the textual analysis of the sites of the effects of the application of VSEO on retailers and users and the assessment of the effects of the elements in each cluster, the design of conceptual frameworks of the effects of VSEO on retailers and users is carried out. The constructed conceptual framework for the effects of VSEO on retailers represents a model that serves as a recommendation to retailers for the expected effects resulting from the application of a voice search strategy that should improve retailers' digital marketing. In the presented framework of the effects of VSEO on retailers, the main effects of such an optimization strategy are Future-Proof Strategy, Users' experience, Online Popularity, and Naturalness. The effect of the Future-Proof Strategy contains an element of Product Modification, which explains and confirms the aforementioned findings in the literature review (López García et al., 2019; Rana et al., 2021) so that VSEO would contribute to the evaluation of future strategies regarding product modification of the retailers themselves.

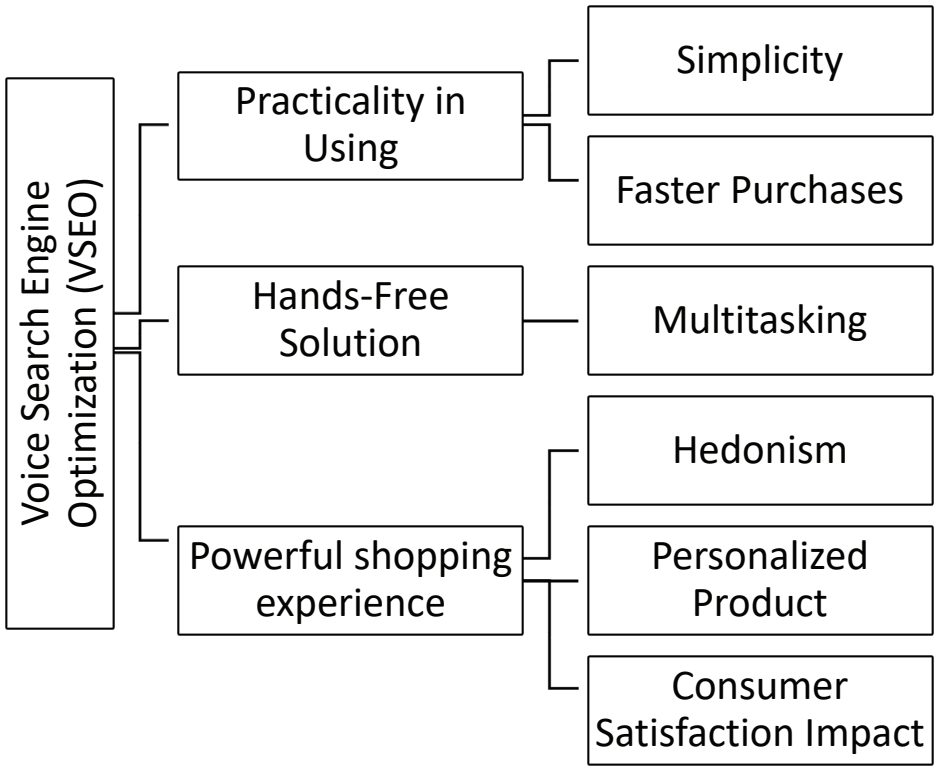
Figure 5: Proposed Conceptual Framework for Effects of VSEO on Retailers



Source: Authors

The elements related to the effect of online popularity of retailers in the observed conceptual framework are Online Prioritizing and Competitive Advantage, thus confirming the findings that VSEO can improve online popularity for retailers (Dwivedi et al., 2021; Lockett, 2018; Varadarajan et al., 2010) based on the fact that the contents of retailers are more primary in users' searches and that they bring them a certain competitive advantage in the market (Dwivedi et al., 2021; Quinones et al., 2023). The Naturalness effect refers to the element of credibility and clarity of the retailer's content because voice searches are linked to the possibility of natural voice acting, i.e. the speech of the users themselves, which provides retailers with a certain credibility if their business focuses on such optimization (Kautish et al., 2023). The included elements of the Users' Experience effect are Loyalty and Product Personalizing, which mostly confirm the findings of certain studies in the reviewed literature (Guy, 2016; Kautish et al., 2023) that VSEO in retailers can have the greatest impact on the relationship with customers, which is reflected in the creation of a stronger loyalty and ensuring a more personalized product for target segments.

Figure 6: Proposed Conceptual Framework for Effects of VSEO on Users



Source: Authors

As for the conceptual framework for the effects of VSEO on voice search users themselves, based on the conducted analysis, the model was constructed that illustrates the proposition that the effects on the end users of such technological possibilities appear when a certain retailer applies the specified strategy. In the presented framework of VSEO effects on users, the following effects are displayed: Practicality, Hands-Free, and Powerful Shopping. Hands-Free contains an element of Multitasking, which explains how VSEO contributes to the benefits for those who are enabled by voice search while working and doing various other things (Chen et al., 2021; Guy, 2016). The elements related to the effect of ease of use in the observed conceptual framework are Simplicity in Using and Faster Purchase, which is associated with the finding (Quinones et al., 2023) that the application of VSEO by marketers for users could improve the general ease of use of voice search in the form of simpler and faster purchases based on the fact that the contents of retailers are more primary in user searches (Chung et al., 2020; Xu et al., 2021) and that they bring them a certain competitive advantage on the market (Guy, 2016; Quinones et al. al., 2023).

The effect of Powerful Shopping has as many as three elements in the observed frame, namely: Hedonism, Consumer Satisfaction Impact, and Personalized Product. The framework for the effect of the Powerful Shopping Experience shown in this way confirms the findings of certain studies in the reviewed literature (Chen et al., 2021; Morotti et al., 2022; Quinones et al., 2023) that the application of VSEO in the retail sector mostly results in improving the user experience when shopping. Voice search during a purchase creates a sense of hedonism in the user, i.e. a carefree search for content and potential purchase (Kautish et al., 2023; Quinones et al., 2023). Also, the improvement of user experience based on VSEO at retailers is reflected in the effect of user satisfaction under the influence of user perception of more personalized content when shopping and searching using the user's speech (Chen et al., 2021; Morotti et al., 2022).

6. Conclusion

This research dealt with the issue of identification and application of VSEO in the retail sector and the effects of the actions of this new technological approach of AI on retailers and the users themselves. In the paper, a textual analysis of the key from the selected studies was carried out to create homogeneous groups or clusters, based on which conceptual frameworks were designed for the effects of VSEO on users and retailers.

The developed conceptual frameworks about the effects of VSEO on users and retailers provide a model that suggests to retailers the anticipated outcomes of implementing a voice search strategy, which ought to enhance their digital marketing. The major VSEO effects on retailers of such an optimization strategy are Future-Proof, User Experience, Online Popularity, and Naturalness in the scope of the effects of VSEO on retailers that are provided. Product modification is a component of the Future-Proof Strategy's effect, explaining and validating the findings of the literature review (López García et al., 2019; Rana et al., 2021) and allowing VSEO to help evaluate future strategies involving product modification on the part of the retailers themselves. Online Prioritizing and Competitive Advantage are the elements in the observed conceptual framework that are related to the effect of Online Popularity of retailers. This confirms the findings that VSEO can help retailers become more popular online because their content appears higher in users' searches and gives them a competitive advantage in the market (Dwivedi et al., 2021; Quinones et al., 2023). Voice searches are associated with the prospect of natural voice acting to Naturalness which refers to the aspect of credibility and clarity of the retailer's content, which gives a certain credibility for business focuses on the VSEO strategy. Loyalty and product personalization are included elements of the Users' Experience effect, and they do, in fact, largely support some studies' findings in the reviewed literature (Guy, 2016; Kautish et al., 2023) that VSEO in retailers can have a significant effect on the relationship with customers, as evidenced by the development of a more individualized product for target segments and a stronger sense of loyalty.

The following upsides are demonstrated in the scope of VSEO effects on users that are presented: Hands-free, Powerful Shopping, and Practicality. Multitasking is a component of Hands-Free, explaining how VSEO benefits users who can use voice search to do a variety of tasks while working (Chen et al., 2021; Guy, 2016). Simplicity in Using and Faster Purchase are the elements related to the effect of ease of use in the observed conceptual framework (Quinones et al., 2023) and are linked to the finding that the application of VSEO by marketers for users could improve the overall ease of use of voice search in the form of faster and simpler purchases because retailers' contents are more primary in user searches (Chung et al., 2020; Xu et al., 2021) and due to they give them a certain competitive advantage in the market (Guy, 2016; Quinones et al., 2023). Three components may be found in the observed frame of the effect of Powerful Shopping: Hedonism, the impact on consumer satisfaction, and Personalized Products. The framework illustrating the influence of the Powerful Shopping Experience supports the findings of some studies in the reviewed literature (Chen et al., 2021; Morotti et al., 2022; Quinones et al., 2023), which show that the majority of the time, using VSEO in the retail sector enhances the shopping experience for customers. Users who voice search while completing a purchase become more hedonistic, searching carelessly for information and possible purchases (Kautish et al., 2023; Quinones et al., 2023). Additionally, the effect of user satisfaction under the influence of the user's perception of more personalized material when buying and searching using the user's voice reflects the improvement of the user experience based on VSEO at stores (Chen et al., 2021; Morotti et al., 2022).

The results of the research verify the conceptual framework that was established and offer retailers advice on how to best include voice search into their marketing strategy, hence they may better understand which elements of their business such optimization will affect. These findings are helpful for academics and practitioners as they provide specific instances of the advantages, difficulties, and dangers of getting familiar with voice search trends in retail. The framework is a useful resource for AI experts in Marketing and R&D units in retail, providing precise instructions for starting and managing initiatives to include voice search into an organization's information systems. This research is built on selected studies and their key findings, based on which the textual analysis was carried out and conceptual frameworks were designed. This paper has some limitations. The basic limitation of this study is the way of designing the conceptual framework based on the analyzed studies from the literature review, using textual analysis, hence for future research it is suggested to use the established methodological framework for research implementation. As well, for further studies need to take a deeper look at the very methods of research analysis that deal with this kind of issue. In addition, the limitation of this research lies in the fact that mainly results from qualitative research were used. The recommendation for future research is certainly to conduct primary quantitative research based on the users of VAs that consumers trade on when searching for content on the Internet and their decision-making about online purchases using voice search tools. Furthermore, it would be desirable to examine the attitudes and perceptions of the retailers themselves regarding the application of VSEO in their digital marketing strategy.

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A scientific paper

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PERCEPTION OF BENEFITS AND RISKS OF ARTIFICIAL INTELLIGENCE AMONG THE YOUNG POPULATION

ABSTRACT

Technological development has always brought changes to the way people live and work. The modern era is characterized by accelerated development and wide usage of information and telecommunication technologies (ITC), which paves the way for the adoption of artificial intelligence (AI). Generative AI (gen AI) is an AI model that can generate content (text, image, video, audio, or code) on demand. Gen AI and the technologies on which it is based represent one of the leading disruptors in various spheres of human activity. Although there are numerous discussions about positive and negative effects of AI, there is no single solution for how to manage them, i.e. maximize benefits and minimize risks and prevent negative phenomena, such as privacy violations, theft of intellectual property, and threats to national security. The aim of the paper is to provide insight about perception of young people in Croatia about AI since it is not sufficiently researched. Research was conducted from January to March 2024. An online survey was distributed through social connections with the request of further sharing the link creating "snowball" effect. The paper presented preliminary results of 280 respondents up to 35 years old. Research questions were dealing with the degree to which young people use AI and how they perceive benefits and risks of AI. Among the respondents, the most used forms of AI are for identification on smart devices, text generation and chatbots. The results indicate that young people are aware of both the potential benefits and risks of AI, with the risks being highlighted to a slightly greater extent. The above indicates that although young people accept new technologies faster and easier than other age groups, this does not mean that they are not aware of their negative effects. The research limitations as well as guidelines for future research were stated in the paper. Finally, the importance of continuous information and education of all social groups about the positive, but also potentially negative aspects of the AI application were pointed out.

***Key words**: Artificial intelligence (AI), generative AI (gen AI), perception, benefits of AI, risks of AI.*

1. Introduction

Artificial intelligence (AI) is considered as "one of the most strategic technologies of the 21st century" (Council of the European Union, 2018) but the full extent of its impact on society, economy and environment has yet to be known. Although AI has been developing for decades and is used as an integral part in numerous technologies, it attracts a lot of public attention nowadays. The reason for this is the emergence of various publicly available large language models such as ChatGPT and Gemini, with the possibility of creating content on user request and communicating with people in a "human way". This is joined by various other AI models

for creating new content on request such as images or videos, for example Midjourney and DALL-E (McKinsey, 2023).

Given that AI is considered a novelty, all possible positive and negative effects of its wide application have not yet been fully understood. Therefore, it is not easy to determine the attitude of people towards AI. The main purpose of the paper is to analyze the attitudes of young people regarding the benefits and risks of using AI, given the lack of research in this field. Young people are open and curious by nature, like to experiment and more easily accept innovations, especially technical ones. However, the question is do young people have sufficient knowledge and information to be aware and critically assess positive but also negative effects of AI.

The research questions elaborated in this paper are:

1. To what extent do young people in Croatia use different forms of AI?
2. To what extent do they perceive benefits of AI?
3. To what extent do young people perceive the risks of using AI?

Below, a theoretical framework is presented in which key terms about AI, areas of application and benefits and risks are defined, followed by a presentation of previous research results on the perception of AI.

2. Theoretical background

2.1. Definition of artificial intelligence

Since there is no universal definition of the term artificial intelligence (AI), here are mentioned a few of them. UNESCO considers AI systems "as technological systems which have the capacity to process information in a way that resembles intelligent behavior, and typically includes aspects of reasoning, learning, perception, prediction, planning or control" (2020). In Oxford English Dictionary AI is described as "the capacity of computers or other machine to exhibit or stimulate intelligent behavior" (2023). According to McKinsey AI is "a machine's ability to perform the cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with an environment, problem solving, and even exercising creativity" (2023).

At the EU level the first definition was published in 2018, where "Artificial intelligence (AI) refers to systems that display intelligent behavior by analyzing their environment and taking actions with some degree of autonomy to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech, and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones, or Internet of Things applications)" (Council of the European Union, 2018). A year later definition was upgraded in: "Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behavior by analyzing how the environment is affected by their previous actions" (Independent High-level Expert Group on Artificial Intelligence set up by the European Commission, 2019).

Although AI takes many forms, currently there are two main categories: generative and traditional AI. ***Traditional AI***, (known as Narrow or Weak AI) is designed to do specific tasks intelligently (analyze data and make predictions) while ***Generative AI*** (gen AI) is considered as a next generation of AI (capable of creating new data like data on which is trained) (Marr, 2023). Gen AI is "an AI model that generates content in response to a prompt". Gen AI is considered as one of the most innovative areas of AI with a very wide area of application (McKinsey, 2023).

2.2. Areas of application

The impact of AI on society and the economy is emphasized by comparison with the invention of the steam engine and electricity and is considered as "one of the most strategic technologies of the 21st century". Even though some AI technologies have been around for more than 50 years, advances in computer power, access to a large amount of data, and new algorithms in recent years have led to new achievements in the field of AI (Council of the European Union, 2018, 1). AI applications extend from autonomous driving, medical care, media, finance, industrial robots to internet services (Huang et al. 2023). AI is already being applied in finance, healthcare, security, agriculture, and there are numerous opportunities in other areas. It is already difficult to imagine life without its use, but even greater changes in work and business are expected (Council of the European Union, 2018).

Traditional AI is already widely used, although people are often unaware of it. For instance, translation, subtitles on videos, blocking email spam, voice assistant (like Siri and Alexa), customer service chatbots on websites, face recognition on smart devices etc. ***Generative AI*** finds its application from art and music to medicine and engineering (Pranić, 2023). "Tools like ChatGPT and DALL-E (a tool for making AI-generated art) have the potential to change how a range of jobs are performed "(McKinsey, 2023). The application of AI in artistic fields attracts great attention, such as concerts of deceased artists (e.g. Elvis Presly, Roy Orbison, etc.) held with the help of AI and augmented reality (Hall, 2024).

Table 1 shows the ways of applying gen AI within different business functions (McKinsey, 2023).

Table 1: Cross functional areas of application of gen AI

Functional areas	**Application of gen AI**
Marketing and sales	personalized marketing, social-media, and technical-sales content, including text, images, and video
Operations	task lists for efficient execution of a specific activity
IT/engineering	write, document, and review code
Risk and legal	answer complex questions, based on vast amounts of legal documentation, draft, and review annual reports
R&D	accelerate product innovation (e.g. drug discovery through better understanding of diseases and discovery of chemical structures)

Source: McKinsey (2023)

The main application value of AI arises when it is used to assist humans, but companies should take care of explaining its role to earn trust of shareholders and public. Some of the benefits of AI adoption include product recommendations, for instance in the case of Amazon 35 percent of revenue comes from it. Furthermore, the application of AI in the field of marketing can provide new insight into business strategies and customer segmentation (McKinsey, 2023).

According to McKinsey survey adoption of AI models in 2022 doubled since 2017 and usage of AI spread from manufacturing and risk to marketing and sales, product and service development and strategy and corporate finance (2023). Recent research points out that applications of gen AI contribute to the global economy by 4.4. trillion USD on a yearly basis. It is estimated that "within the next three years' technology, media and telecommunications which are not connected to AI will be considered obsolete or ineffective" (McKinsey, 2014). However, the full potential as well as all the risks of AI application are not yet fully understood.

2.3. Benefits and risks

The Council of the European Union (2018) warns that the way it is approached to AI will define the future of the world. Accordingly, it is emphasized that AI systems should be safe, transparent, traceable, non-discriminatory, and environmentally friendly.
UNESCO pointed out the importance of public awareness, literacy and understanding of AI technologies. There is a need for raising digital skills and media literacy and to ensure participation of all members of society to take informed decisions about use and protection of undue influence of AI (2020). Stakeholder approach is emphasized which involves governments, intergovernmental organizations, civil society, academia, media, community leaders and the private sector. In the first draft of the Recommendation on the Ethics of AI it is acknowledged that AI technologies can be beneficial to humanity, but it is also emphasized importance of solving ethical issues. The biggest concerns are recognized in the form of potentially embedded biases, which might result in "inequality, exclusion and a threat to cultural, social and ecological diversity and social or economic divides" (UNESCO, 2020, 1). Therefore, it is stressed "the need for transparency and understandability of the workings of algorithms and the data with which they have been trained; and their potential impact on humans… social, economic, political, and cultural processes, scientific and engineering practices, animal welfare, and the environment and ecosystems" (UNESCO, 2020).
In 2021 the first global normative act, the Recommendation on the Ethics of AI was adopted by 193 UNESCO' member states. The aim is to create an effective framework for the ethical development and use of AI, for assessing the resilience of existing laws, policies, and institutions to AI implementation in the country, as well as the alignment of AI systems with the stated values and principles (UNESCO, 2023).

2.3.1. Benefits of AI

The unique ability to learn distinguishes AI from any other technology to date. It is designed to serve and help humans in making the best decisions (Gomes et al., 2020, cited in: Qin et al., 2023). Gradually, AI is turning into irreplaceable technological support in daily social and economic activities (Naimi-Sadigh et al., 2021). AI already creates significant contribution to sustainable economic development in all industries attracting attention at the industry, academic and government levels (Heylighen, 2017). It is assumed that activities related to AI will become enablers of further economic development resulting in "fundamental shifts in the structure and approach to production, and in the quantity and quality of consumption" (Vyshnevskyi et al., 2019, cited in: Qin et al., 2023, 2). Application of AI could enable businesses to become more efficient and profitable (McKinsey, 2023). Huang et al. (2023) agreed that the wide application of AI in the economy and society contributes to efficiency and produced numerous benefits, but not without ethical concerns.

2.3.2. Risks of AI

The usage of AI also brings numerous risks. For instance, gen AI could "confidently produce inaccurate, plagiarized, or biased results, without any indication that its outputs may be problematic" (McKinsey, 2023). The main reason is that AI models have been trained on internet information which cannot be treated as a fully reliable source. Cybersecurity is identified as a top global concern related to AI (World Economic Forum, 2020). Brynjolfsson and McAfee (2017) stated three major risks of AI; hidden biases generated from the data on which the system is being trained, lack of proof that system will work in all cases particularly in the situations that were not represented in the training data, and in case of errors it will be extremely difficult to diagnose and make corrections. The same authors provide their view about limitations of AI; it is good in answering questions but not in posing them. Therefore, they see the important role for people like entrepreneurs, scientists, and creators to figure out what problem or opportunity to take care and what new paths to explore. Long term overreliance on AI can create threats for humans (McClure, 2017, cited in: Qin et al., 2023) in the form of unemployment, moral and ethical risk and personal privacy concerns which are often mentioned by different authors (Kak, 2018, cited in: Qin et al., 2023).
Huang et al. (2023) provide a comprehensive overview of the ethical issues of AI pointing to specific problems such as privacy leakage, discrimination, unemployment, and security risk. The same authors propose their own classification of ethical issues of AI at the level of the individual, society, and environment (Table 2).

Table 2: Classification of AI ethical issues

Ethical Issues at Individual Level	Safety, Privacy & Data Protection, Freedom & Autonomy, Human Dignity
Ethical Issues at Societal Level	Fairness & Justice, Responsibility & Accountability, Transparency, Surveillance & Datafication, Controllability of AI, Democracy and Civil Rights, Job Replacement, Human Relationship
Ethical Issues at Environmental Level	Natural Resources, Energy, Environmental Pollution, Sustainability

Source: Huang et al. (2023, 802)

Authors (Lee & Kim, 2020) discussed the role of active participation in technology development as a prevention from AI threatening humanity and suggested a discipline named AIH (Artificial Intelligence Humanities) with the goal of determining what functions humans will perform and how human values should be defined in the age of AI. Byk (2021) suggests that in a situation where some people favor a ban while others want to encourage the development of AI, a better approach is to anticipate an unpredictable future at the global level rather than try to regulate it at the national level.

3. Previous research results

Brauner et al. (2023) emphasized that AI is still a "black box" for many, therefore both sides, positive but also negative, cannot "be adequately assessed, which can lead to biased and irrational beliefs in the public perception of AI". Therefore, authors advocate AI literacy for enabling informed decision-making. According to Protzko and Schooler, (2023) "people who are more interested in the technology or who are more receptive to the societal change are undoubtedly more likely to be early adopters." "Understanding the individual perspective plays a central part since the adoption and diffusion of new technologies such as AI and machine

learning (ML) can be driven by greater acceptance or significantly delayed by perceived barriers" (Young et al., 2021, cited in: Brauner et al., 2023). Although AI attracts great public interest, it is important to "regularly update these academic insights" (Zuiderwijk et al., 2021).

According to Nahar (2024) people have either balanced or polarized attitudes toward concerns about AI effects. The author has presented a comprehensive model which integrates the effects of AI-based innovation on Sustainable Development Goals (SDGs), using information from 22 countries (including developed and developing). Key findings exhibit varying impacts of AI on different SDGs, which is consistent with other study results (Bag et al., 2021, cited in: Nahar, 2024). Even though "AI-related concerns are both complex and multidimensional, the findings of this study are consistent with the idea and context of *AI for Good*" (Nahar, 2024).

3.1. Results from previous research in other countries

Standford Institute for Human-Centered Artificial Intelligence (HAI) established wide collaboration with researchers and institutions from and beyond Stanford University with a mission "to advance AI research, education, policy, and practice to improve the human condition" (Standford University – HAI, 2019). AI Index Report for 2023 announced results about public opinion about AI from a survey done by IPSOS in 2022 where respondents from different countries were asked if they agree with the statement that products or services with AI have more benefits than disadvantages. The most respondents who agreed were from China (78% respondents), Saudi Arabia (76%) and India (71%) compared to only 35% of American respondents who agreed with that statement (Standford University – HAI, 2023).

In the EU (sample of respondents from 28 member states) six out of ten respondents (61%) have a positive view of robots and AI, while 30% have a negative view. Attitudes to AI depend greatly on respondents' information level about the topic. Almost nine out of ten respondents (88%) think these technologies need to be carefully managed (European Commission, 2017). Respondents from the northern countries (Denmark 82%, Netherlands 81%, and Sweden 80%) have more positive view of robots and AI compared to southern countries (three countries where fewer than half have a positive view are Greece 47%, Croatia 48%, and Cyprus 49%) (European Commission, 2017a).

Brauner et al. researched public perception of AI in Germany on the sample of 122 respondents using 38 statements about AI in different contexts (personal, economic, industrial, social, cultural, health). Authors create a map based on the perceived evaluation and perceived likelihood of these aspects to become reality. Fear of cybersecurity threats was the most critical factor because is seen as "highly likely and least liked" (2023).

According to data from the Digital Europe Association only 8% of European companies use AI, which is far from the European Commission's goal of 75 % by 2030. Changes in the way of working, more time for creative and intellectual work, while AI does the "hard" part, were highlighted as the key opportunities for business and society from the application of AI (L.Š./HINA, 2023).

3.2. Results from previous research in Croatia

According to research from the Croatian Chamber of Commerce (conducted on 342 companies in 2023) AI is considered important by 92% of companies, but almost two-thirds of companies do not have a developed strategy for applying AI in business. 50% of large companies form the

research apply some of the AI tools, mostly in the automation of business processes. The main challenge in the application of AI, for 75% of the respondents, is a lack of knowledge and skills. Only 5% of companies regularly educate employees about AI, and 20% sometimes. 62% of the respondents are not afraid of losing their job due to AI, but the fear increases among employees at the lower positions (L.Š./HINA, 2023).

With the development of the Internet and digital technologies, the concept of digital literacy is also evolving. Digital skills or digital literacy no longer imply only general technical knowledge and culture of using the Internet, but a digitally literate person is "aware of the advantages and disadvantages of different forms of media, sources of information and the value of the information he or she finds" (Center of the Internal Market EU, 2019). According to the DESI (Digital Economy and Society Index) for 2022, Croatia ranks 9th of the 27 EU countries in Human capital. In Croatia 63% of people between 16 and 74 years have basic digital skills (compared to the EU average of 54%), and 31% of individuals have advanced digital skills (compared to the EU average of 26%) (European Commission, 2022).

The first survey in Croatia on perception about AI was conducted in 2023 on a sample of 1,300 respondents. High level of digital literacy was observed in 24.5%, medium in 47.9% and low in 27.6% of the respondents. The level of AI literacy was high at 19.3%, medium in 54.5% and low in 26.2% of the respondents. The level of digital and AI literacy was lower among older age groups and the less educated. The research results showed that the general attitude towards AI was slightly more negative (30%) than positive (22%), with the largest number of undecided (48%) respondents. Yet, more citizens believed that the opportunities and advantages (33%) of products and services using AI outweigh the threats and risks (23%) (Kopal, 2023).

4. Methodology and research results

4.1. Methodology

A preliminary list of claims about the advantages and risks of AI was created based on the works (Brauner et al., 2023, Kopal, 2023 and McKinsey, 2023). A two-step qualitative research was conducted with the purpose of narrowing the initial lists of claims and to check clarity of the statements. Six structured interviews were conducted (with three consultants specializing in digital transformation and with three IT experts for program support in the application of traditional AI tools). Through interviews initial lists of claims for benefits and risks (each consisting of 20 claims) are narrowed to 11 statements for each and were later used in the survey questionnaire. In the second step, the understanding of the statements from the questionnaire was verified in a way that the survey was filled out by six respondents: three high school students and three undergraduate students.
The final version of the questionnaire was created using a Google Forms. It consists of 13 questions grouped into three categories: demographic characteristic, usage of digital technologies and perception towards benefits and risks of AI.

The research about people's perception of benefits and risks of AI was conducted in the period from January to March 2024. The questionnaire was distributed online (with the link to a survey on Google Forms) through author′s private, academic, and business networks, with a request for further distribution of the questionnaire, which created the so called "snowball" effect. A special request was sent to parents with children aged 15 to 18 to distribute the questionnaire to them so that they could participate in it.

The research was conducted on a convenient sample (of 532 respondents of different age groups) based on author′s social connections, and here are presented preliminary results only for the younger group of respondents (280) since they are in the focus of this paper.

Although the universal characteristic of youth is age, researchers are not unique in determining the boundaries of youth. The established rule is that the lower limit is taken as 15 years, while the upper limit no longer stops at 25, but is often used at 30, and there is a visible tendency to move the youth limit to 35 years (Central State Office for Demography and Youth, 2023). In this work, 35 years is taken as the upper age limit of youth (the same age group is also used in the AI Index Report from HAI – Standford University).

4.2. Results

Table 3 shows the main demographic characteristics of the respondents. Out of 280 respondents 15% were under 18 years old, 30% were between 18 and 23, 36.43% were between 24 and 29, and 18.57% were at the age of 30 to 35 years.

Table 3: Demographic characteristics of the respondents

Age	***N = 280***	***(%)***
1. (less than 18)	42	15.00
2. (18 to 23)	84	30.00
3. (24 to 29)	102	36.43
4. (30 to 35)	52	18.57
Gender		
1. F (female)	198	70.71
2. M (male)	78	27.86
3. Not declared	4	1.43
Education		
1. Primary	36	12.86
2. Secondary	102	36.43
3. Bachelor	64	22.86
4. Graduate	66	23.57
5. Postgraduate	12	4.28
Working status		
1. Pupil	50	17.86
2. Student	66	23.57
3. Study & work	60	21.43
4. Employed	100	35.71
5. Unemployed	4	1.43

Source: Author

Table 4 represents the answers to the question about the frequency of usage of different forms of AI. Respondents were asked to estimate the degree of usage for traditional forms of AI (such as chatbots, voice assistants, and identification by fingerprint or face recognition on smart devices), and new forms of gen AI (content generated on demand, such as text, images, music, and video content).

Table 4: Frequency of usage of different forms of AI

Usage of AI	***1 (never)*** *(%)*	***2 (sometimes)*** *(%)*	***3 (often)*** *(%)*
Generative AI:			
1. text generation	20.71	43.58	35.71
2. picture generation	80.00	18.57	1.43
3. music generation	92.15	7.14	0.71
4. video content generation	76.43	20.71	2.86
Traditional AI:			
5. chatbot	48.57	37.14	14.29
6. voice assistant	57.14	30.00	12.86
7. identification on smart devices	16.43	12.86	70.71

Source: Author

As shown in table 4, only two out of seven forms of AI are often used among respondents. From the traditional AI forms the most often is used identification on smart devices (70.71%), while among gen AI the most often form is used for text generation (35.71%). When the two categories of answers are combined ("sometimes" and "often"), the percentage of the respondents who tried AI grows. Occasional usage grew to 83.57% for the identification on smart devices, 51.43% for chatbot and 42.86% for voice assistant. In the category of gen AI occasional usage raised to 79.29% for text generation. It is worth mentioning that other forms of gen AI (except for text generation) majority of the respondents have not tried yet.

Table 5 shows the respondents' answers regarding the benefits, and table 6 regarding the risks associated with the usage of AI. Respondents were offered 11 statements for each, and they should mark their level of agreement on a Likert scale (1 - *I do not agree at all*, 5 - *I agree completely*). In the tables (5 and 6) the following results were presented: frequency of the answers for each statement on scale 1 to 5, mean, median and standard deviation. The frequency of responses for each statement (tables 5 and 6) is interpreted as follows: a) scores 4 and 5 as agreement, b) score 3 as a neutral or ambivalent attitude, c) scores 1 and 2 as disagreement.

Table 5: Benefits of AI usage

Benefits of AI usage	***1*** *(%)*	***2*** *(%)*	***3*** *(%)*	***4*** *(%)*	***5*** *(%)*	***Mean***	***Med.***	***Std. dev.***
1. Increasing wealth and quality life of the elite	7.15	15.71	45.00	26.43	5.71	3.09	3	0.96
2. Improved work and business efficiency	5.00	5.71	23.58	55.71	10.00	3.60	4	0.92
3. More free time for individuals	3.57	8.57	16.43	52.86	18.57	3.74	4	0.97
4. Replacement of people in dangerous, demanding jobs	8.57	10.00	22.85	38.58	20.00	3.51	4	1.17
5. Increasing innovation in all areas	7.14	10.00	35.00	34.28	13.58	3.37	3	1.06
6. Creation of new and better paid jobs	6.42	15.72	36.42	27.86	13.58	3.26	3	1.08
7. Advances in medicine, prolongation of life span	6.42	7.86	25.00	43.57	17.15	3.57	4	1.06
8. Solving social conflicts in a peaceful way	13.57	20.00	38.58	23.57	4.28	2.85	3	1.06

Benefits of AI usage	***1*** *(%)*	***2*** *(%)*	***3*** *(%)*	***4*** *(%)*	***5*** *(%)*	***Mean***	***Med.***	***Std. dev.***
9. Solving environmental and other complex problems	11.43	17.14	37.86	27.85	5.72	2.99	3	1.06
10. Further accelerated technological progress	2.14	2.86	20.71	46.43	27.86	3.95	4	0.89
11. Welfare of society as a whole	12.14	20.00	44.29	19.28	4.29	2.83	3	1.01

Source: Author

For all statements about benefits of AI (table 5) majority of the respondents expressed either agreement (grades 4 and 5), or neutral or ambivalent attitude (grade 3) compared to grades 1 and 2 as disagreement. Most of the respondents expressed agreement with the following statements about benefits of AI (frequency of grades 4 and 5 in %):
(1) *Further accelerated technological progress* (74.29),
(2) *More free time for individuals* (71.43),
(3) *Improved work and business efficiency* (65.71),
(4) *Advances in medicine, prolongation of life span* (60.72),
(5) *Replacement of people in dangerous, demanding jobs* (58.58),
(6) *Increasing innovation in all areas* (47.86),
(7) *Creation of new and better paid jobs* (41.44).
About the following statements respondents were more divided in their opinions, and the large presence of grade 3 indicate that respondents are still undecided (in %):
(8) *Increasing the wealth and quality of life of the elite* (45.00),
(9) *Solving environmental and other complex problems* (37.86),
(10) *Solving social conflicts in a peaceful way* (38.58),
(11) *Welfare of society* (44.29).

In all cases the median is equal to the mode value, and in the case when the median is greater than the mean value, this indicates a negatively asymmetric distribution of responses in the zone of higher values which is valid for eight statements: 2, 3, 4, 7, 8, 9,10 and 11 (table 5). Standard deviation as a measure of dispersion ranges from 0.87 to 1.17 (table 5).

Table 6: Risks of AI usage

Risks of AI usage	***1*** *(%)*	***2*** *(%)*	***3*** *(%)*	***4*** *(%)*	***5*** *(%)*	***Mean***	***Med.***	***Std. dev.***
1. Loss of jobs	1.43	7.86	17.85	55.72	17.14	3.79	4	0.86
2. Threat to rights and freedoms in society	2.86	18.58	32.85	31.43	14.28	3.36	3	1.03
3. Increase in discrimination and inequality in society	7.14	18.57	38.57	27.14	8.58	3.11	3	1.03
4. Unethical development and application of AI	1.43	5.71	25.00	45.72	22.14	3.81	4	0.89
5. Abuse for political or military purposes	2.14	6.43	25.00	36.43	30.00	3.86	4	0.99
6. Hacking of systems and institutions	5.00	5.00	18.57	40.72	30.71	3.87	4	1.06
7. Loss of citizens' privacy	3.57	6.43	27.86	37.86	24.28	3.73	4	1.01
8. Encouragement to laziness	6.43	12.14	22.14	33.57	25.72	3.60	4	1.17

Risks of AI usage	***1*** *(%)*	***2*** *(%)*	***3*** *(%)*	***4*** *(%)*	***5*** *(%)*	***Mean***	***Med.***	***Std. dev.***
9. Decline of creativity and innovation	7.14	12.14	25.72	35.00	20.00	3.49	4	1.15
10. Socially & environmentally irresponsible AI application	7.14	10.71	33.58	32.86	15.71	3.39	3	1.09
11. Inability to control AI	7.86	10.00	27.86	32.86	21.42	3.50	4	1.16

Source: Author

In the case of statements about risks of AI (table 6) majority of the respondents expressed either agreement (grades 4 and 5), or neutral or ambivalent attitude (grade 3) compared to grades 1 and 2 as disagreement. Most of respondents expressed their agreement with the following (grades 4 and 5 in %):
(1) *Loss of jobs* (72.86),
(2) *Hacking of systems and institutions* (71.43),
(3) *Unethical development and application of AI* (67.86),
(4) *Abuse for political or military purposes* (66.43),
(5) *Loss of citizens' privacy* (62.14),
(6) *Encouragement to laziness* (59.29),
(7) Decline of creativity and innovation (55.00),
(8) *Inability to control AI* (54.28),
(9) *Socially & environmentally irresponsible AI application* (48.57),
(10) *Threat to rights and freedoms in society* (45.71).
Respondents were mainly divided and most of respondents remain undecided (grades in %):
(11) *Increase in discrimination and inequality in society* (38.57 grade 3 compared to 35.72 grades 4 and 5, and 25.71 grades 1 and 2).

In all cases the median is equal to the mode value, and in the case when the median is greater than the mean value, this indicates a negatively asymmetric distribution of responses in the zone of higher values which is valid for eight statements: 1, 4, 5, 6, 7, 8, 9 and 11 (table 6). Standard deviation as a measure of dispersion ranges from 0.86 to 1.17 (table 6).

Table 7: Comparison of the results: benefits vs. risks of AI

Benefits of AI	***Mean (3.34)***	***Risks of AI***	***Mean (3.59)***
1. Further accelerated technological progress	3.95	1. Hacking of systems and institutions	3.87
2. More free time for individuals	3.74	2. Abuse for political or military purposes	3.86
3. Improved work and business efficiency	3.60	3. Unethical development and app. of AI	3.81
4. Advances in medicine, longer life span	3.57	4. Loss of jobs	3.79
5. Replacement of people in dangerous jobs	3.51	5. Loss of citizens' privacy	3.73
6. Increasing innovation in all areas	3.37	6. Encouragement to laziness	3.60
7. Creation of new and better paid jobs	3.26	7. Inability to control AI	3.50
8. Increasing wealth and life quality of elite	3.07	8. Decline of creativity and innovation	3.49
9. Solving environ. and other complex issues	2.99	9. Socially and environ. irresponsible AI app.	3.39
10. Solving social conflicts in a peaceful way	2.85	10. Threat to rights and freedoms in society	3.36
11. Contribution to welfare of the society	2.84	11. Increasing discrimination and inequality	3.11

Source: Author

In table 7 statements about the risks and benefits of AI are ordered from highest to lowest mean value. Mean values for the benefits of AI are in the wider range (from 3.95 to 2.84) compared to the range for the risks (from 3.87 to 3.11). The overall mean for AI benefits is 3.34 and for

AI risks 3.59. Five statements about benefits have a mean value around or higher than 3.5 compared to eight statements about risks, indicating that respondents perceive more risks of AI.

4.3. Discussion, limitations, and recommendations for future research

From the presented results (table 5, 6 and 7) it is visible that respondents under the age of 35 are aware of both the benefits and the risks of AI. For 11 offered statement about benefits and risks they could express their agreement or disagreement on a scale from 1 to 5.
More than a half of the respondents agree with the five stated benefits of AI:
(1) *Further accelerated technological progress*, (2) *More free time for individuals,* (3) *Improved work and business efficiency,* (4) *Advances in medicine, prolongation of life span,* (5) *Replacement of people in dangerous, demanding jobs.*
The same statements have median and mode equal 4, and mean value higher than 3.5.

More than a half of the respondents agree with the following eight stated risks of AI: (1) *Loss of jobs*, (2) *Hacking of systems and institutions*, (3) *Unethical development and application of AI*, (4) *Abuse for political or military purposes*, (5) *Loss of citizens' privacy*, (6) *Encouragement to laziness*, *(7) Decline of creativity and innovation*, (8) *Inability to control AI*.
The same statements have median and mode equal 4, and mean value 3.49 or higher.

Based on the presented research results, below are the answers to the research questions.
1. To what extent do young people in Croatia use different forms of AI?
As shown in table 4 two out of seven offered AI forms are most often used. Combined results including people who use it often or sometimes showed that identification on smart devices is used from 83.58% of respondents, text generation on demand from 79.29%, and chatbots from slightly more than a half of the respondents (51.43%).
There are high numbers of respondents who did not try gen AI for music (92.15%), picture (80%), or video generation (76.43%). In the case of voice assistants (57.14%) or chatbots (48.57%), there is also a high number of respondents who have never used them.
In the case of young people, it was expected that they use different forms of AI quite often, which was confirmed for only three out of seven AI forms.

2. To what extent do they perceive benefits of AI?
Respondents agree the most with the five benefits of AI (out of 11 offered statements): *Further accelerated technological progress, More free time for individuals, Improved work and business efficiency, Advances in medicine, prolongation of life span and Replacement of people in dangerous, demanding jobs.*
Respondents have mostly neutral attitudes toward the statements: *Increasing innovation in all areas, Creation of new and better paid jobs, Increasing the wealth and quality of life of the elite, solving environmental and other complex problems, solving social conflicts in a peaceful way, Creating welfare for the whole society.*

3. To what extent do young people perceive the risks of using AI?
Respondents agree the most with the eight risks of AI (out of 11 offered statements): *Hacking of systems and institutions, Abuse for political or military purposes, Unethical development and application of AI, Loss of jobs, Loss of citizens' privacy, Encouragement to laziness*, *Inability to control AI* and *Decline of creativity and innovation.*
They moderately agree with the statements: *Socially and environmentally irresponsible application of AI, Threat to rights and freedoms in society,* and remain neutral (undecided) about: *Increase in discrimination and inequality in society.*

Young people in Croatia lives in conditions that are significantly different from those in which earlier generations of young people grew up. Young people are an important social resource but also a driving force of future social progress. In that context it is important to understand their perception and attitudes towards new technologies since it could influence the speed of their acceptance and wider usage. At the same time, it is important that all social groups, including young people, have sufficient information and education about potential risks and benefits connected to AI. This paper aims to contribute to the understanding of young people's perception of artificial intelligence, given the lack of research on that subject.

From the exhibited results, it could be concluded that respondents under the age of 35 are aware of both the benefits and the risks of AI. More than half of the respondents agreed with the eight statements connected to the risks in relation to the benefits of AI (only five). The results of the research by Brauner et al. (2023) where the biggest threats were: the possibility of hacking AI, control over private life and leading to greater isolation indicated similar risks as the results of this research. Research by Kopal (2023) showed that the general attitude towards artificial intelligence among the Croatian population is somewhat more negative than positive, with the largest number of undecided respondents, which can also be linked to the results of this research.

Limitations of the conducted research come from the nature, size, and structure of the sample; therefore, the presented results can be viewed as indicative i.e. preliminary. Since the convenient sample was used, results cannot be considered as representative. Concerning gender ratio, in the sample women were represented by 70.71% which can influence the research results. Namely, according to AI Index Report (Standford University – HAI, 2023) men are more likely than women to believe that AI will mostly help rather than harm.

Recommendations for the future research are to conduct research on a representative sample, to regularly update list of benefits and risks according to new findings, to make comparison between different age groups and between countries, and to carry out longitudinal research to track the trends.

5. Conclusion

AI is considered as one of the most exciting technological achievements, but all possible negative and positive effects on society, economy and environment are not yet fully understood. As the Council of the EU warns the way it is approached to AI will define the future of the world. The Recommendation on the Ethics of AI, the first global normative act, states that AI technologies can be of a great benefit to humanity but also addresses fundamental ethical concerns, e.g. biases, potentially resulting in inequality, exclusion, and a threat to cultural, social, and ecological diversity, social or economic divides. Therefore, a stakeholder approach is needed with the active and responsible contribution from governments, intergovernmental organizations, civil society, academia, media, community leaders and the private sector.

In the paper were presented preliminary results for younger respondents aged up to 35 years. Younger respondents from Croatia use different forms of AI, but not all equally frequently. The most often used forms are AI: for identification on smart devices, chatbots and gen AI for text generation. Based on the presented results about benefits and risks of AI, it is evident that young people are aware of both, with the risks being highlighted to a somewhat greater extent in relation to the benefits. The above indicates that although young people accept new ITC technologies faster and easier than other age groups, it does not mean that they do not perceive

the risks of it. They see AI as a powerful tool that can improve many aspects of life, but they are also concerned about the potential for misuse.

Considering AI still as a novelty and having in mind that all consequences of its application are still unknown, it is advisable to continue with the research in this area. It is important to raise public awareness, literacy and understanding of AI technologies to ensure that all members of society can make informed decisions about the usage of AI systems.

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A scientific paper

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THE ROLE OF AUGMENTED REALITY IN IMPROVING EXPERIENTIAL MARKETING IN TOURISM DESTINATION

ABSTRACT

The research area of the paper includes augmented reality experiential marketing, tourist experience satisfaction, and tourist loyalty. This paper explores the possibility of using augmented reality in experiential marketing as an experience provider to achieve tourist experience satisfaction and loyalty. The conceptual model was set to test the relationship between variables, and the research was conducted using the experiment and survey methods. Data were analyzed using univariate, bivariate, and multivariate statistical methods. The constructs, dimensions, and variables of the conceptual model were evaluated by calculating the basic parameters of the descriptive analysis. Bivariate statistical analysis methods were used to implement factor analysis. Within the multivariate statistical analysis, exploratory factor analysis, validity, and reliability analysis were performed using the Cronbach alpha coefficient and structural equation modelling. The research results indicate a positive influence of tourist experience satisfaction on tourist loyalty; experiential marketing positively impacts tourist experience satisfaction and has a minor but positive influence on tourist loyalty. The results also showed that the acceptance of augmented reality technology moderates the relationship between experiential marketing and tourist experience satisfaction, and augmented reality as an experience provider positively influences the feel module, think module, and act module of experiential marketing.

Key words: *experiential marketing, augmented reality, tourist experience satisfaction, tourist loyalty.*

1. Introduction

Research indicates a growing demand among tourists for enriching information (Fritz et al., 2005), essential for destinations to remain competitive and sustain pre-pandemic growth trends. The UNWTO (2024) reports that 2023 international tourism reached 88% of pre-pandemic levels, with 1.3 billion arrivals. One of the ways for destinations to sustain growth trends is by using technology that has become necessary for the further development of destinations as it increases their competitiveness and attractiveness. New technologies have enabled the development of new tourist offers that can transform traditional experiences and create new types of tourist experiences, such as experiences created using virtual reality (VR), augmented reality (AR), and other technologies. Augmented reality (AR) has proven to be the technology that can create memorable tourist experiences, especially during the stay at the destination.

This paper suggests that incorporating augmented reality (AR) in tourism can create additional content by merging virtual elements with real-world experiences, thus enhancing

tourist satisfaction and loyalty through experiential marketing. The subject of this paper is the impact of augmented reality experiential marketing on tourist experience satisfaction and loyalty. The research objectives are to determine the relationship between tourist experience satisfaction and tourist loyalty, to explore the relationship between experiential marketing and tourist experience satisfaction during the stay in the destination, to investigate the relationship between experiential marketing and tourist loyalty, to explore the moderating influence of the acceptance of augmented reality technology on the relationship between experiential marketing and tourist experience satisfaction, and to determine which module of experiential marketing influences most the creation of an unforgettable tourist experience by using augmented reality as an experience provider.

2. Theoretical Background

2.1. Augmented Reality Experiential marketing

Market trends that represent early signs of the need for a different marketing approach have enabled the creation of experiential marketing, including the development of new technologies and the ubiquity of information technology (Schmitt, 1999; Smilansky, 2009), brand dominance (Schmitt, 1999), the omnipresence of communication and entertainment (Schmitt, 1999), more demanding consumers, increasing and intensifying competition (Rahman & Heikal, 2021), noise in communication channels, and the loss of significance of traditional communication channels (Smilansky, 2009). Experiential marketing, generally and with the broadest scope, was first mentioned by Schmitt (1999) as a response to the inability of traditional marketing to adapt to the new market conditions of information overload and the communication revolution. He defines it as an integrated methodology that constantly engages the target group in the communication process, adding specific value to products and services. The key characteristics of experiential marketing focus on the consumer experience, offering sensory, emotional, cognitive, behavioural, and relational values that replace the functional values of traditional marketing. This approach emphasizes the consumption process as a holistic experience within a broader socio-cultural context, recognizing consumers as rational and emotional beings driven by desires for fantasies, feelings, and entertainment (Holbrook & Hirschman, 1982). Schmitt's experiential marketing comprises two concepts: experience modules and experience providers, which can be applied individually or in combination to create memorable experiences. Experience modules include sensory experiences (SENSE module) stimulated through the five basic human senses (sight, hearing, smell, taste, touch), emotional experiences (FEEL module) stimulated by evoking consumer emotions to connect emotional stimuli with a feeling strategy to influence mood and emotions, cognitive experiences (THINK module) focused on consumer intelligence to foster cognitive thinking and problem-solving with creative solutions, action experiences (ACT module) related to physical experiences, long-term behaviour patterns, and lifestyles, as well as experiences resulting from interactions with others, and relational experiences (RELATE module) aimed at building connections with other people, social groups, and social constructs to create relationships between the brand and consumers. Haumer et al. (2020) state that experiential marketing results in sensory, emotional, intellectual experiences, and action experiences. The recommended sequence for creating experiences (“experience wheel”) starts with sensory experiences, moves to emotional experiences, cognitive experiences, action experiences, and finally relational experiences. Implementing experience modules is possible with experience providers that include communications, visual and verbal signage, product presence, co-branding, spatial environment, electronic media, and people, with all marketing

efforts occurring before and after purchasing a product (Schmitt, 1999). This model of experiential marketing, combining experience modules and experience providers creates a network of experiences, illustrating their relationships. Yuan & Wu (2008) view experiential marketing as a marketing tactic created by companies that include the complete physical environment and other stimuli for consumers to experience. Smilansky (2009) links experiential marketing to brand management. It defines it as identifying and satisfying consumer needs and aspirations, including them in two-way communication that adds value to the target group and revitalizes the brand identity.

Augmented Reality Experiential Marketing (AREM) combines augmented reality with experiential marketing, focusing on the entire consumer experience rather than just the product/service, utilizing computer-generated content to enhance marketing by engaging all consumer senses (Schmitt, 1999; Dadwal & Hassan, 2015, Haumer et al., 2020). Seen as a digital marketing form due to technological advances, AREM aims to create interactive consumer experiences (Dadwal & Hassan, 2015). AREM is enhancing customer satisfaction, market share, and ROI through brand engagement and the "wow factor" (Jin & Yazdanifard, 2015). Kumar et al. (2023) proposed a theoretical framework that can be integrated into the experiential marketing model, which emphasizes the means-end chain perspective, highlighting how AREM can facilitate the connection between consumer needs and the ultimate value provided by the product or service, thereby enhancing the holistic consumption experience within a broader socio-cultural context. AREM aids in various consumer decision-making stages, from problem recognition to post-purchase behaviour, by influencing perceptions, aiding in information search, and setting proper expectations (Dadwal & Hassan, 2015). Despite its potential, limited research exists on AR's marketing applications, focusing mainly on product satisfaction, campaign success, and tool acceptance (Arora, 2013; Yim & Chu, 2012). Some studies highlight AR's promotional potential and its role in marketing communications (Mahony, 2015). Baharuddin et al. (2017) emphasized consumer attitudes and satisfaction from AR experiences, suggesting positive attitudes lead to purchase intentions, loyalty, and brand advocacy. Successful AREM implementation requires understanding technology acceptance among users (Dadwal & Hassan, 2015), highlighting the need for further research to strengthen brand-consumer connections and validate theoretical models within this emerging field of technology and marketing.

2.2. Tourists Experience Satisfaction and Loyalty

Experiences are crucial for tourists as they become enriched with them by visiting many destinations and becoming more aware of the environment and culture of the destination, which strongly influences the formation of their experiences and lifestyles (ETC, 2016). Tourist satisfaction is a multidimensional construct (Campo-Martínez & Garau-Vadell, 2010) with a significant role in creating and developing tourist products and services (Neal & Gursoy, 2008). Tourist satisfaction can influence the choice of a tourist destination by potential visitors and it is also essential due to its impact on tourists' return and the spreading of positive WOM (Ozdemir et al., 2012). In every stage of the tourist journey (Yuan & Wu, 2008), it is possible to create an experience that is a direct result of using tourist products. The tourist experience is a construct that transforms activities at tourist destinations into benefits and values that tourists receive from visiting the destination (Oh et al., 2007); thus, it is considered a multi-faceted and hybrid experience (Neal & Gursoy, 2008), and it can also be seen as a subjective component dependent on the tourist's perception of reality about the experience, age, gender, education level, and expectations (Vitasović, 2012). In the tourist journey, various factors influence tourists, particularly during the stay phase, identified as the

most crucial for creating memorable experiences (Neuhofer et al., 2014). Offering products that meet or exceed expectations during this phase is essential for enhancing spending and satisfaction (Disegna & Osti, 2016). The role of technologies like augmented reality in tourism is noteworthy for its potential to increase satisfaction, paralleling technological advancements (Genc, 2018). Tourist satisfaction measurement encompasses evaluating specific destination attributes and overall destination satisfaction (Chi & Qu, 2008), with a proven correlation between these constructs (Ozdemir et al., 2012). Pine and Gilmore's (1998, 2002) experience economy model categorizes experiences into entertainment, learning, aesthetics, and escapism, emphasizing the importance of involvement and immersion in activities for creating memorable experiences. In the competitive tourism market, destinations must consider all factors affecting tourist satisfaction. Each experience aspect can amplify overall tourist satisfaction, urging destinations to identify and deliver experiences that align with tourist expectations, as satisfaction results from this relationship.

Loyal tourists are defined by their high service quality expectations, positive destination image, satisfaction with their experience, willingness to recommend the destination to others, and intent to return (Cossío-Silva et al., 2019). Loyalty encompasses various tourist interests, focusing on destination loyalty, which is seen as the tourist's perception of the destination as recommendable (Chen & Gursoy, 2001). Word-of-mouth communication is a key indicator of loyalty, influencing consumer choices and perceived as more credible due to the sender's independence from the market (Harris, 2017). The intention to revisit a destination also signifies loyalty, with more frequent returns indicating stronger loyalty (Chi & Qu, 2008; Rodríguez et al., 2008; Campón et al., 2013; Almeida-Santana & Moreno-Gil, 2018). Research suggests that destination image and overall satisfaction directly impact loyalty, highlighting the importance of satisfaction in achieving loyalty, though additional motivators for return visits are necessary (Chi & Qu, 2008; Kruger et al., 2010). Ramesh & Jaunky (2020) underscore the direct correlation between tourist satisfaction and destination loyalty, reinforcing the critical role of satisfying tourist experiences throughout their journey in fostering loyalty towards the destination. Zhou & Yu (2022) further elaborate on the importance of tourist engagement in creating value and satisfaction, which in turn enhances destination loyalty. The role of high technology in creating memorable experiences and the potential of augmented reality in experiential marketing (Schmitt, 1999) indicate areas for further research, particularly in technology acceptance by tourists.

3. Empirical Research

3.1. Hypothesis and Conceptual Research Model

Consumer satisfaction is key for trust, loyalty, and repurchase intentions (Dadwal & Hassan, 2015). In tourism, well-designed experiences lead to positive attitudes and higher spending (Gilmore & Pine, 2002; Disegna & Osti, 2016), making satisfaction crucial for destination success (Lin & Kuo, 2016). Studies show satisfaction affects tourists' likelihood to return and recommend a destination (Lin & Kuo, 2016; Alrawadieh et al., 2019), and is linked to loyalty (Ozdemir et al., 2012; San Martin et al., 2013; DiPietro & Peterson, 2017). Factors like experience quality, perceived value, and motivation influence loyalty (Suhartanto et al., 2019), with new experiences encouraging repeat visits (Triantafillidou & Petala, 2016). Hence, the following hypothesis is formulated:

H1: Tourist experience satisfaction positively impacts tourist loyalty.

During a tourist's stay, satisfaction from experiences, especially with high-tech like augmented reality, is key for memorable stays (Neuhofer, 2014). Experiential marketing significantly enhances tourist satisfaction and loyalty (Yuan & Wu, 2008), with augmented reality increasing engagement, loyalty, satisfaction, and positive word-of-mouth (Smith & Hanover, 2016), as well as brand awareness and revenue (Jin & Yazdanifard, 2015). Positive tourist attitudes are linked to well-designed experiences (Gilmore & Pine, 2002). This leads to a hypothesis on the impact of experiential marketing on tourist satisfaction. Hence, the following hypothesis is formulated:

H2: Experiential marketing positively impacts tourist experience satisfaction.

Today's tourist destinations face fierce competition, requiring marketing managers to understand the determinants of tourist loyalty (Chen & Gursoy, 2001). Campón et al. (2013) suggest various motivators, such as seeking new experiences, interaction, and escape from routine, that can foster destination loyalty. Experiential marketing plays a role in shaping these experiences. Quality experiences influenced by experiential marketing significantly impact tourists' willingness to recommend a destination (Cevdet Altunel & Erkut, 2015), a key determinant of loyalty. Past experiences directly influence tourist loyalty (San Martin et al., 2013), with experience quality having the most substantial impact (Suhartanto et al., 2019), along with tourist involvement (Alrawadieh et al., 2019). Hence, the following hypothesis is formulated:

H3: Experiential marketing has a positive impact on tourist loyalty.

New technologies like augmented reality enhance consumer utility and tourism experiences due to their novelty (Yim & Chu, 2012; Neuhofer et al., 2014), despite challenges in technology acceptance and functionality (Neuburger & Egger, 2017). Augmented reality enriches tourism by integrating technology with activities (Tussyadiah et al., 2017), increasing satisfaction and purchase intentions (Poushneh & Vasquez-Parraga, 2017), and adding educational, social, and entertainment value (Cranmer et al., 2018). Its significant impact on enhancing destination experiences underscores the importance of tourist satisfaction (Genc, 2018), leading to the formulation of a related hypothesis.

H4: The acceptance of augmented reality technology moderates the relationship between experiential marketing and tourist experience satisfaction.

Schmitt (1999) identifies experiential marketing's modules as sense, feel, think, act, and relate, focusing on engaging senses, evoking emotions, stimulating thinking, encouraging actions, and fostering relationships. Experiential marketing encompasses various providers, including communication, branding, products, and environments. With technology advancements, augmented reality has become a significant provider of novel tourism experiences, warranting exploration of its role in experiential marketing and its interaction with Schmitt's modules. This context leads to hypotheses testing the relationship between experience providers, like augmented reality, and the experiential marketing modules.

H5a: As an experience provider, augmented reality positively affects the sense module in creating an unforgettable tourist experience.

H5b: As an experience provider, augmented reality positively affects the feel module in creating an unforgettable tourist experience.

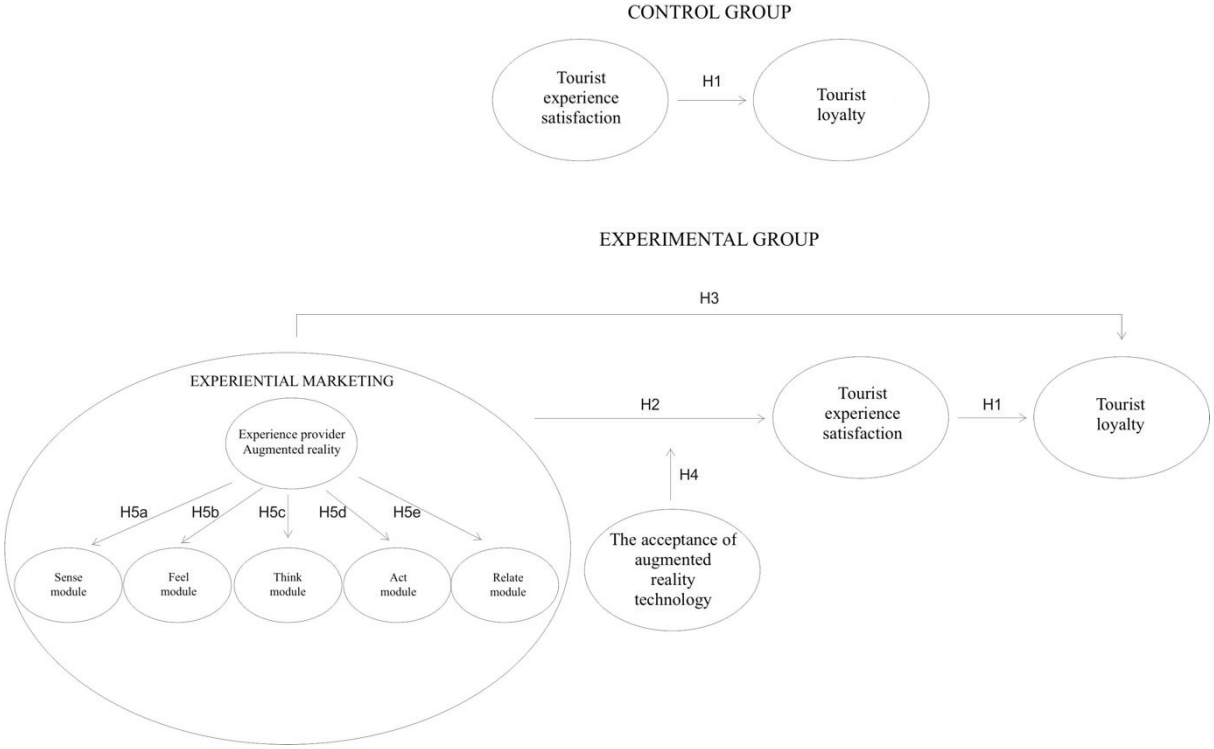
H5c: As an experience provider augmented reality positively affects the think module in creating an unforgettable tourist experience.

H5d: As an experience provider, augmented reality positively affects the act module in creating an unforgettable tourist experience.

H5e: As an experience provider, augmented reality positively affects the relate module in creating an unforgettable tourist experience.

Based on the study of relevant literature, the following conceptual research model is set, as shown in Figure 1.

Figure 1: Conceptual research model



Source: Author

3.2. Research Methodology and Construct Measurement

The study surveyed 432 participants, split into experimental (209) and control (223) groups, at Old Zrinski Town in Čakovec. The experimental group viewed a virtual tourist product via AR glasses, focusing on the town's history, while both groups attended a curator's presentation. Post-presentation, the control group filled out a survey, and the experimental group engaged with AR before their survey. The aim was to compare satisfaction and loyalty changes, using a pre-tested questionnaire.

Tourist experience satisfaction was assessed using a 21-item scale by Oh et al. (2007), which included Knowledge (zn), Aesthetics (es), Entertainment (za), Escapism (bi), Excitement (uz) and Memories (sj), while tourist loyalty was measured using six statements from scales by Chen and Gursoy (2001), Chi and Qu (2008), and Rodríguez del Bosque & San Martín (2008) which included Sharing Experiences (pr) and Intention to Return to the Destination (po). Experiential marketing was gauged using scales developed by Schmitt (1999, 2010), and the

scale for experience providers, comprising 15 statements, was also adopted from Schmitt's work. The scale included the Sense (do), Feel (ed), Think (dr), Act (da), and Relate module (dp). The acceptance of technologies in tourism was assessed using a 14-item scale by Kim et al. (2008), which included Perceived usefulness (pk), Perceived ease of use (pjk), Attitudes towards AR (st), and Intention to use AR (na).

3.2.1. Characteristics of the Research Sample

In both groups, most respondents were young adult females with a high school education, employed, and from Croatia. The main visit motives differed: in the control group, entertainment (28%) and vacation (25%); in the experimental group, new experiences (32%) and culture (20%). Many respondents in both groups had visited the destination six or more times.

Table 1: Socio-demographic characteristics of respondents (n = 432)

Characteristics	Control group		Experimental group	
	N	%	N	%
Sex				
Female	138	61,9	148	70,8
Male	85	38,1	61	29,2
Total	223	100	209	100
Age group				
18-24	89	39,9	138	66,0
25-35	41	18,4	27	12,9
36-55	67	30,0	37	17,7
56-65	24	10,8	6	2,9
65+	2	0,9	1	0,5
Total	223	100	209	100,0
Education level				
Primary school	2	0,9	0	0
Secondary school	114	51,1	139	66,5
Undergraduate study	33	14,8	11	5,3
Graduate study	66	29,6	46	22,0
Postgraduate study	8	3,6	13	6,2
Total	223	100	209	100
Working status				
Student	83	37,2	58	27,8
Employed	105	47,1	146	69,9
Unemployed	23	10,3	4	1,9
Retired	12	5,4	1	0,5
Total	223	100	209	100
Country of residence				
Croatia	168	75,3	177	84,7
Austria	23	10,3	6	2,9
Slovenia	7	3,1	16	7,7
Hungary	0	0	4	1,9
Other	25	11,2	6	2,9
Total	223	100	209	100

Source: Author

3.3. Main Research Results

3.3.1. Descriptive Analysis of Research Variables

In the experiment, an analysis of arithmetic means of statements was conducted to identify outliers. It was found that no statements needed to be eliminated in both tourist experience satisfaction and tourist loyalty constructs, as indicated by low variance and standard deviation values, demonstrating data homogeneity in both control and experimental groups. Similarly, the experimental group showed homogeneity in responses regarding acceptance of AR and experiential marketing.

Reliability testing was performed by calculating Cronbach's alpha coefficient for scales measuring tourist experience satisfaction (21 statements), tourist loyalty (6 statements), acceptance of AR (14 statements), and experiential marketing (15 statements). The reliability of the measurement scales is deemed acceptable, with coefficients exceeding 0.7 for the control group. To enhance the reliability of measurement scales for the control group, statements with a significant impact on reliability were identified. One statement was eliminated due to its low corrected total correlation value (|0.170|), which falls below the recommended threshold of 0.3. Removing this statement increased Cronbach's alpha from 0.907 to 0.921. The reliability of the applied measurement scales for the experimental group is deemed acceptable, with coefficients exceeding 0.7 - satisfaction with the tourist experience (0.900), tourist loyalty (0.959), acceptance of AR (0.940), and experiential marketing (0.872).

Next, the communality of each variable was examined to assess shared variance within variables. For the control group, communalities ranged from 0.598 to 0.868, indicating no need for eliminating variables. In contrast, some communalities for the experimental group were below 0.5, including two statements that were eliminated.

3.3.2. Factor Analysis of Research Variables

The adequacy of the sample was evaluated by computing the KMO measure and Bartlett's Test of Sphericity. Results indicated sufficient adequacy for both the control and experimental groups across all dimensions of satisfaction and loyalty, as evidenced by statistically significant Bartlett's Tests of Sphericity ($\alpha<0.01$) and appropriate KMO measures. For the experimental group, the KMO and Bartlett's test confirmed adequacy for the four dimensions of the experiential marketing variable and acceptance of AR. However, the sense module did not meet the minimum KMO measure, warranting its exclusion from further analysis due to inadequate sampling adequacy. Following descriptive analysis, one statement was removed from the control group, while two statements were eliminated from the experimental group. Factor analysis was then conducted using Kaiser's criterion, Cattell's scree plot, and an a priori decision based on the theoretical model, to determine the number of main factors. Despite not meeting the criterion of a simple structure initially, factor rotation using the principal components method with orthogonal (Varimax) rotation was employed for the tourist experience satisfaction scale to enhance interpretability.

Table 2 presents eigenvalues for the extracted factors and variance percentages. The first five factors, with eigenvalues above 1, explained 74.612% of the variance, demonstrating adequate variance explanation.

Table 2: Results of extracted factors of the tourist experience satisfaction scale in the control group

Factors	Initial values			Extracted sums of squared loadings			Rotational sums of squared loadings		
	Eigen-values	% variance	Cum %	Eigen-values	% variance	Cum %	Eigen-values	% variance	Cum %
1	8,562	40,774	40,774	8,562	40,774	40,774	3,447	16,413	16,413
2	2,480	11,808	52,581	2,480	11,808	52,581	3,258	15,513	31,926
3	1,962	9,341	61,922	1,962	9,341	61,922	3,118	14,487	46,773
4	1,392	6,630	68,552	1,392	6,630	68,552	2,622	12,487	59,260
5	1,273	6,060	74,612	1,273	6,060	74,612	2,459	11,708	70,968
6	0,846	4,031	78,643	0,846	4,031	78,643	1,612	7,675	78,643

Extraction method: Principal component method.

Source: Author

Following the scree plot criterion, a clear break between factors six and seven was observed, with their eigenvalues notably separated from the rest. Retaining all factors above this elbow, suggests that the first six factors explain a substantial portion of the variance. These six factors collectively account for 78.643% of the variance. From the results of the factor structure matrix after the Varimax rotation (Table 3), it is evident that the factor loadings are distributed across all six factors.

Table 3: Factor structure matrix after Varimax rotation of factors of the tourist experience satisfaction scale in the control group

Variable	Factor structure (*component matrix*)					
	1	2	3	4	5	6
a1				**0,900**		
a2		0,307		**0,868**		
a3				**0,535**	0,536	
a4				**0,680**	0,527	
a5						**0,783**
a7			**0,841**			
a8	0,480		**0,595**			
a9			**0,789**			
a10			**0,887**			
a11		**0,864**				
a12		**0,829**				
a13		**0,838**				
a14		**0,821**				
a15					**0,819**	
a16	**0,605**				**0,573**	
a17					**0,802**	
a18	0,429		0,353		**0,652**	
a19	**0,786**		0,343			
a20	**0,824**					
a21	**0,744**	0,311			0,308	

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the control group, the factor analysis of the tourist loyalty scale revealed one factor with an eigenvalue exceeding one, explaining 79.205% of the variance. However, adhering to both

theoretical model requirements and the scree plot criterion, a discernible break between factors two and three is evident. Factors two and three exhibit eigenvalues distinct from the rest, with values of 5.544 for the first factor (α=0.949) and 0.527 for the second factor (α=0.908). Retaining all factors above the elbow on the plot, suggests that the first two factors explain a significant portion of the variance, totalling 86.728%. From the results of the factor structure matrix after the Varimax rotation (Table 4), it is evident that the factor loadings are distributed across two factors.

Table 4: Factor structure matrix after Varimax rotation of the tourist loyalty scale factors in the control group

Variable	Factor structure (*component matrix*)	
	1	2
b1	0,336	**0,892**
b2	0,483	**0,821**
b3	0,530	**0,686**
b4	**0,869**	0,408
b5	**0,886**	0,381
b6	**0,808**	0,430

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the experimental group, tourist experience satisfaction scale revealed five factors with eigenvalues exceeding one, explaining 74.730% of the variance. The eigenvalues for these factors are as follows: 7.648 for the first factor (α=0.868), 2.658 for the second factor (α=0.952), 2.301 for the third factor (α=0.867), 2.056 for the fourth factor (α=0.852), and 1.031 for the fifth factor (α=0.681). Considering the sixth factor with an eigenvalue of 0.909, close to the minimum requirement of 1, it was included. Consequently, six factors collectively account for 79.224% of the variance.

Following the Varimax rotation, the factor structure matrix for the satisfaction with the tourist experience scale in the experimental group (Table 5) demonstrates distributed factor loadings across all six factors.

Table 5: Factor structure matrix after Varimax rotation of factors of the tourist experience satisfaction scale - experimental group

Variable	Factor structure (*component matrix*)					
	1	2	3	4	5	6
a1		**0,711**				
a2		**0,880**				
a3	0,319	**0,714**			0,301	
a4		**0,848**				
a5		0,557				**0,628**
a7	**0,475**					**0,664**
a8	**0,884**					
a9	**0,902**					
a10	**0,919**					
a11				**0,919**		
a12				**0,844**		
a13				**0,894**		
a14				**0,833**		
a16			0,426		**0,656**	
a17		0,505			**0,682**	
a18		0,405	**0,742**			
a19			**0,882**			
a20			**0,884**			
a21			**0,708**		0,386	0,348

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the experimental group, the tourist loyalty scale revealed one factor with an eigenvalue exceeding one, explaining 80.793% of the variance. However, considering the scree plot criterion, a noticeable break between factors two and three suggests selecting two factors. The eigenvalues for these factors are 5.656 for the first factor (α=0.936) and 0.422 for the second factor (α=0.933). Retaining all factors above the elbow on the plot is recommended, indicating that the first two factors explain a greater percentage of the variance than the others, amounting to 86.825% of the variance.

From the results of the factor structure matrix after the Varimax rotation of the tourist loyalty scale factors in the experimental group (Table 6), it is evident that the factor loadings are distributed across two factors.

Table 6: Factor structure matrix after Varimax rotation of the tourist loyalty scale factors - experimental group

Variable	Factor structure (*component matrix*)	
	1	2
b1	**0,893**	0,330
b2	**0,853**	0,435
b3	**0,751**	0,521
b4	0,660	**0,683**
b5	0,611	**0,715**
b6	0,318	**0,895**

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the experimental group, the experiential marketing scale revealed four factors with eigenvalues greater than one, explaining 65.547% of the variance. The factors' eigenvalues are 35.832 for the first factor (α=0.650), 13.549 for the second factor (α=0.867), 9.223 for the third factor (α=0.710), and 6.943 for the fourth factor (α=0.6). The factor loadings are distributed across all four factors, as observed in the results of the factor structure matrix after the Varimax rotation (Table 7).

Table 7: Factor structure matrix after Varimax rotation of the experiential marketing scale factors - experimental group

Variable	Factor structure (*component matrix*)			
	1	2	3	4
d4		**0,830**		
d5		**0,831**		
d6rev		0,355	0,621	0,397
d7		0,362	**0,710**	
d8			**0,759**	
d9rev			**0,706**	0,353
d10	**0,853**			
d11	**0,740**			
d12rev	**0,881**			
d13				**0,858**
d14				**0,777**
d15rev		0,491		**0,698**

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the experimental group, the factor structure of the augmented reality technology acceptance scale revealed three factors with eigenvalues greater than one, explaining 75.680% of the variance. However, based on the scree plot criterion, a break between factors four and five is noticeable. The eigenvalues for the four extracted factors are 8.457 for the first factor (α=0.929), 1.752 for the second factor (α=0.927), 1.143 for the third factor (α=0.867), and 0.757 for the fourth factor (α=0.792). Retaining all factors above the elbow on the plot is recommended, as the first four factors explain a greater percentage of the variance than the other factors, accounting for 80.727% of the variance.

From the results of the factor structure matrix after the Varimax rotation of the experiential marketing scale factors in the experimental group (Table 8), it is evident that the factor loadings are distributed across all four factors.

Table 8: Factor structure matrix after Varimax rotation of the augmented reality technology acceptance scale factors - experimental group

Variable	Factor structure (*component matrix*)			
	1	2	3	4
c1		**0,865**		
c2	0,343	**0,816**		
c3	0,330	**0,785**		
c4		**0,874**		
c5		0,304	**0,749**	0,412
c6			**0,477**	
c7			**0,883**	
c8	0,361		**0,805**	
c9	**0,656**	0,479	0,316	
c10	**0,809**	0,353		
c11	**0,806**	0,334		
c12	**0,783**			
c13	0,614			**0,500**
c14	0,392			**0,804**

Extraction method: Principal component method.
Rotation method: Varimax.

Source: Author

In the control group, factor analysis revealed six factors for the tourist experience satisfaction scale and two factors for the loyalty scale. Similarly, in the experimental group, factor analysis showed six factors for the satisfaction with the tourist experience scale, two factors for the tourist loyalty scale, four factors for the experiential marketing scale, and four factors for the augmented reality technology acceptance scale.

3.3.3. Structural Equation Modelling

The control group tested a measurement model with two latent variables, each with two to six indicators. The latent variable, tourist experience satisfaction, had six manifest variables: knowledge (zn), aesthetics (es), entertainment (za), escapism (bi), excitement (uz), and memories (sj), while the latent variable, tourist loyalty, had two manifest variables: sharing experiences (pr) and returning to the destination (po). As the model has only two variables, the measurement (CFA) and the structural (SEM) models are identical. For this reason, multicollinearity is not possible. The Maximum likelihood (ML) method was used to estimate the structural model. The fit indicators for the tested structural model are shown in Table 9.

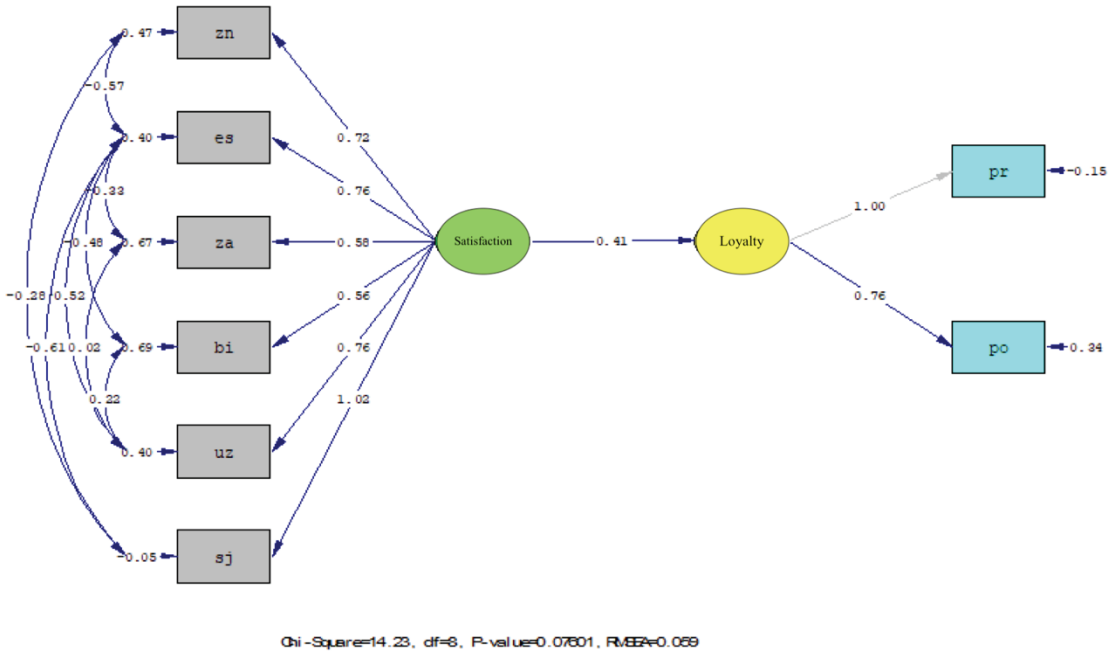
Table 9: Fit indicators for the tested structural model

Model	$\chi 2$	df	X^2/df	RMSEA	CFI
Initial	115,087	19	6,057	0,151	0,899
Final	14,228	8	1,7785	0,0591	0,993

Source: Author

The normalized χ2 ratio is below 2:1 among the absolute fit indices, indicating a good model fit. The RMSEA is under 0.06, which is also acceptable, and the CFI is above 0.95, further suggesting a good fit. PGFI of 0.219 was calculated for comparison with the experimental group model. All parameters are significant at the 5% level (z>1.96). The original model had an unsatisfactory fit, leading to modifications without altering its theoretical and statistical features. A covariance error was added between the 'Memories' and 'Entertainment' variables, shifting the analysis from confirmatory to exploratory. The model's identification was confirmed using the t-rule, with a t-value of 28, which is less than 0.5q(q+1)=45, indicating that the model is identified. The final structural model, shown in Figure 2, illustrates the relationship between tourist experience satisfaction and loyalty.

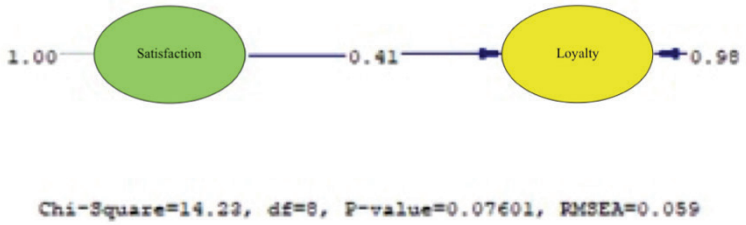
Figure 2: Final standardized structural model



Source: Author

Tourist Experience Satisfaction explains a significant portion of the variance in variables like Knowledge, Aesthetics, Entertainment, Escapism, and Excitement, while the Tourist Loyalty variable accounts for a large portion of the variance in Sharing Experiences and Returning to the Destination. Most standardized loadings exceed 0.7, indicating strong effects of latent factors on these variables. A moderate positive correlation between tourist satisfaction and loyalty is observed in the control group, with a significant t-test supporting the positive impact of tourist experience satisfaction on loyalty.

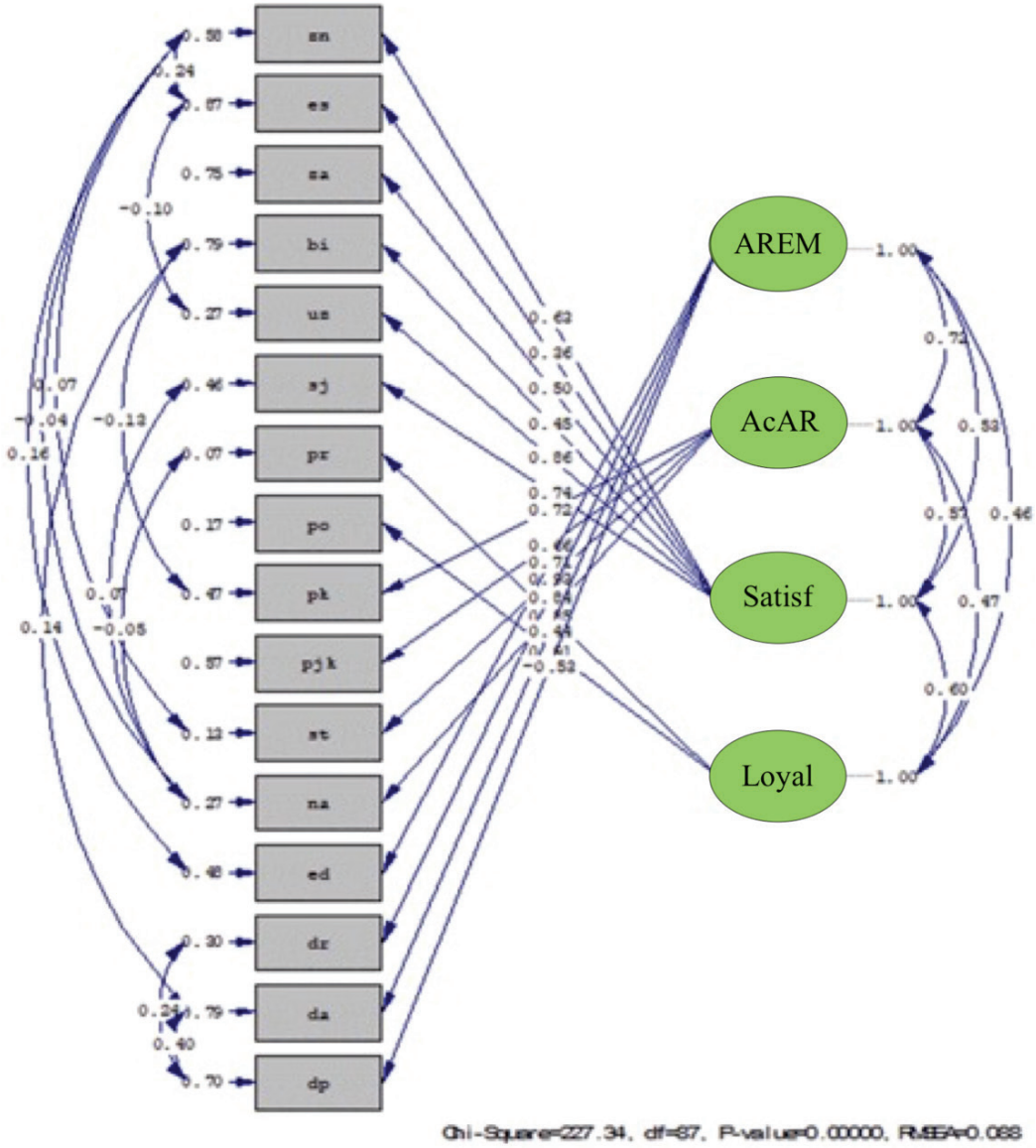
Figure 3: Final structural model without manifest variables



Source: Author

Regarding the experimental group, after conducting factor analysis, the final sample size was estimated to 209 participants. The final measurement model is shown in Figure 4.

Figure 4: Final measurement model



Source: Author

Figure 4 displays regression loadings among four latent variables: Augmented Reality Experiential Marketing (AREM), Acceptance of Augmented Reality (AcAR), Tourist Experience Satisfaction (Satisf), and Tourist Loyalty (Loyal), connected to 16 observed variables. Experiential Marketing significantly influences Think and Feel modules, while Acceptance of AR affects Attitudes and Intention to Use. Tourist Satisfaction and Loyalty strongly relate to their manifest variables. Fit indices suggest potential areas for refinement, retained for their theoretical significance.

Table 10: Connection between latent variables for CFA analysis

	Augmented reality experiential marketing	Augmented reality technology acceptance	Tourist experience satisfaction	Tourist loyalty
Augmented reality experiential marketing	1			
Augmented reality technology acceptance	0,719*	1		
Tourist experience satisfaction	0,608*	0,581*	1	
Tourist loyalty	0,473*	0,462*	0,587*	1

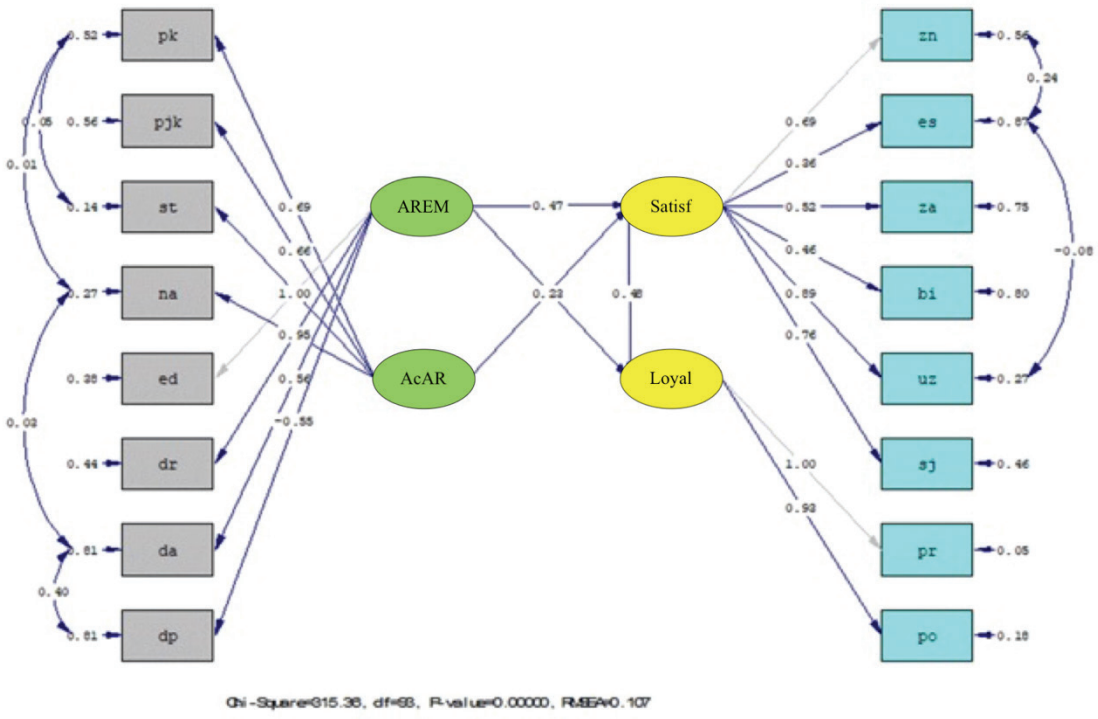
Note: **p<0,05, *p<0,1.

Source: Author

An examination of the correlation table (Table 10) suggests that multicollinearity is not present. Correlations among the latent variables are below 0.9, with the highest being 0.719.

The final structural model can be seen in Figure 5.

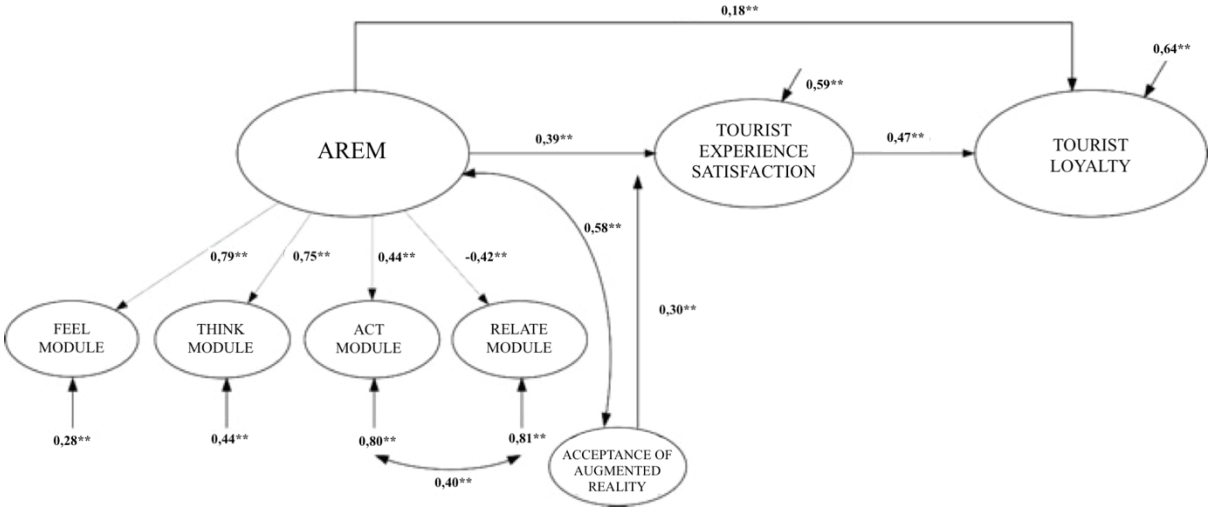
Figure 5: The final structural model with estimated values



Source: Author

The structural model shows relationships between four latent variables and sixteen observed variables, using Maximum Likelihood (ML) estimation. All parameters were significant with small standard errors. Fit indices were below recommended levels except for SRMR, which was acceptable, and the $\chi 2/df$ ratio was high. Despite large samples potentially inflating chi-square, the model was accepted.

Figure 6: The final standardized model



Source: Author

AREM explains 41% of the variance in Tourist Experience Satisfaction, while Tourist Loyalty is explained by Tourist Experience Satisfaction, AREM, and Acceptance of AR by 36%. AREM accounts for 72% of the variance in Feel module, Acceptance of AR explains 67% of the variance in Intention to Use AR and 86% of the variance in Attitudes toward Using AR. Tourist Loyalty explains a high 95% of the variance in Sharing Experiences and 82% of the variance in Returning to the Destination. Tourist Experience Satisfaction explains 73% of the variance in Excitement. Ultimately, AREM moderately strongly influenced Tourist Loyalty (0.47); through the moderator Acceptance of AR, its final impact was 0.59 (0.47+0.30*0.39). This means that those who have experienced an augmented reality experience will more regularly return to a chosen destination. In the role of experience provider, the AR strongly positively affects the Feel module (0.79), Think module (0.75), and, to a lesser extent, the Act module (0.44). At the same time, it is negatively correlated with the Relate module (-0.42). Tourist Experience Satisfaction has a positive impact (0.47) on Tourist Loyalty, as does AREM, which has a somewhat weaker but positive impact on Tourist Loyalty (0.18). Therefore, it is logical that AREM positively correlates with Tourist Experience Satisfaction (0.39). The Acceptance of AR moderates the relationship between Experiential Marketing and Tourist Experience Satisfaction, significantly enhancing it. The acceptance of augmented reality technology has thus proven extremely important in retaining tourist loyalty.

Table 11 presents all standardized and non-standardized (estimated) coefficients for the structural model. All parameters are significant at $\alpha = 0.05$.

Table 11: Standardized and unstandardized coefficients for the SEM model

Observed variable	Latent variable	β	*B*	SE
Feel module (ed)	Augmented reality experiential marketing (pips)	0,79	1,00	
Think module (dr)	Augmented reality experiential marketing (pips)	0,75	0,95	0,09
Act module (da)	Augmented reality experiential marketing (pips)	0,44	0,56	0,10
Relate module (dp)	Augmented reality experiential marketing (pips)	-0,42	-0,55	0,10
Perceived usefulness (pk)	Acceptance of augmented reality technology (ptps)	0,69	0,69	0,07
Perceived ease of use (pjk)	Acceptance of augmented reality technology (ptps)	0,66	0,66	0,06
Attitudes toward augmented reality (st)	Acceptance of augmented reality technology (ptps)	0,92	0,92	0,05
Intention to use augmented reality (na)	Acceptance of augmented reality technology (ptps)	0,86	0,86	0,06
Knowledge (zn)	Tourist experience satisfaction (ztd)	0,66	0,69	
Esthetics (es)	Tourist experience satisfaction (ztd)	0,35	0,36	0,07
Entertainment (za)	Tourist experience satisfaction (ztd)	0,50	0,52	0,08
Escapism (bi)	Tourist experience satisfaction (ztd)	0,45	0,46	0,08
Excitement (uz)	Tourist experience satisfaction (ztd)	0,85	0,89	0,09
Memories (sj)	Tourist experience satisfaction (ztd)	0,72	0,76	0,09
Sharing experiences (pr)	Tourist loyalty (lt)	0,97	1,00	
Return to the destination (po)	Tourist loyalty (lt)	0,91	0,92	0,06

Source: Author

Hypothesis H1 is confirmed with a positive effect of Tourist Experience Satisfaction on Tourist Loyalty (β=0.47, t=4.83, $p<0.05$). Hypothesis H2 is accepted, showing Experiential Marketing positively affects Tourist Experience Satisfaction (β=0.39, t=3.07, $p<0.05$). Total and indirect effects were examined with standardized coefficients detailed in Table 12.

Table 12. Total and indirect effects

Total effects			
	Augmented reality experiential marketing	Acceptance of augmented reality technology	Tourist experience satisfaction
Tourist experience satisfaction	0,474	0,285	
Tourist loyalty	0,452	0,136	0,476
Indirect effects			
Tourist loyalty	0,183	0,139	

Source: Author

AREM's impact on Tourist Experience Satisfaction is significant at 0.474. Acceptance of AR impacts it at 0.285, both significant ($p<0.05$). These factors indirectly affect Tourist Loyalty, with AREM at $\beta=0.183$ and Acceptance of AR at $\beta=0.139$ ($p<0.05$). The Acceptance of AR moderates AREM's impact on Tourist Loyalty, supporting Hypothesis H3. Despite a positive correlation between Tourist Experience Satisfaction and Tourist Loyalty at 0.41, direct impact isn't significant ($z=0.61$, $p<0.05$). However, with AR Acceptance as a moderator, the impact becomes significant at 0.59 ($z=1.86$, $p<0.05$). Hypothesis H5a is rejected due to inadequate sampling. Hypotheses H5b, H5c, and H5d are accepted with positive impacts on feel ($\beta=0.79$), think ($\beta=0.75$), and act ($\beta=0.44$) modules, respectively ($p<0.05$). Hypothesis H5e is rejected due to a negative impact on the relate module ($\beta=-0.42$, $p<0.05$).

4. Conclusion

The research explored the relationship between experiential marketing, AR, tourist experience satisfaction, and tourist loyalty. The study highlighted the enhanced satisfaction of tourists exposed to AR and confirmed experiential marketing's positive effect on tourist experience satisfaction. As an experience provider, the AR strongly positively affects the Feel, Think and Act module of experiential marketing. At the same time, it is negatively correlated with the Relate module due to its technological limitations. Tourist Experience Satisfaction has a positive impact on Tourist Loyalty, as does AREM. The Acceptance of AR moderates the relationship between Experiential Marketing and Tourist Experience Satisfaction, significantly enhancing it. The acceptance of AR technology has thus proven extremely important in retaining tourist loyalty, so tourists who have experienced augmented reality will more regularly return to a chosen destination.

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RECONCILING THE COLLECTIVISTIC AND INDIVIDUALISTIC CULTURE IN REMOTE AREAS

ABSTRACT

Globalization has a substantial impact on the whole world and the small, remote islands in the Adriatic Sea are no exception. Due to the unfavourable living conditions caused by isolation and remoteness, the inhabitants of these areas have learned to live in coexistence. They were aware that they could only survive if they were oriented to each other. They engage in volunteer work without defining their helping activities as volunteering activities. The collectivist culture was born out of the need to survive and was deeply rooted in the tradition and heritage of these areas. However, over time and due to globalization and tourism development, the collectivist character has shifted only to the winter months. In summer, the remote communities of the Adriatic have become increasingly attractive to many people, transforming the culture of helping, which was visible in winter, into self-care and self-interest in summer. The economic benefits derived from summer tourism seem to be destroying the collectivist culture of these areas.

This article looks at the influence of volunteering on the behaviour of two small, remote communities on the Adriatic coast and examines the interplay between collectivist and individualist cultures. During the two-month field research, multiple cases (two remote islands), multiple sources of data within each case (volunteers, beneficiaries, and community leaders), and multiple research methods (focus groups, interviews, and observation) were used. The research results reveal an interesting cultural phenomenon that occurs every year. Helping behaviours and volunteer activities typically expressed through collectivism in winter are being replaced by self-care in the form of increasing individualism and competition. The article provides recommendations that could shift the focus from individualism to the development of a collectivist culture throughout the year, reconcile collectivist culture with tourism development, and increase the importance of volunteering in these small remote communities.

***Key words**: collectivism, individualism, volunteering, tourism development, globalization.*

1. Introduction

Remote coastal communities on the Adriatic, such as the island of Vis and the Pelješac peninsula, have a rich cultural heritage, a rich history and diverse environmental resources. However, they face a number of challenges, especially during the harsh winter months, which further increase their isolation. In the context of dwindling state support for rural and remote areas, there is an increased need for prosocial action, where individuals strive to improve the welfare and living conditions of others. Gieling and Haartsen (2017) point out that communities in these remote areas have a strong sense of social cohesion that enables them to fill the gap left by the decline in state-supported services. Brennan (2007) emphasizes that the residents of these communities need to do more with fewer resources. Volunteering proves to be an important form of prosocial engagement in such contexts. Given the challenges of depopulation and limited amenities faced by remote places such as Vis and Pelješac, volunteer initiatives play a crucial role in maintaining basic services, especially during the winter months.

Considerable focus has been dedicated to analysing the roles undertaken by volunteers, the resulting benefits for communities and the particularities of volunteering in an urban environment. However, existing research suggests that the proportion of volunteers in rural communities is significantly higher than in urban areas (Aydinli, Bender, & Chasiotis, 2013). The aim of this study is to provide a comprehensive data set that sheds light on influence of volunteering on the behaviour of two small, remote communities on the Adriatic coast and examines the interplay between collectivist and individualist cultures. During the two months of field research, originally conducted as part of the dissertation (Medić, 2021), island Vis and Pelješac, as two remote islands, were investigated. In each case, different data sources were tapped, including insights from volunteers, beneficiaries and community leaders. Various research methods such as focus groups, interviews and observation were used to gain comprehensive insights. The results of the research reveal a fascinating cultural phenomenon that recurs every year. In the summer months, altruistic acts and voluntary commitment, which traditionally represent collectivist values and are present in winter, gradually give way to a culture of self-preservation characterized by increasing individualism and competition. Conversely, many small remote areas on the Adriatic coast experience an invasion of tourists from May to October, depending on their attractiveness and popularity. During this time, the population in these places can swell to more than three times their usual numbers. By way of illustration, the town of Vis, which was chosen as a case study, has 1,934 permanent residents. However, the number of tourist arrivals rose to 31,294 in the 2017 summer season (CBS, 2019). In summer, the streets, restaurants and beaches are teeming with people, giving these small towns a vibrant energy. According to reports, the satisfaction of young adults on the island of Vis varies greatly between the two seasons. For example, only 3% of them express significant dissatisfaction with island life in the summer, compared to 10% in the winter months (Barada and Vakanjac, 2014). Between November and April, the busy rhythm of life in these small Adriatic regions gradually subsides. To an outsider, it may seem as if life has come to a standstill. With the departure of tourists and the majority of the population to the cities on the mainland, those who remain are faced with a number of challenges that are characteristic of the winter season. These include feelings of isolation and loneliness, a lack of reliable healthcare, inadequate transport infrastructure and a lack of social and cultural activities.

The paper provides an overview of the literature on concepts such as community, volunteering, social capital, individualism and collectivism. The methods used for research

purposes are explained. In addition, recommendations are made that aim to shift the prevailing focus from individualism to promoting a collective culture, all year round. This requires reconciling the values of collectivism with the needs of tourism development while strengthening the importance of volunteering in these small, remote places.

2. Literature review

This part of the paper contains a literature review describing the basic concepts relevant to this paper. The term "communities" encompasses various definitions, many of which characterize communities as a collective of individuals who share a sense of place and engage in interactions. However, the term 'community' goes beyond mere geographical location; it represents an integration of people, places and relationships (Bridger and Luloff, 1999; Theodori, 2005; Brennan, 2007). According to Mtika and Kistler (2016:84), community is characterized as a network of social connections that regulates the exchange of ideas and actions across geographical boundaries. Others suggest that community encompasses locally oriented actions, geographical settings and dimensions of human life (Luloff and Swanson, 1995; Luloff and Bridger, 2003; Brennan, 2007). Remote communities are characterized by their unique culture, history, economic resources and environment. Nevertheless, they face special challenges resulting from their isolation.

Shrestha and Cihlar (2004) emphasize that remoteness and isolation, along with challenges such as transportation, accessible and reliable childcare, health care, and living wage jobs, not only affect the well-being of rural families, but also hinder rural residents' participation in community activities. Although remote communities seem particularly vulnerable to these factors, many have survived for centuries despite numerous challenges. In fact, remoteness does not only have a negative impact on life in these areas. Liarakou, Gavrilakis and Flogaitis (2014) point out that many remote communities do not experience significant impacts of modern lifestyles, including over-exploitation of natural resources, pollution, loss of traditions and cultures, and extensive construction activities. Instead, their natural capital and traditions are often preserved.

The Adriatic islands are a particular example of remote regions. Factors such as the size of an island, its geographical location and its physical separation from the mainland contribute to the feeling of remoteness. This fact has a significant impact on various aspects of island life, including social, economic, psychological and cultural dimensions. One of the biggest challenges for the inhabitants of such isolated Croatian islands is depopulation. According to Barada and Vakanjac (2014), young inhabitants migrate from the islands to the mainland, mainly in search of better employment opportunities, a higher standard of living, better education, a livelier social life and better health and social care.

The cultural emphasis on self-reliance and autonomy reinforces the inherent strength and resilience of rural areas. As Miller (1995) and Liarakou, Gavrilakis, and Flogaitis (2014) point out, caring for neighbours, a quality environment, a strong work ethic, and low crime rates are just some of the valued norms that prevail in remote communities. Social capital, often referred to as the cohesive force that holds societies together and is essential for promoting economic growth and human well-being (Grootaert, 1998:III).), forms the basis of these small areas of the Adriatic and offers potential solutions to the challenges they face, particularly during the winter months. Empirical findings consistently indicate a strong link between

voluntary behaviour and social capital. According to Onyx, Leonard and Hayward-Brown (2003) "volunteering and social capital are empirically linked".
Some authors argue that volunteering is an expression of identity, as it allows individuals to feel connected to those who benefit from their efforts (Musick et al., 2000, cited in Lee and Brudney, 2012). Volunteering plays a central role in shaping social capital and is influenced by both formal and informal social ties (Onyx, Leonard and Hayward-Brown, 2003; Warburton and Winterton, 2017.). Furthermore, social capital also plays an important role in promoting sustainable development. According to Putnam (2001, cited in Lee and Brudney, 2012:162), social connectedness proves to be a more reliable predictor of altruistic behaviour, which includes volunteering, than human capital or physical capital. This underlines why social capital is one of the most significant drivers of volunteering (Minnigaleeva, 2017).

Volunteering helps fill the gaps in services and programs to support individuals and communities. As Snyder and Omoto (2008) have noted, volunteering often aims to bring about systemic change and identify long-term solutions to social problems. At a time when the government is cutting support for remote regions, the need for volunteering is even more evident. As Joseph and Skinner (2012, cited in Gieling and Haartsen, 2017) point out, engagement in these initiatives can be seen as the ability of a community to protect the needs and aspirations of its inhabitants. These authors further argue that communities in such areas are able to fill the gap left by state-organized services due to their strong sense of self-reliance and social solidarity.

Bekkers (2012) assumes that individuals who come together, engage in group activities, work collaboratively towards common goals that are supported by many group members, and share their experiences, develop a sense of community for themselves and others. Volunteering thus emerges as a response to external changes that make rural communities vulnerable.

In remote communities, informal volunteering can also become an important aspect of daily life. Residents rely on each other to meet various basic needs. People in these remote areas help themselves and their neighbours without necessarily describing their actions as formal volunteering. The benefits to the individual and the community can be an unintended consequence. The economic value of volunteering can be questioned, as there is no financial motivation and no exchange. However, volunteering brings numerous benefits that can be expressed in monetary terms. The value of the time required to complete tasks can be determined by the hourly rate applicable to similar activities, which is a common method of economic valuation of various volunteer activities. In the United States alone, around 61.8 million people volunteer every year, contributing around 8 billion hours of work, which equates to a value of around 162 billion US dollars (Medić, Medić and Ebener, 2017).

The economic impact of volunteering is undoubtedly considerable and relatively easy to quantify, but it is only one facet of the wider impact of this phenomenon. There are other impacts that are perhaps even more crucial. It is worth noting that Adam Smith, known as the author of the influential book "The Wealth of Nations" and considered the father of modern economics or capitalism, saw helping others as a path to greater well-being: "Concern for our own happiness recommends to us the virtue of prudence: concern for that of other people's" (Smith, 1759, cited in Meier and Stutzer, 2004)

While volunteer activities are undertaken primarily to help others, there is a widespread belief that those who give also receive. Morrow-Howell, Hong and Tang (2009) point out that while the main aim of volunteering is to contribute to others and the community, volunteers often

also derive personal benefit from it. Helping others can bring significant benefits to both the giver and the receiver. In recent decades, numerous studies have emphasized the importance of intrinsic benefits for the volunteers themselves. These benefits include various psychological and social advantages for the individual.

The results of a study conducted by the UnitedHealth Group (2017) of 2,705 adults aged 18 and over who had volunteered in the USA showed numerous benefits for volunteers. According to the report, 94% of volunteers reported having a better sense of purpose in their lives, and 75% associated volunteering with better physical health. In addition, 79% of respondents reported lower stress levels, and 78% felt they had more control over their health and well-being.

Numerous studies indicate that volunteering is beneficial for older adults. For example, Grimm, Spring and Dietz (2007) emphasize that volunteering helps to improve health, with older volunteers particularly likely to derive physical and mental benefits from such activities. In addition, some researchers point out that involvement in volunteering can reduce mortality rates (Tabassum, Mohan and Smith, 2016). In addition, there is evidence that participants who volunteer tend to live longer, particularly if their intentions are truly altruistic. Furthermore, research suggests that individuals who volunteer after certain illnesses, such as heart attacks, are less distressed and depressed - both factors associated with increased mortality rates in such patients (Grimm, Spring and Dietz, 2007).

Volunteering brings numerous economic, social or psychological (intrinsic) benefits that offer solutions to various challenges of modern society. They can help to eliminate the shortcomings of contemporary life and improve social and economic conditions. In this respect, volunteering can play a crucial role in improving the economic and social circumstances of people living in remote areas such as the islands of Vis and the Pelješac peninsula. In these remote areas, where community and cultural identity are closely intertwined, the dichotomy between individualism and collectivism is of particular importance. According to several scholars, individualism/collectivism is a fundamental dimension of cultural variation (Cialdini et al., 1999; Hofstede, 1980; Kim et al., 1994) and serves as a broad framework for understanding different human behaviours (Voronov and Singer, 2002; Kâğitçibaşi, 1994). Essentially, the distinction lies in how individuals perceive themselves — whether as "I" (individualism) or as "we" (collectivism) — and whether they prioritize personal benefit over the common good. Individualism emphasizes self-reliance without significant obligations to the community, while collectivism prioritizes the good of the community over the interests of the individual. Individualistic cultures tend to emphasize individual achievement over collective effort, while collectivist cultures emphasize group success over individual achievement. Western nations such as the United States, the United Kingdom, Canada and Australia are typically characterized by individualism, while countries such as Japan, China and many African, Asian and South American nations have a predominantly collectivist orientation (Hofstede, 1980). In these collectivist societies, family-like relationships prevail, with the community offering protection in return for loyalty. Furthermore, the difference between individualistic and collectivistic cultures can be described in terms of "responsibility" and "success". In individualistic cultures, individuals are responsible for their own well-being and often focus on personal success in order to assert their individual identity. In contrast, collectivist cultures celebrate the achievements of the group and individuals subordinate their own interests to the collective good, with a sense of mutual caring and conformity to group norms prevailing.

Volunteering is a concrete expression of collectivist values, where individuals prioritize the good of the community over individual interests. Thus, volunteering becomes not only a means of overcoming societal challenges, but also an expression of collective identity and shared goals within these communities.

3. Methods

The selection of the two remote areas was an interesting challenge, considering that the Croatian islands are among the most isolated regions in Croatia. The Croatian part of the Adriatic comprises 1,244 islands, of which only 52 and the Pelješac peninsula are inhabited. The island population makes up 3.3% of the total population of the Republic of Croatia, which means that every 30th inhabitant of the Republic of Croatia lives on an island (MRRFEU, n.d.). These two remote islands were chosen because their distance from the centre of the mainland, around which they revolve, strongly influences life in these small, isolated areas today. In addition, significant "temporary" migration takes place in winter, as tourists, other visitors and even many locals migrate to the urban centres of the mainland. This practice has numerous consequences for the remaining inhabitants and can have a long-term negative impact on their future (Barada and Vakanjac, 2014). The lack of various economic, social, cultural and other amenities of daily life, especially during the winter months, could lead to increased levels of dissatisfaction, especially among the youth, thus exacerbating depopulation trends in the future.

To increase the reliability and validity of the data, a triangulation approach was adopted in this study, as recommended by Yin (1993). The study included several cases, including Vis and Janjina, and utilized different data sources within each case, including volunteers, recipients, and community leaders. It also used various research methods such as focus groups, interviews and observation, involving several researchers.

In order to collect data, the main researcher stayed in Vis from January to March 2020 and in Janjina from March to May 2020. During this period, the principal researcher actively participated in various volunteer activities in both locations and observed the different forms of altruistic behaviour exhibited by community members. The data collected during this process comprised 86 pages and was carefully coded in the data analysis section.

Six focus groups were conducted, three in each Adriatic community, with a specific focus on the predetermined research questions. Each focus group consisted of 6-10 participants, including volunteers, volunteer program recipients, and community leaders. The sessions, which lasted approximately 75 minutes each, were homogeneous in composition to allow for more accurate categorization of results. In addition, the discussions were recorded and then summarized by the principal researcher.

The first part of the research looked at the motivations for volunteering, followed by research into the social and economic impact, while the final part focused on the future of altruistic endeavours in these regions. During the focus groups, the researchers closely observed the evolving social dynamics among the participants, both before, during and after the discussions. In total, 42 people actively participated in these six focus groups, including 30 women and 12 men. Two of the focus groups conducted in Janjina consisted exclusively of female participants, while one focus group in Vis included only one male participant. All participants gave their consent for audio recordings to be made during the sessions.

In each community, a series of one-on-one interviews were conducted with a primary volunteer, a recipient of volunteer services, and a community leader. These interviews were all recorded, and their results were summarized by the principal researcher. Each interview lasted approximately 45-60 minutes. The aim of these individual interviews was to explore the motivations of the individuals and to investigate the social and economic benefits of volunteering in the two small, remote Croatian communities. The interviews were designed to provide insights into the experiences and perspectives of six local people actively involved in formal and/or informal volunteering in the community.

In addition to the six interviews already mentioned, the principal researcher conducted four follow-up interviews at both sites to share the research findings with those previously interviewed and explore possible recommendations. Direct observation serves as the third method of data collection. It enables a comprehensive understanding of reality, which gives it considerable heuristic value (Tkalac Verčić, Sinčić Ćorić and Pološki Vokić, 2011). Their primary goal is to recognize "what is going on here", which makes it an unobtrusive method. A key advantage of this method is its ability to provide insights into the contextual nuances of interpersonal interactions and open perspectives that are often inaccessible with other research methods. The method was supplemented by individual interviews and focus groups to triangulate the research findings. To observe volunteering in these remote communities, the principal researcher spent two months in each community during the winter period, actively participating in various volunteer activities and events. This immersive approach allowed for first-hand observation and participation in formal and informal volunteer activities.

4. Results and discussion

The remoteness of these two regions had a considerable impact on the behaviour of their inhabitants. Over the years, the communities were largely left to their own devices, which had a strong influence on local life and encouraged the development of a distinct culture. This remoteness and isolation have played a crucial role in the formation of the specific cultural characteristics in these areas. As the participants in the focus groups and interviews expressed, the long-standing tradition of altruistic behaviour is still deeply rooted in the local culture. Helping others has become second nature to residents and often happens unconsciously. In the interviews, participants often emphasized that helping others is simply part of life in these communities. Such sentiments reflect the enduring cultural values that have been passed down through generations, such as statements like, "*The tradition of helping your neighbour has been deeply rooted in our community since ancient times. This is how we have always lived here, we have always helped each other*".

Many participants cited their adherence to tradition and religion as the main motivation for their altruistic actions. Given the great influence of tradition and religion on local culture, these elements were integrated into our understanding of cultural dynamics for this study. Hofstede, Pedersen and Hofstede (2002, cited in Lebrón, 2013) emphasize the emergence of a global society in modern times, characterized by the advent of the Internet and increasingly accessible telecommunications and air travel. Despite the interconnectedness of today's world, it is surprising that certain regions remain isolated. The small communities on the Adriatic Sea examined in this study have Internet access comparable to global standards but are still geographically isolated. However, advances in transportation infrastructure, including ferry and road networks, have significantly improved accessibility compared to previous years.

Although access to information, goods and services has improved compared to the past, these remote areas still face challenges due to their geographical isolation. While these challenges are less pronounced during the busy summer months, when tourist flows increase connections to the mainland, they exist all year round. During the summer season, the influx of tourists leads to a temporary reduction in isolation and brings new globalized behaviours to these communities. The effects of globalization are particularly evident at this time, shaping the evolving cultural dynamics of these remote areas. The inhabitants of these small, isolated communities derive their satisfaction from kindness and altruism. Motivated by empathy and a sincere desire to help, they find fulfilment in the intrinsic rewards of helping others and often consider a simple "thank you" sufficient recognition. Their altruism is driven by a sincere motivation without expecting anything in return.

Although communities strive to support their vulnerable members, there are perennial challenges that result in many, including the poor, hungry, sick, lonely, uneducated and homeless, not receiving adequate support (Gieling and Haartsen, 2017). Economic constraints often prevent rural areas from providing essential services such as healthcare, housing, jobs and education (Liarakou, Gavrilakis and Flogaitis, 2014). Access to hospitals, schools and other facilities can be limited, making it difficult to find meaningful work and support families. In addition, communities may lack resources to meet social and cultural needs, so they rely on volunteering to fill these gaps and support libraries, arts and entertainment (Medić, Medić and Ebener, 2017). Volunteering plays a crucial role in meeting these needs in remote areas by offering help to the overlooked (Gieling and Haartsen, 2017). Motivated by meaning and social ties, volunteers contribute to restoring social and economic justice and influence the decision of residents to stay in or leave remote areas such as the island of Vis and the Pelješac peninsula.

It's interesting to note that the attitude towards caring for others in these communities varies throughout the year. In the winter months, collectivism predominates, creating a sense of mutual support and altruism among the inhabitants. In summer, on the other hand, individualistic tendencies come to the fore as people put their own interests first. This can be seen in statement such as *"In winter we help each other more, because summer is characterized by much more work and an overwhelming number of tourists, so everyone is too busy."*

This seasonal change reflects a dynamic interplay between altruism and self-centeredness, with winter characterized by a willingness to help others and summer by a focus on self-interest. As one participant noted "*In summer, no one has time to help others but themselves, but in winter, during the recovery process, we help each other in various ways*." Despite these contrasting attitudes, communities tend to revert to a more collectivist mindset for the rest of the year, illustrating a cyclical pattern between individualism and collectivism in these Croatian regions.

With the influence of tourism, competition between locals for the tourist business often takes precedence over cooperation, especially between farmers and fishermen. As a result, community cohesion is weakened as competition intensifies, and the willingness to help diminishes. As one participant stated: *"We are being infected from the outside."* While some benefit financially, many are unaware of the negative impact on their way of life. As one participant remarked *"I'm aware that we don't help ourselves that much in summer. But I don't*

think people need as much help during this time, so that's not necessarily a bad thing. We make money so that we can live a better and easier life in winter".
In contrast, community members become closer and more connected during the winter months: *"the members of the community are helping more during the winter, especially to those who are not able to satisfy their needs"*. There is a new willingness to help, strengthen bonds and foster trust through various volunteer activities. This not only strengthens social capital, but also encourages the provision of services to those in need and mitigates the damage caused by the tourist season. As a result, the community enters a "healing" phase', recovering from the "infection" of summer visitors and returning to a more collective ethos. This cycle repeats itself every year.

In observing these two communities, it was fascinating to see how the culture changes from a more collectivist attitude in the winter months to a more individualistic attitude in the summer, coinciding with the flourishing tourist industry. The coexistence of these contrasting cultural dimensions within these small areas on an annual basis is remarkable. Furthermore, the transition between these behavioural patterns within the community is noteworthy. The results show stronger evidence of motivators associated with collectivist values. Participants emphasized that they not only take care of themselves in winter, but also of others. By volunteering, they seem to put the well-being of others above their own. The intrinsic motives for volunteering prevalent in this study, such as culture, altruism and meaningfulness, emphasize the collectivist tendencies of individuals to place the welfare of the community above their own welfare.

However, this fluctuating annual dynamic poses considerable challenges for life in these communities. On the one hand, the forces of globalization, driven primarily by tourism, bring financial benefits that can improve economic conditions. On the other hand, the traditional way of life is eroding. The community is losing its cultural heritage, which is characterized by mutual support and has sustained life there for centuries. They are torn between the individualism created by the profound effects of globalization and the development of tourism in the summer months, and the collectivism that becomes more evident in the winter, when people realize that they cannot survive in isolation.

Research has shown that rural areas are more collectivist than urban areas, which is an interesting observation (Allik and Realo, 2014; Hofstede, 1991). What is unique about the results presented in this paper, however, is the observed cultural shift between collectivism and individualism over the course of the year, a phenomenon that has not been documented in the literature before. Considering that helping behaviour is consistent with collectivist values and that tourism promotes competitive dynamics, it is plausible that tourism directly contributes to the decline in helping during the summer months. Further investigation into the relationship between tourism and community support could shed light on strategies to mitigate the competitive aspects of the tourism industry and align it more closely with the collectivist ethos of these communities. While tackling this problem may seem daunting at first glance, there are potential ways to promote collectivism during the summer season while capitalizing on the opportunities that tourism development presents. Further research and innovative approaches could provide solutions to foster a collectivist ethos in these communities, even amidst the challenges that the tourism industry brings.

The possibilities for reconciling tourism and collectivist culture show ways in which economic development and cultural values can be harmonized. Below are some recommendations that,

if implemented, can lead to a more sustainable and balanced relationship between tourism and collectivism.

Promoting tourism collectively

Croatian tourist boards play a central role in the promotion and development of tourism in the areas studied. However, participants noted a lack of initiative, projects and planning on the part of these organizations. Although they have the potential to initiate volunteer work that is in line with the collectivist culture, there is scepticism about their willingness to do so is viewed sceptically. The Catholic Church, which is deeply rooted in both regions, could serve as a facilitator for such initiatives. Given the high level of trust and strong orientation towards the church, its involvement could act as a catalyst for community efforts. Key figures in the tourist boards and the church could spearhead projects aimed at reconciling collectivist values with tourism. In addition, educators in primary and secondary schools were identified as influential figures. By promoting children's awareness of shared cultural goals, they could encourage future generations to prioritize traditions and community values. Through this approach, tourism development could better respect and integrate the long-standing culture of mutual support that defines life in these areas.

Entrepreneurial tourist businesses

In small communities such as Vis and Janjina, individual participation in the tourism sector often covers only limited needs, but there is potential for greater competitiveness on a global scale. Interestingly, promoting cooperation between stakeholders could bring more success than individual competition. Research participants highlighted the potential benefits of collective action, pointing out that joint efforts could maintain the collective spirit even during the summer months. Clusters and cooperatives are proving to be viable models for improving the tourism business for all stakeholders. **Business clusters**, as described by Porter (1988), facilitate cooperation between businesses in the same industry that create more value together than individually. Examples such as the Split-Dalmatia County Health Tourism Cluster and the Lika Destinations Cluster are successful models that aim to create recognizable tourism products. Revitalizing traditional industries such as agriculture and fishing into entrepreneurial clusters could enrich the tourism experience by linking local food and fish with restaurants. This diversification of the economy reduces dependence on tourism while capitalizing on the rich cultural heritage of these areas (Porter, 1988). **Entrepreneurial cooperatives** offer another opportunity for collective action. Defined as autonomous associations of individuals meeting common needs, cooperatives promote collective efforts to achieve shared economic, social and cultural goals (Promoting Cooperatives Report, International Labor Organization, 2014). Although critics question their viability, there is evidence that cooperatives can be just as successful as shareholder-owned businesses (Promoting Cooperatives Report, International Labor Organization, 2014).

Joint activities

After initial scepticism about summertime cooperation, potential areas of cooperation become clear on closer inspection. Those involved recognize their individual strengths and weaknesses and could pool their resources and skills for mutual benefit. Joint initiatives such as ***hiring tour guides***, ***providing laundry services*** or ***organizing festivals*** could promote community cohesion while maintaining healthy competition. Tourists could also engage in ***cooperative activities such as olive, grape or mandarin picking***, creating unique experiences that benefit both visitors and the community. Through such collective activities, Vis and Janjina can improve their tourism offer while preserving their cultural essence and natural beauty.

5. Conclusion

As the research participants noted, promoting change and reconciling collectivist culture and tourism in these areas requires initiative, perseverance and leading by example. Even in small communities like these, the actions of a few individuals can demonstrate the possibility of change. The introduction of a collectivist culture, driven by these individuals and later adopted by the whole community, has the potential to transform tourism into a cooperative endeavour. This change would strengthen social bonds, promote year-round mutual support, build trust, create a favorable entrepreneurial environment, and ultimately lead to more sustainable and profitable tourism in the long run. Such a cooperative approach could also strengthen the community against outside threats. One notable aspect of these areas, however, is the disruption of this helping behavior during the summer months, mainly due to the dominance of tourism. The influx of tourists leads to a shift in cultural norms, with collectivism giving way to individualism. People are more focused on themselves and see each other as competitors rather than allies. This change is undermining the culture of helpfulness that used to be cultivated throughout the year. Although some participants believe that it is not possible to reconcile collectivist culture with tourism, this research shows ways in which collectivist values can be integrated into tourism practice.

By prioritizing competition over cooperation, businesses miss out on the potential benefits of cooperation that could improve tourism overall. Recognizing the potential for collective action can pave the way for the emergence of entrepreneurial ventures that are in tune with the cultural fabric of these communities. This study, conducted in two remote areas on the Adriatic, offers valuable insights into the compatibility of collectivist culture and tourism. However, the generalization of the results to other remote regions requires further research due to the uniqueness of each place. There are some limitations due to the time constraints of the study and the limited sample size. Further research should utilize broader sampling methods and consider the perspectives of unrepresented community members. While the study's focus on the winter season provides some depth, it lacks longitudinal data to generalize the findings. Future research should examine cultural changes throughout the year to assess long-term effects on community dynamics. Case selection and study methodology increase reliability but are limited in scope. Research into similar phenomena in other remote areas could provide comparative insights into collectivist cultures and tourism. The unexpected finding of an annual shift from collectivism to individualism warrants further investigation. Future studies could examine the long-term effects of this shift on community cohesion and volunteer behaviour. Research on intrinsic motivators for volunteering suggests that collectivist values predominate. It would be beneficial to investigate how these values influence community dynamics and sustainable tourism practices.

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ANALYSIS OF THE RESPONDENTS' ATTITUDES TOWARDS USING SOCIAL NETWORKS FOR EMPLOYMENT AND LABOUR MARKET IN CROATIA

ABSTRACT

Social networks can help make the labour market more efficient. Outside the company, they help workers to get a job and they secure better-paid jobs. Within the company, social networks facilitate working relationships that are more stable, productive, and profitable. Overall, networks help boost a labour market that can be plagued by a host of informational problems. Therefore, using primary and secondary data, the main study aim of this paper is to assess the respondents' attitudes on the influence of social networks on Croatia's labour market and employment. To understand the characteristics of social media as an emerging platform for job hunting, the research initially analyses secondary data. The second aspect of the methodology involves the examination of the findings derived from the conducted empirical study. The aim is to find out what respondents think about the role of social networks in employment in Croatia. The study, conducted in 2023, comprised a sample of 105 respondents. Among them, 20 were employers, who were asked to respond to an additional set of three questions. Most respondents reported using social media platforms for one to three hours per day, with some spending up to an hour more. Most respondents expressed limited success in using social media for securing employment. Nonetheless, the majority of respondents think social media platforms are appropriate for job advertising; yet they would not accept a position with a company if other users had negative experiences with it. When it comes to employers, many respondents shared a job advertisement on social media and employed someone who replied to the post. It is noteworthy that 80% of respondents would like to keep posting job openings through traditional media compared to posting through social networks. Analysing the responses makes it feasible to provide recommendations for enhancing the role of social networks in the Croatian labour market.

Key words: *Social networks, social media, employment, labour market, Croatia.*

1. Introduction

Social media platforms have fundamentally altered how individuals communicate, and businesses are starting to capitalize on this by using them in their hiring and selection procedures as a result of their increasing popularity. Nowadays, companies face the problem of employee turnover, so they try to cut expenses by spending more on improved selecting techniques. Selection is a tactic used by businesses to prevent hiring the wrong person and the expenses incurred by low output, inappropriate behavior, and a hostile work environment. In order to forecast future results, employers must make sure they have pertinent information about a candidate's prior experience, abilities, and personality (Zhao et al., 2023). Social media profiles are used by recruiters to gather personal data, including interests, contacts, date of birth, residence, and work experience. Social media can also provide insight into a person's creativity, collaboration, communication, etc. For instance, Facebook can be used to examine their soft talents and their potential fit within the organization, but LinkedIn is mostly used to evaluate professional talents (Rife et al., 2016). Social media platforms provide businesses with sophisticated targeting capabilities that enable them to tailor job postings to particular demographics, geographic areas, and interests. By ensuring that job listings are seen by people who have the necessary skills and qualifications, this targeted advertising increases the possibility of finding the ideal candidate for the position. Consequently, businesses may be able to attract more talented individuals while saving time and money. Not every exceptional talent is actively seeking employment. A large number of highly qualified applicants are passive job seekers, which means they may be receptive to new chances should the right one arise. Passive candidates are more likely to reply to job advertising on social media or communications from recruiters when the position reflects their interests and goals (Hosain, Liu, 2020).

Social media platforms have revolutionized the hiring process by giving recruiters a more personal approach to connecting with potential candidates. This has led to various advantages, including (Sharaburyak, 2020):

- Access to a wider range of candidates: social networks allow employers to reach active and passive job seekers. With millions of users on social media platforms, companies can tap into a vast pool of potential candidates with diverse skills, experiences and knowledge.
- Cost-effective recruitment solutions: recruiting through social media can be more cost-effective compared to traditional recruitment methods. By using social media platforms, employers can reduce their reliance on expensive job boards and paid ads, resulting in significant cost savings.
- Improved employer branding: employer branding is essential for drawing in and keeping elite talent. Social media platforms give businesses the chance to highlight their work environment, values, and corporate culture, resulting in the development of a desirable employer brand.
- Improved candidate engagement: social media gives recruiters the opportunity to interact with possible applicants through personalized messages, comments and interactions. This level of engagement can help create a positive candidate experience, encouraging job seekers to apply for open positions.

Maintaining a strong online presence and managing an employer's reputation are key to successfully using social media in the field of recruitment. A positive online reputation can result in increased interest from potential candidates and an improved company image, which can be reflected in (Hosain, Arefin, Hossin, 2020):

- Influence on candidate decisions: job seekers often research potential employers online before applying for a position. A company's online reputation can significantly influence their decision to choose between accepting a job offer and applying. Companies with a strong online presence and positive reviews are more likely to attract top talents.
- Impact on the client's perception: the company's reputation can also affect its relations with clients and partners. A positive online presence can help build trust and credibility, leading to increased business opportunities.
- Employee retention and satisfaction: a well-maintained online reputation can contribute to higher employee retention rates and improved workplace satisfaction. Employees are more inclined to stick with brands that are well-regarded by the public.

Social networking sites are being used more and more in both personal and professional spheres as businesses strive to become competitive in the marketplace. Businesses also develop social network profiles in order to become more competitive, in addition to young individuals. Companies want to increase their visibility and draw in qualified applicants in this manner because human resources are the foundation of any business. Social media is being used more often in the hiring and selection process. A lot of job seekers and human resource recruiters view social media as a cutting-edge means of facilitating employment (Lorincova, Ližbetinová, Brodsky, 2018). Finding candidates that an organization needs is crucial for the business. Because there is a large number of job seekers on the labour market, both employers and prospective employees have options. Due to the revolutionary impact of technological advancements, Internet accessibility, and the emergence of social media platforms, various approaches can be employed during the recruitment process. The methods chosen are contingent upon various circumstances, including the status of the labour market and the company's finances. Social media is being utilized more and more frequently these days to look for work (Aguando et al., 2016).

Recruitment expenses can be reduced by up to 95% and the hiring process can be completed in 25% less time when social media platforms are used (Aggerholm &Andersen, 2018). Nearly half of American managers say they use social networks to find new job candidates, according to a CareerBuilder.com study. A Jobvite study found that LinkedIn was the most popular social network for finding new hires, with 77% of respondents choosing it over Facebook (63%) (Mabić, Bošnjak, 2019).

This paper's goal is to analyse the perception of social networks' impact on employment and the labour market. The paper is organized as follows: it includes an introduction to the subject, a theoretical backdrop, an explanation of the empirical research, a presentation and discussion of the findings, and a conclusion.

2. Theoretical background

Businesses can benefit from social media by using it to engage with audiences and drive more traffic to their websites. On the other hand, negative comments and the need for additional resources could also be considered as drawbacks. Additionally, the advantages of skilfully utilizing social media include (Annisa, Mahendrawathi, 2019):

• Brand awareness: eye-catching material will draw in prospective clients and raise brand recognition.

• Brand reputation: Being perceived as an "opinion leader" or an authority in one's field and

being able to respond quickly to industry developments might help a business's audience perception.
• Profitability: the costs of keeping a presence on social networks are modest, and if one decides to use sponsored advertising, they are free to spend as much or as little money as their budget would allow. Compared to traditional forms of advertising and marketing, this approach can be far less expensive.
• Website traffic: Social media material has the potential to boost online conversions, including leads and sales, by increasing website visitors.
• Assessment: It's simple to calculate the amount of traffic that social media brings to a website, and tracking systems may be used to figure out how much sponsored social media advertising contributes to sales.
• Customer interaction: s it can be used to respond to feedback and offer better customer service; good comments are visible to the public and can persuade other prospective customers; negative comments draw attention to areas that require improvement.
• Target audience: If a customer is looking for business users, LinkedIn may be the best channel to reach them; if they are targeting young people, Snapchat may be the best option. Customers can also find the information they need through the social media platforms that they use most frequently.
• Brand loyalty: Using social media to cultivate relationships with consumers can boost advocacy and brand loyalty.

Moreover, an abundance of research indicates that the integration of social networks within the workplace may enhance the exchange of knowledge. As a result, sharing of specialized information is made possible and project management operations are improved. Barriers are removed, silos are dissolved, contact can increase, and employees gain knowledge and skills when social technologies are fully utilized in the workplace (Grizane, Jurgelane, 2016).
The following are a few drawbacks of social media use (Bakri, 2017):
• Resources: Allocating resources is necessary to manage through social network presence, feedback response, and content production.
• Evaluation: There are other, less obvious advantages as well, even though it is simple to determine the return on investment in terms of the amount of online sales brought about by social media advertising. The visibility and reputation that social media may provide to a brand may be difficult to quantify. It's challenging to gauge how social media affects in-store sales.
• Ineffective use: There are times when using social media might be detrimental. For instance, if a business uses social media to promote sales without interacting with customers or doesn't reply to unfavourable reviews, its reputation may suffer.
To select the most suitable social media strategy for a business, one should consider the advantages and disadvantages mentioned above.
There are many definitions of the labour market, but they all share the idea that the labour market represents the totality of supply and demand of human labour. Put more succinctly, it refers to the availability and need for workers, covering aspects such as their preparation, employment, promotion, dismissals, job seeking, competition in finding employment and at work, and various other work-related statuses (Böhm, Land, 2012). The labour market includes all transactions related to the purchase and sale of labour (Mohun, 1996). One of the tasks of the labour market is to allocate work efficiently and effectively in order to maximize production and services and overall benefits for workers. The labour market behaves differently from other markets. It is one of the most sensitive and complex markets, but it has the same role as all the other markets. The complexity of the labour market implies that the concepts of supply and demand must be significantly modified and reoriented when applied to

the labour market. Unlike the goods or money market, the labour market is characterized by peculiarities that make it much more difficult to adapt and return to balance. Labour markets require appropriate institutions because they are not perfectly competitive. In this sense, an optimal combination of subsidies, taxes, and regulations are required to guarantee the labour market's smooth operation. When establishing the institutional infrastructure of the labour market in the Republic of Croatia, the Croatian Employment Service, private intermediaries on the labour market, local employment partnerships, and social partnership act together (Obadić, Tica, 2016).

Social network recruiting is no longer a novel tactic. It's among the most widely applied strategies for hiring new employees. Utilizing social media platforms to attract and recruit new job prospects makes sense, as most individuals use at least one social media platform (Aggerholm, Andersen, 2018). Social networking can be an extremely powerful tool for job searchers. Social media can be used in many creative ways to aid in job search, from networking to researching potential employers. In addition to recruitment, social media is being utilized for employer branding. Employers can maximize their recruitment efforts and disseminate information about their employee value offer using social media platforms. Talent acquisition experts are increasingly using social media for recruitment due to the steady rise in social media usage. This is hardly surprising, given that social media was the primary source of employment for over 75% of workers between the ages of 18 and 34 (Frasca, Edwards, 2017). Well-designed social recruiting techniques increase an organization's chances of connecting with passive candidates, showcasing their corporate culture more effectively, reducing the cost of job advertising, improving target personas, and receiving more recommendations. Consequently, there is a wide variety of social media platforms available today. Therefore, it's critical to comprehend every platform’s operating principles as well as its target demographic. For instance, Instagram might not be the ideal channel for developers, even though it might be the best for reaching people in the design, marketing, and retail industries. Some companies are already hiring developers through specialized forums and social media sites like StackOverflow, GitHub, and Reddit. In today's global recruitment process, it is becoming increasingly common to review the profiles of prospective or existing job candidates on social networks such as Facebook, LinkedIn, or Twitter, and subsequently determine who is the most qualified and suitable for the open position.

LinkedIn continues to be the most widely used social network for hiring new staff members (Girard, Fallery, Rodhain, 2013). Both companies and potential workers, including both proactive and passive job seekers, unquestionably turn to LinkedIn as the most popular social networking platform for recruitment and selection phases. For job seekers, LinkedIn is the best option because of its affordability, time efficiency, reliability, accuracy, and relevance. It has altered the recruiting and candidate selection process and is just as useful in assessing candidate's personality and other attributes (Yinhai, Pusparani, 2018). When a company is seeking qualified applicants for senior positions and individuals with specific, specialized talents, LinkedIn undoubtedly a more useful resource. When it comes to finding and attracting the top candidates for a position, human resource professionals choose LinkedIn over other social media platforms. It is even more common in luring in passive job searchers; that is, businesses may conduct a more thorough search to identify the best possible prospects, after which they may run advertisements to draw in those candidates. Additionally, applicants hired through LinkedIn have experienced positive professional outcomes. Compared to the traditional hiring and selection procedures, LinkedIn offers a number of benefits give businesses a competitive edge (Roulin, Levashina, 2019). One of the key advantages of

LinkedIn is its ability to generate savings in recruitment and selection processes compared to traditional recruitment methods. Also, using social networks such as LinkedIn is a low-cost option for many organizations. Furthermore, LinkedIn enables employers and job seekers to search a large amount of information swiftly and easily and, consequently, quickly reach the desired results. Social media profiles used for recruitment should represent the company's guiding principles and culture. For the purpose of employer branding and attracting talent, many businesses make distinct Facebook and Instagram pages (Stokes et al., 2019).
This approach allows them to focus more on the candidate persona and less on the buyer persona of the company. They may present the content that candidates are looking for and target their messaging and communication towards prospective employees.

3. Methodology

The purpose of this study is to examine the respondents' attitudes towards the role of social networks in labour markets and employment in Croatia.

3.1. Research instrument

An online poll using Google Forms was disseminated with the goal of investigating the viewpoints of the respondents regarding social networks' function in labour markets. The survey handed out to the employees and employers in the Croatian labour market in June and July 2023.

There are 18 questions in the survey for (potential) employees and 21 question for employers in total. Gender, age, education, and job title are among the sociodemographic variables addressed in the first section of the survey. The second section of the survey is specifically focused on connection between social networks and labour market. This section is based on the previous survey. Questions for employees are derived and adjusted based on the literature review and research conducted from Bošnjak and Mabić (2019). Questions for employers are prepared and are based on the literature and research from the following authors: Kluemper, Mitra, Wang (2016) and Hudson (2019).

The Statistical Package for the Social Sciences was used to analyse the collected data.

3.2. Research sample

The research sample consists of 105 respondents. The respondents are (potential) employees and employers in Republic of Croatia.

Out of all replies, 80 (76.19%) are women and only 25 (23.8%) are men.

The majority of the survey's sample (N=48, 45.7%) is composed of respondents who are between the ages of 26 and 36. In order of age, they are followed by respondents under 25 (N=30, 28.6%), respondents between 36 and 45 (N=14, 13.3%), and respondents between 46 and 59 (N=9, 8.6%). The oldest respondents (N=4, 3.8%) are those who are over 60.

A university degree was the most common level of education (54%) and was followed by a high school diploma (46%).

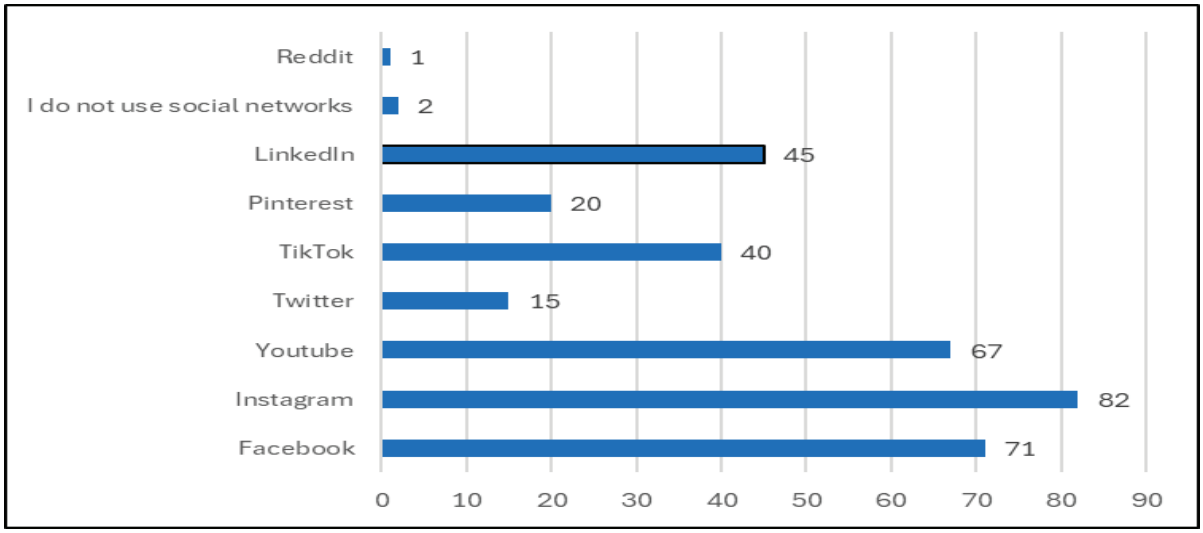
The bulk of survey respondents (91.42%, N=96) are employed, while just a small portion (8.58%, N=9) of respondents is unemployed.

4. Findings and discussion

All respondents from the sample use at least one of the social networks.

Graph 1. illustrates that the majority of respondents use Instagram (78.1%), Facebook (67.6%), and YouTube (63.8%). According to global data, Facebook and YouTube are expected to be the most widely used social networks (Statista, 2024) and that is aligned with responses from this research. The most famous social network for sharing photos is Instagram and respondents in this research mostly use that social network. While Instagram may seem like just one of the many tools available for people to use for their business, it should not be ignored. Organizations of all sizes may use this potent social media platform to connect with their target market, increase brand recognition, and boost sales.

Graph 1: Social networks used by respondents



Source: Authors

Table 1. shows that the largest number of respondents, 60.0%, use social networks for 1-3 hours a day, followed by respondents who spend up to 1 hour a day on social networks (23.8%).

Table 1: Daily usage of social networks

How much time do you spend daily on social networks?	Number of respondents
up to 1 hour	25
1-3 hours	63
3-5 hours	15
more than 5 hours	2

Source: Authors

The participants were then asked to answer questions about the reason for using social networks. They had the possibility to choose more than one answer.

Table 2: The reasons for using social networks

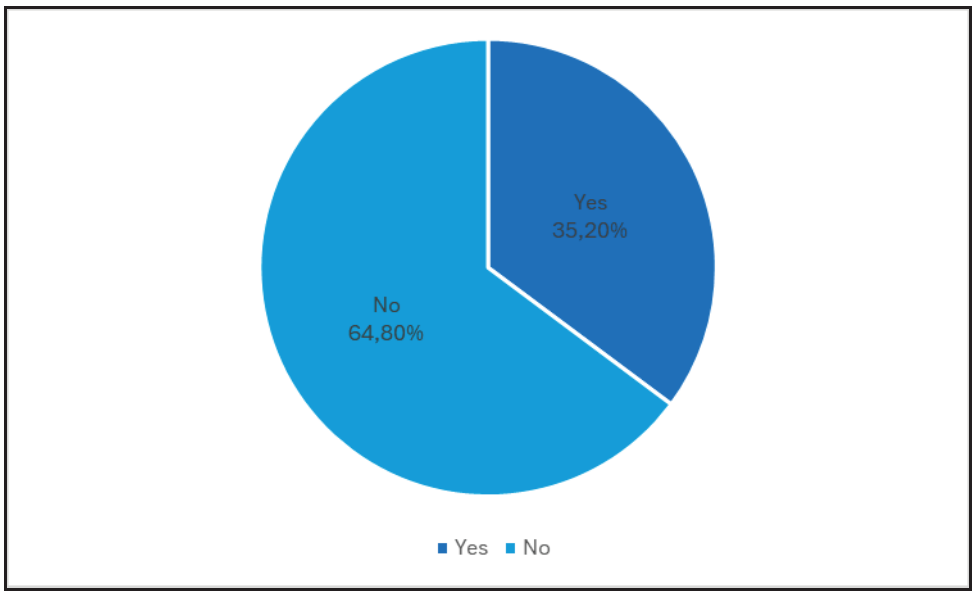
Why do you use social networks?	Number of respondents	
	Absolute	Relative (in %)
finding friends	39	37.14
listening to music	32	30.5
finding employment	36	34.3
sharing videos and photos	56	53.3
joining interest groups	54	51.4
playing games	13	12.4
sharing learning materials	12	11.4
communicating with others	62	59.0
discussing specific topics	29	27.6

Source: Authors

Table 2. shows the reasons for using social networks. Respondents mostly use social networks to communicate with others (59.0%) and they use it least for sharing learning materials (11.6%). 36 respondents (34.3%) answered that they use social networks for finding employment.

As can be seen in Graph 2., the majority of participants did not use social media to get employment. (64.8%), while 35.2% of them found employment using social networks.

Graph 2: Finding employment via social networks

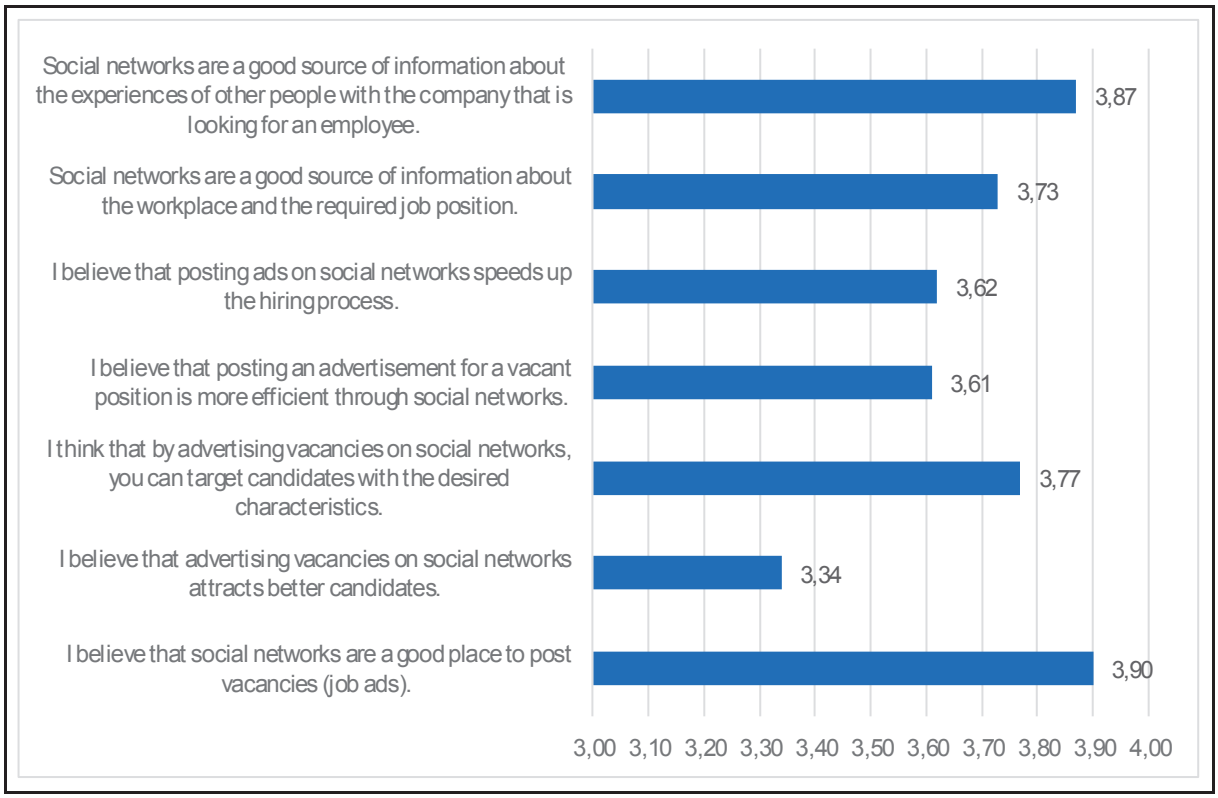


Source: Authors

When the respondents were asked why they do not search for a job more often through social networks, the majority of respondents (90%) answered that they prefer to use the MojPosao portal and the digital platform of the Croatian Employment Service. They cited the abundance of job vacancies available on these platforms as the primary reason for their preference, noting that the number of vacancies is greater than those found on social networks. According to most respondents (88.6%), Social networks are appropriate for posting job ads. Only 11.4% of respondents think employment ads should not be posted on social media. When asked if they would take a job with a company that other people had bad experiences with on social media, the largest number of respondents answered that they would not accept a job (72.4%).

Respondents were then asked to express their level of agreement with statements regarding social networks and employment using a Likert scale ranging from 1 to 5. As can be seen on the Graph 3. the statement "I think social media platforms are useful for advertising job openings" received the highest rating. This is followed by the statement "Social networks are a good source of information about other people's experiences with a company that is looking for an employee." The lowest rating was given to the statement "I believe that advertising vacancies on social networks attracts better candidates."

Graph 3: Respondents' attitudes towards claims about social networks and employment



Source: Authors

Out of 105 respondents, 20 of them were employers and they had 3 additional questions in the questionnaire to answer.

85% of the employers in the sample posted a job ad via social networks.

Table 3: The method of advertising vacancies

Do you prefer advertising job vacancies through the Moj Posao portal and the traditional media compared to posting through social networks?	Number of respondents	
	Absolute	Relative (in %)
yes	16	80.0
no	4	20.0

Source: Authors

Employers from the sample were then asked what type of job advertising they preferred. From the Table 3. It is clear that the majority of respondents (80%) would rather advertise job openings through the Moj Posao portal and traditional media (Croatian Employment Service) rather than using social networks. When employers were questioned about this preference, the majority (96%) answered that they believe potential employees in Croatia are more accustomed to searching for jobs through the traditional channels than through social networks.

5. Conclusion

The labour market, characterized by the exchange of labour where employees offer the supply and employers provide the demand, is fundamental to any economy. It is intricately connected to the markets for capital, goods, and services. There are various definitions for the labour market, but they all agree that the labour market is the intersection of labour supply and demand. All the transactions involving the buying and selling of labour are included in the labour market. People are social creatures who are drawn to and interested in social communication, which makes social networks the most widely used worldwide communication phenomenon. Social media can be an excellent tool for individuals to connect with one another or with a particular group of people. Businesses can benefit from social media by using it to engage with audiences and drive more traffic to their websites.

Negative comments and the need for additional resources can also present drawbacks. The optimal social media strategy for businesses can be determined by weighing these advantages and disadvantages. Utilizing social media for job listings, networking, and research is commonly referred to as social media recruiting.

The study was carried out in Croatia in 2023 with 105 respondents as a sample. Out of the 105 respondents, 20 were also employers who were asked to respond to three additional questions. The main findings show that almost all respondents use one or more social networks. Additionally, one third has used social networks for finding employment. The majority of respondents believe that social media platforms are suitable for publishing job advertisements. Majority of employers from the sample have used social media for advertising job vacancies but they still prefer advertising it via Moj portal and other traditional channels over using social networks for that purpose. Previous research on this topic (Aggerholm, Andersen, 2018; Mabić, Bošnjak, 2019), as described in the Introduction section of this paper, indicates that social networks are commonly used for the hiring process in many countries. However, our research results show that is not the case in Croatia. The applied contribution of this paper is the conclusion that companies in Croatia should utilize social media recruiting more extensively. This is supported by the fact that posting job ads on social networks is free of

charge, social media increases the visibility of advertisements to a larger pool of candidates, and social media advertising helps promote the company brand.

During the implementation of this research, there were certain limitations. The data collection method employed in this paper involved an online questionnaire. The disadvantages of this approach are associated with the tendency of respondents to provide socially acceptable rather than genuine responses. Additionally, using an online survey raises concerns about the representativeness of the sample for the research topic. It is suggested that similar future studies should use larger sample sizes in order to more accurately identify the reasons behind respondents' attitudes. Nevertheless, it can be concluded that his study contributes scientifically to the field it investigates, despite these limitations.

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A scientific paper

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THE FULBRIGHT EFECT: A GLOBAL EXPLORATION OF TRANSFORMATIVE EXPERIENCES

ABSTRACT

The Fulbright program stands as a beacon for fostering global connections and enhancing education through cross-cultural experiences for years. This paper aims to comprehensively explore the multifaceted impact of the Fulbright program on participants, encompassing academic, personal, and professional dimensions. Through a thorough analysis of research findings from diverse Fulbrighters (Fulbright alumni and grantees) worldwide, the aim was to unravel the essence of the program's transformative impact, shedding light on its role in shaping global perspectives and fostering cross-cultural understanding, incorporating a unique blend of academic, learning, social, cultural, personal, and professional dimensions and aspects.

A survey among 263 Fulbrighters (students, teachers, and researchers) from 29 countries around the world was conducted to explore the various academic, personal, and professional benefits of the Fulbright program. The preliminary findings of our study demonstrate the positive impact of the Fulbright program on both U.S. and non-U.S. Fulbrighters. Most importantly, the results indicate a transformative change or the "Fulbright effect" among the Fulbrighters.

Personal development emerges as a core theme, with respondents expressing increased self-awareness and citing a broader worldview. The Fulbright journey, with its diverse interactions and immersive experiences, acts as a catalyst for self-discovery and an expanded cultural consciousness. The Fulbright experience doesn't conclude with the return home; it sparks a sustained commitment to global engagement. Participants remain actively involved in international initiatives, fostering enduring cross-border connections. This research holds significance as it explores the impacts of the Fulbright program, providing valuable insights into its role in shaping individuals academically, personally, and professionally, and ultimately contributing to a more interconnected and culturally aware global community.

Key words: *Fulbright, impact, academic benefits, professional growth*.

1. Introduction

Fostering international collaboration and facilitating student and scholar exchange with universities worldwide are crucial in shaping the direction of education today. By engaging in international partnerships within regions, Europe, and beyond, educational institutions offer students and staff valuable exposure to global economic and business landscapes, thus

advancing the process of internationalization. Internationalization remains a prominent goal for higher education institutions today, essential for aligning with their visions of becoming significant stakeholders in their respective regions. This entails not only attracting foreign students and scholars but also encouraging domestic students to take part in study programs abroad through various exchange initiatives. Furthermore, internationalization encompasses not just outbound mobility of students and scholars to other institutions but also the welcoming of students and scholars from diverse backgrounds. Strengthening support systems for international cooperation and exchanges across institutions and countries is vital, including raising awareness of their importance, organizing international events like summer schools and conferences, and maintaining accreditation standards. These are just some of the most visible global trends in the education landscape.

One of the best-known international education programs is the Fulbright Program. This program is one of several educational and cultural programs managed and funded by the United States of America (USA) through the Bureau of Educational and Cultural Affairs of the U.S. Department of State. The program was initiated and founded by USA Senator J. William Fulbright in 1946 and today is considered one of the most recognized and prestigious scholarships in the world (US News & World Report, online). More than 2,200 U.S. students and 900 U.S. college and university faculty and administrators are awarded Fulbright awards annually. Additionally, some 4,000 Fulbright Foreign Students and Visiting Scholars come to the United States annually to study, lecture, conduct research, or teach their native language in U.S. institutions of higher education (Fulbright program, online).

Considering the global prominence of the Fulbright program, we conducted a survey to explore the "Fulbright effect" across countries and different programs within Fulbright. The aim of this paper is to highlight the principal and intriguing dimensions of transformative experiences undergone by Fulbright participants globally, with a specific focus on the cross-cultural phenomenon referred to in this paper as the "Fulbright effect." The study seeks to answer the following questions:

- How does participation in the Fulbright program contribute to the academic development of participants, and what specific academic skills or knowledge areas are most commonly enhanced through the program?
- In what ways does the Fulbright program facilitate personal growth and cultural awareness among participants, and how do these experiences translate into broader worldviews and sustained global engagement?
- What are the professional benefits of participating in the Fulbright program, and how do these experiences influence participants' career trajectories and their contributions to global initiatives and cross-cultural understanding?

In the sections that follow, the paper outlines the diverse array of awards offered by the program and its extensive alumni network, showcasing its impact on global relations and individual careers and presents insights from recent literature, detailing the personal and professional benefits of participating in the program. These include opportunities for cultural immersion, research collaboration, and skill development. In addition, the paper discusses the nuances of the Fulbright experience for Fulbrighters (students, teachers, and researchers from the USA and non-US countries), and explores their perceptions of the program and its impact on them.

2. Higher education internationalization and mobility

The incorporation of an international perspective has long been a hallmark of academic and non-academic programs, with a focus on exposing participants (students and scholars) to diverse global contexts and insights from international research. Guest lectures from foreign education and research institutions, access to relevant and contemporary databases, and other resources contribute to the enrichment of the overall educational experience. However, internationalization and mobility are the two trends that are game changers when it comes to higher education and education in general. Numerous institutions, countries, along with various organizations, offer financial assistance for mobility initiatives in higher education. Mobility has emerged as a pivotal trend within the realm of higher education, with diverse programs such as those facilitated by the European Union (EU), USA, bilateral partnerships, and organizations, targeting specific groups of countries or research fields. The European Parliament and Council (2006, 8) explain International Student Mobility as 'a period of learning abroad (formal and non-formal), or mobility undertaken by individual young people or adults, for the purposes of formal and non-formal learning and for their personal and professional development'. In the Leuven/Louvain-la-Neuve Communiqué (2009, 4) this was modified by the European Ministers Responsible for Higher Education and the process of academic mobility refers to 'a study or training period abroad'.

It can be noted that the past decades have been marked by significant efforts by higher education institutions towards the internationalization of all aspects of their work. This trend has elevated internationalization to a top priority in both policy-making and scholarly research. Among the various facets of internationalization, extensively discussed elsewhere (Altbach and Knight, 2007; Kehm and Teichler, 2007), international student mobility has emerged as the focal point, drawing considerable attention and being prioritized in the field (Knight, 2012; Teichler, 2004). The literature (Knight, 2012) also recognizes different categories of student mobilities: Full degree program in a foreign country, Short-term study-abroad experience as part of a degree program at the home institution, Cross-border collaborative degree programs between two or more institutions or providers, Research and fieldwork, Internships and practical experiences, and Study tour, workshops. Wells (2014), on the other side, discusses different concepts and approaches to student mobility, including push and pull factors that are concentrated around the migration aspect of student mobility and the human capital flight (brain drain). However, he concludes that the concept of student mobility is impossible to view only through these lenses. Moreover, student mobility and any form of education mobility per se should be viewed having in mind cultural and learning experiences, perceived benefits but also challenges regarding psychological and physical adaptations, sometimes referred to as the "cultural shocks"

On the other side, scholar mobility is also an important aspect of the entire landscape. Research by Heffernan and Jons (2013) highlights that international mobility within academia is primarily driven by specific research objectives rather than solely by the pursuit of scholarship. This finding underscores a deliberate and purposeful dimension to international mobility among scholars. Additionally, insights from Boring et al. (2015) reveal that a substantial percentage of both university and institute respondents have engaged in international mobility at least once during their research careers, illustrating the widespread prevalence of this phenomenon within the academic community. Sandstrom (2009) further contributes to this discourse by suggesting that mobile researchers tend to exhibit higher levels of performance within their respective research fields compared to their non-mobile counterparts, indicating potential benefits associated with international mobility in academia.

Moreover, Boring et al. (2015) identify international research visits as the most common form of international mobility, emphasizing the significance of direct research engagement in fostering global academic collaboration and exchange. These findings collectively underscore the multifaceted nature of international mobility in academia and its profound impact on research practices and scholarly outcomes. According to Coey (2018), international research mobility holds significant transformative potential, fostering enduring outcomes in terms of both knowledge production and transfer. Scott-Smith (2022) discusses education exchange as a channel for the transfer of knowledge, materials, and individuals. Furthermore, the author defines "educational exchange" as the movement of individuals or groups between nations for various forms of training, spanning from high school visits to the development of professional skills. Building upon Marginson's (2014) thesis of "self-formation," Tran (2016) proposes mobility as a form of self-investment, where individuals engage in professional advancement, capital accumulation, and/or migration to facilitate their own personal development. Very similarly, Lipura and Collins (2020) discuss the concept of "becoming" due to the overall experience around different educational mobilities. Today, mobility is further explained through the lived experiences of both students and researchers within their respective abroad contexts. Meaning, people explore new experiences and make them their own, which helps them change and grow to achieve their goals. This shows how educational travels can deeply affect how people see themselves and how they develop personally and professionally in the post-mobility period.

3. The Fulbright program

> *The Fulbright Program's mission is to bring a little more knowledge, a little more reason, and a little more compassion into world affairs and thereby increase the chance that nations will learn at last to live in peace and friendship. (UNH Today, online)*
>
> —Senator J. William Fulbright

3.1. Fulbright diplomacy

The Fulbright Program, widely regarded as one of the most prominent educational exchange initiatives, owes its inception to the vision of US Senator J. William Fulbright, often calles as the "father of academic exchanges" (Dubois, 1995, 59). This program, proposed in 1946, has since served as a cornerstone of exchange diplomacy, promoting international understanding and goodwill through scholarly and cultural exchanges. Bettie (2019) contextualizes the Fulbright Program within the broader framework of exchange diplomacy, emphasizing its role in public diplomacy aimed at fostering mutual understanding among nations. Scott-Smith (2022) furtner extends this perspective by exploring the geographical and intellectual dimensions of exchange, emphasizing the circulation of knowledge and its impact on a global scale. Concepts such as brain circulation and centers of circulation underscore the enduring significance of knowledge exchange in shaping international relations, according to Scott-Smith (2022). Quoting J. William Fulbright, Dubois (1995,75) underscores the transformative potential of education in international relations, emphasizing its centrality in fostering global harmony. Kaniuka (2018) reaffirms the enduring relevance of the Fulbright Program, noting its resilience despite operational changes while maintaining its core mission of promoting international understanding.

The Fulbright Program offers a diverse array of awards catering to students, scholars, and professionals across various host countries. These awards include student grants, scholar grants, teacher grants, professional grants, and the Fulbright – Hays Program. Facilitated

through bilateral partnerships and managed by different commissions, the Fulbright Program facilitates exchanges between individuals from the United States and other countries, fostering cross-cultural dialogue and collaboration (Fulbright program, online). Very importantely, „covering“ various age, field and regional categories in its grants schemes. The impact of the Fulbright Program extends beyond individual participants, with alumni making significant contributions to various sectors worldwide. With over 325,000 alumni, including recipients of prestigious awards such as the Pulitzer Prize (89 alumni), Nobel Prizes (62 alumni) and heads of state or governments (41 alumni), the Fulbright Program continues to be a testament to the power of international exchange in shaping global relations (US Department of State, online).

3.2. Fulbright experiences

Despite the importance and reputation of the Fulbright program, there is a rather limited number of studies and papers dealing with the impact of the different dimensions of the program on Fulbrighters.

In recent literature, the Fulbright scholarship has been regarded as a prestigious honor for academics, as articulated by Joseph (2020). Joseph emphasizes that participation in the Fulbright program offers professionals opportunities for professional collaboration, cultural immersion, leadership development, and research advantages. Turner (2019) provides a personal account of her involvement in a Fulbright program, underscoring three primary personal and professional benefits: gaining a deeper understanding of the culture, conducting research and traveling without financial burden, and bolstering professional self-confidence. Building upon this narrative, Zhou et al. (2024) present empirical evidence showcasing the positive impact of Fulbright participation on teachers' teaching skills and cross-cultural competencies. Additionally, their research underscores the broader positive effects on teachers, students, and the school community at large. Furthermore, Ly (2015) contributes an intriguing perspective by framing student mobility within the concept of "becoming," suggesting that such experiences facilitate students' journey toward self-realization and the attainment of their desired personal identities.

In the literature review, various perspectives on the Fulbright experience are examined, offering insights into its suitability for different career stages. Perreault and Dimitrova (2022) suggest that the Fulbright experience may not always align with the needs of early-career researchers (in their case mass communications and journalism), as indicated by explicit warnings in many award descriptions. The authors highlight several reasons for this, notably the necessity for applicants to have a clear understanding of their professional identity and contributions to offer host institutions. They note that some scholars opt to pursue Fulbright scholarships in conjunction with institutional sabbaticals, which can provide additional financial support and professional leave to enrich the experience. From the authors' perspective, the Fulbright opportunity presents a means to internationalize existing research identities and foster international collaborations. However, they caution that the timing of Fulbright applications should be carefully considered, particularly in relation to career milestones such as post-tenure and pre-promotion stages. Moreover, Perreault and Dimitrova (2022) also acknowledge the arduous and time-consuming nature of the Fulbright application process, further emphasizing the importance of strategic decision-making regarding timing and readiness for potential applicants.

Lally (2022) also expolores the nuanced perceptions of visiting scholars towards the United States as shaped by their participation in the Fulbright Program. While scholars acknowledge the program's professional benefits and establish meaningful connections with their American counterparts, their attitudes towards the country remain influenced by their national backgrounds, leading to variations in viewpoints among participants. Also, Bettie (2019) provides insight into two distinct perspectives on the Fulbright Program: the culture learning perspective and the educational excellence perspective. Scholars holding the culture learning perspective, particularly prevalent among longstanding U.S. allies like Western Europe, view Fulbright primarily as a vehicle for promoting mutual understanding, consistent with its original legislative intent. Emphasizing cultural exchange, these participants see Fulbright grantees as ambassadors tasked with fostering cross-cultural understanding. However, many perceive limited impact on U.S.-partner country relations. It can be concluded that the participants perceive the Fulbright Program as crucial for attaining academic excellence, enhancing prestige, and fostering resource development. Moreover, some underscore the notable representation of Fulbright alumni in influential roles across different fields, indicating the program's capacity to shape future leaders in line with the concept of exchange diplomacy.

4. The Fulbright Effect

4.1. Data and research method

The purpose of the research was to explore the "Fulbright effect" and the attitudes of Fulbrighters toward various aspects of obtaining the scholarship and preparing for a stay in the host country, various aspects of life and work abroad, and behavior and attitudes after their stay in the host country. It was conducted in the form of an online survey through a structured questionnaire from December 2022 to February 2023. The questionnaire was developed by the authors based on existing literature related to the Fulbright program, the authors' personal experience with the Fulbright program, as well as findings from 10 in-depth interviews with Fulbrighters. Before distributing the online questionnaire, it was tested on a limited sample of 20 respondents. The online questionnaire was distributed through US Alumni associations contacted directly via email and their social media profiles, as well as through direct contacts with Fulbrighters. The sampling method used was a snowball sample chosen for its convenience in terms of chain referral (Pasikowski, 2023).

The socio-demographic characteristics of the respondents are presented in the following table.

Table 1: Socio-demographic characteristics of respondents

Socio-demographic characteristics	**Items**	**N**	**%**
Home country	Non-US citizens	206	78.3
	US citizens	57	21.7
Sex	Female	167	63.5
	Male	96	36.5
Age	18-25	3	1.1
	26-35	92	35.0
	36-45	92	35.0
	46-55	36	13.7
	56-65	31	11.8
	65+	9	3.4
Age when granted the first scholarship	18-25	61	23.2

Socio-demographic characteristics	Items	N	%
	26-35	124	47.1
	36-45	58	22.1
	46-55	16	6.1
	56-65	4	1.5
	65+		
Educational level	Bachelor level	25	9.5
	Master level	110	41.8
	PhD level	128	48.7
Educational level when granted the first Fulbright scholarship	Bachelor level	92	35.0
	Master level	104	39.5
	PhD level	67	25.5
Type of the Fulbright scholarship	Research	120	45.6
	Research and teaching	17	6.5
	Student	87	33.1
	Teaching	39	14.8
Field of expertise/interest related to the Fulbright scholarship	Social sciences	112	42.6
	Humanities	66	25.1
	Engineering and technology	34	12.9
	Natural sciences	33	12.5
	Medical and health sciences	14	5.3
	Agricultural sciences	4	1.5
Employment when granted the first Fulbright scholarship	University/academia/education	108	41.1
	Private sector	54	20.5
	Public sector	39	14.8
	Student	39	14.8
	Non-governmental sector/not-for-profit organizations	16	6.1
	Not employed	7	2.7
Number of applications before granting the first Fulbright scholarship	0 – awarded after the first attempt	225	86.9
	1	26	10.0
	2	4	1.5
	3	4	1.5
Awarded the Fulbright scholarship more than once	Yes	22	8.4
	No	141	91.6
Stayed with the family in the host country	Yes	50	19.0
	No	213	81.0

Source: Authors

In total, 263 respondents participated in the survey – 57 respondents from the USA and 206 respondents from 28 countries. In the sample, female respondents are dominant (63.5%). Approximately 70% of respondents are in the age group of 26-45 years. About 47.1% of respondents were 26-35 years old when they received their first Fulbright scholarship, 23.2% were 18-25 years old, and 22.1% were 36-45 years old. About 48.7% of respondents now hold a doctorate, 41.8% a master's degree, and 9.5% a bachelor's degree. Approximately 39.5% of respondents had a master's level when they received their first Fulbright scholarship, 35% had a bachelor's level, and 25.5% had a doctorate.

Around 45.6% of respondents received a Fulbright scholarship for research, 14.8% for teaching, 6.5% for research/teaching, and 33.1% were Fulbright students. In the sample, 42.6% of respondents are from social sciences, 25.1% from humanities, 12.9% from engineering and technology, 12.5% from natural sciences, 5.3% from medical and health sciences, and 1.5% from agricultural sciences. About 41.1% of respondents were employed in the field of academia and education at the time of receiving the first Fulbright scholarship, 20.5% in the private sector, 14.8% in the public sector, 6.1% in the non-governmental sector,

2.7% were unemployed, and 14.8% were students. Approximately 86.9% of respondents received a Fulbright scholarship on the first attempt, 10% on the second attempt, and 3% applied more than twice. About 91.6% of respondents received a scholarship more than once. Around 81% of respondents stayed in the host country with their family.

4.2. Research findings and discussion

The internal consistency reliability of the scale that measures the "Fulbright effect" was excellent (Cronbach's $\alpha = 0.969$ and McDonald's $\omega=0.970$) based on 36 items. The scale was developed by the authors and the respondents rated the statements from 1 to 5, where 1 means "absolutely disagree", 2 "disagree", 3 "neither agree nor disagree", 4 "agree" and 5 "absolutely agree". Within the "Fulbright effect" scale, 21 items refer to personal development, 10 to professional development, and 5 to academic development.

The Shapiro-Wilk test revealed that the distribution of all 36 items significantly departed from normality ($p < 0.01$). Therefore a non-parametric Mann-Whitney U-test was used to evaluate whether the individual items from the "Fulbright effect" scale differed by country of origin and type of scholarship:

- Country of origin: US Fulbrighters (US citizens going abroad) and non-US Fulbrighters (non-US citizens going to the USA) and
- Type of the scholarship: Fulbrighters who were granted the scholarship for students and for other categories (teaching, research and teaching/research).

The results indicated that there was significant difference between the responses of US and non-US Fulbrighters for the following items:

- „I have improved my ability to work in a multi-cultural environment" *(Mean=4.54, Median=5.00, Mode=5, SD=0.787; US: Mean=4.32, Median=5.00; Non-US: Mean=4.60, Median=5.00; U=4,608, p=0.004<0.05),*
- „I have improved my general professional skills" (*Mean=4.41, Median=5.00, Mode=5, SD=0.860; US: Mean=3.94, Median=4.00; Non-US: Mean=4.53, Median=5.00; U=3,846, p<0.001),*
- „I have improved my interpersonal skills" *(Mean=4.29, Median=4.00, Mode=5, SD=0.835; US: Mean=4.05, Median=4.00; Non-US: Mean=4.35, Median=4.00; U=4,710, p=0.016<0.05),*
- „I find myself more open minded than before" *(Mean=4.18, Median=5.00, Mode=5, SD=1.043; US: Mean=4.00, Median=4.00; Non-US: Mean=4.23, Median=5.00; U=4,791, p=0.021<0.05),*
- „I find myself more cosmopolite than before" *(Mean=4.11, Median=4.00, Mode=5, SD=1.074; US: Mean=3.63, Median=4.00; Non-US: Mean=4.25, Median=5.00; U=4,053, p<0.001),*
- „I find myself as a cultural ambassador of my host country" *(Mean=4.05, Median=4.00, Mode=5, SD=1.021; US: Mean=3.68, Median=4.00; Non-US: Mean=4.16, Median=4.00; U=4,335, p=0.002<0.05),*
- „I am trying to act as an agent of change in my home country" *(Mean=3.95, Median=4.00, Mode=4, SD=1.103; US: Mean=3.42, Median=4.00; Non-US: Mean=4.10, Median=4.00; U=3,930, p<0.001),*
- „I find myself more professional than before" *(Mean=3.94, Median=4.00, Mode=5, SD=1.106; US: Mean=3.42, Median=3.00; Non-US: Mean=4.09, Median=4.00; U=3,840, p<0.001),*

- „I find myself more determined about my future than before“ *(Mean=3.85, Median=4.00, Mode=5, SD=1.134; US: Mean=3.42, Median=4.00; Non-US: Mean=3.97, Median=4.00; U=4,383, p=0.005<0.05),*
- „I do more research projects than before“ *(Mean=3.63, Median=4.00, Mode=3, SD=1.090; US: Mean=2.91, Median=3.00; Non-US: Mean=3.76, Median=4.00; U=1,860, p<0.001),*
- „I publish more than before“ *(Mean=3.62, Median=4.00, Mode=3, SD=1.135; US: Mean=3.00, Median=3.00; Non-US: Mean=3.72, Median=4.00; U=1,485, p<0.002),*
- „I am more interested in environmental issues than before“ *(Mean=3.62, Median=4.00, Mode=3, SD=1.126; US: Mean=3.06, Median=3.00; Non-US: Mean=3.76, Median=4.00; U=3,390, p<0.001),*
- „I have positively changed my view on my home country“ *(Mean=3.61, Median=4.00, Mode=5, SD=1.273; US: Mean=3.11, Median=3.00; Non-US: Mean=3.74, Median=4.00; U=4,008, p=0.005<0.05),*
- „I am more engaged in activities of non-governmental organizations than before“ *(Mean=3.43, Median=3.00, Mode=3, SD=1.084; US: Mean=3.11, Median=3.00; Non-US: Mean=3.53, Median=3.00; U=4,464, p=0.016<0.05),*
- „I volunteer more than before“ *(Mean=3.34, Median=3.00, Mode=3, SD=0.996; US: Mean=2.95, Median=3.00; Non-US: Mean=3.45, Median=3.00; U=3,918, p<0.001)* and
- „I do more teaching than before“ *(Mean=3.26, Median=3.00, Mode=3, SD=1.189; US: Mean=2.87, Median=2.00; Non-US: Mean=3.37, Median=3.00; U=2,802, p=0.011<0.05).*

Beyond of the above listed items, the research has shown that the total of 12 median values (out of 36) of all responses were higher for non-USA Fulbrighters than for the Fulbrighters from the USA. Also, 35 mean values (out of 36) of all responses were higher for non-USA Fulbrighters than for the Fulbrighters from the USA. This indicates that the „Fulbright effect“ might be slightly higher for non-USA Fulbrighters in comparison to the Fulbrighters from the USA.

The results also indicated that there was significant difference between the responses related to the type of scholarship for the following items:

- „I have improved my ability to work in a multi-cultural environment“ (*Mean=4.54, Median=5.00, Mode=5, SD=0.787; Students: Mean=4.77, Median=5.00; Others: Mean=4.42, Median=5.00; U=5,551, p<0.001),*
- „I have improved my general professional skills“ *(Mean=4.41, Median=5.00, Mode=5, SD=0.860; Students: Mean=4.64, Median=5.00; Others: Mean=4.29, Median=4.00; U=5,379, p<0.001),*
- „I have improved my knowledge of languages“ *(Mean=4.38, Median=5.00, Mode=5, SD=0.887; Students: Mean=4.54, Median=5.00; Others: Mean=4.29, Median=4.50; U=6,113, p=0.024<0.05),*
- „I have improved my interpersonal skills“ *(Mean=4.29, Median=4.00, Mode=5, SD=0.835; Students: Mean=4.48, Median=5.00; Others: Mean=4.19, Median=4.00; U=5,942, p=0.002<0.05),*
- „I have improved my research skills“ *(Mean=4.29, Median=5.00, Mode=5, SD=0.958; Students: Mean=4.46, Median=5.00; Others: Mean=4.19, Median=4.00; U=5,746, p=0.019<0.05),*

- „I have developed empathy toward minorities“ *(Mean=4.22, Median=4.00, Mode=5, SD=0.941; Students: Mean=4.45, Median=5.00; Others: Mean=4.10, Median=4.00; U=5,460, p=0.001<0.05),*
- „I find myself more tolerant person than before“ *(Mean=4.20, Median=4.00, Mode=5, SD=0.983; Students: Mean=4.56, Median=5.00; Others: Mean=4.01, Median=4.00; U=4,827, p<0.001),*
- „I find myself a better person than before“ *(Mean=4.18, Median=4.00, Mode=5, SD=0.977; Students: Mean=4.41, Median=5.00; Others: Mean=4.06, Median=4.00; U=5,887, p=0.002<0.05),*
- „I find myself more open minded than before“ (*Mean=4.18, Median=5.00, Mode=5, SD=1.043; Students: Mean=4.57, Median=5.00; Others: Mean=3.99, Median=4.00; U=5,156, p<0.001),*
- „I find myself more cosmopolite than before“ *(Mean=4.11, Median=4.00, Mode=5, SD=1.074; Students: Mean=4.45, Median=5.00; Others: Mean=3.94, Median=4.00; U=5,400, p<0.001),*
- „I promote diversity in my home institution“ *(Mean=4.10, Median=4.00, Mode=5, SD=1.021; Students: Mean=4.51, Median=5.00; Others: Mean=3.91, Median=4.00; U=4,594, p<0.001),*
- „I appreciate more other cultures than before“ *(Mean=4.09, Median=4.00, Mode=5, SD=1.020; Students: Mean=4.46, Median=5.00; Others: Mean=3.89, Median=4.00; U=5,124, p<0.001),*
- „I promote inclusion in my home institution“ *(Mean=4.06, Median=4.00, Mode=5, SD=1.056; Students: Mean=4.35, Median=5.00; Others: Mean=3.91, Median=4.00; U=5,115, p<0.001),*
- „I find myself as a cultural ambassador of my host country“ *(Mean=4.05, Median=4.00, Mode=5, SD=1.021; Students: Mean=4.33, Median=5.00; Others: Mean=3.91, Median=4.00; U=6,037, p=0.005<0.05),*
- „I have developed empathy toward disadvantaged people“ *(Mean=3.99, Median=4.00, Mode=5, SD=1.047; Students: Mean=4.19, Median=5.00; Others: Mean=3.89, Median=4.00; U=5,498, p=0.005<0.05),*
- „I have positively changed my view on my host country“ *(Mean=3.95, Median=4.00, Mode=5, SD=1.100; Students: Mean=4.31, Median=5.00; Others: Mean=3.77, Median=4.00; U=5,339, p<0.001),*
- „I find myself more professional than before“ *(Mean=3.94, Median=4.00, Mode=5, SD=1.106; Students: Mean=4.29, Median=5.00; Others: Mean=3.77, Median=4.00; U=5,726, p<0.001),*
- „I appreciate more other people than before“ *(Mean=3.90, Median=4.00, Mode=5, SD=0.999; Students: Mean=4.16, Median=4.00; Others: Mean=3.76, Median=4.00; U=5,774, p=0.003<0.05),*
- „I am more interested in development of my community than before“ *(Mean=3.88, Median=4.00, Mode=5, SD=1.084; Students: Mean=4.15, Median=4.00; Others: Mean=3.75, Median=4.00; U=5,972, p=0.004<0.05),*
- „I find myself more determined about my future than before“ *(Mean=3.85, Median=4.00, Mode=5, SD=1.134; Students: Mean=4.20, Median=4.00; Others: Mean=3.67, Median=4.00; U=5,541, p<0.001),*
- „I am more interested in social issues than before“ *(Mean=3.79, Median=4.00, Mode=5, SD=1.099; Students: Mean=4.03, Median=4.00; Others: Mean=3.66, Median=4.00; U=5,910, p=0.003<0.05),*

- „I am more interested in environmental issues than before“ *(Mean=3.62, Median=4.00, Mode=3, SD=1.126; Students: Mean=4.01, Median=4.00; Others: Mean=3.42, Median=3.00; U=4,978, p<0.001),*
- „I find myself more responsible person than before“ *(Mean=3.62, Median=4.00, Mode=3, SD=1.119; Students: Mean=3.92, Median=4.00; Others: Mean=3.48, Median=3.00; U=5,765, p=0.003<0.05),*
- „I am more interested in political issues than before“ *(Mean=3.52, Median=3.00, Mode=3, SD=1.192; Students: Mean=3.97, Median=4.00; Others: Mean=3.30, Median=3.00; U=5,186, p<0.001),*
- „I am more engaged in activities of non-governmental organizations than before“ *(Mean=3.43, Median=3.00, Mode=3, SD=1.084; Students: Mean=3.72, Median=4.00; Others: Mean=3.28, Median=3.00; U=5,626, p=0.003<0.05)* and
- „I volunteer more than before“ *(Mean=3.34, Median=3.00, Mode=3, SD=0.996; Students: Mean=3.68, Median=4.00; Others: Mean=3.16, Median=3.00; U=5,110, p<0.001).*

The results of the analysis has shown that 22 of median values (out of 36) of responses were higher for Fulbrighters who received the student's scholarship than for the other types of Fulbright scholarships. Also, 35 mean values (out of 36) of all responses were higher for Fulbrighters who received the student's scholarship than for the other types of Fulbright scholarships. This indicates that the „Fulbright effect“ might be higher for students Fulbrighters in comparison to the other Fulbrighters.

An Exploratory factor analysis (EFA) was conducted to reduce data to a smaller set of summary variables. The extraction method was Principal Axis and the rotation method was Varimax. Only the factors with eigenvalues that were greater than 1 were used. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.823. This indicates that the data was suitable for factor analysis since the KMO was higher than 0.5. KMO level between 0.8 and 0.9 indicates great level of acceptance. Bartlett's test of sphericity was significant ($\chi^2(561)=4,818$, $p<0.01$), indicating that the data was suitable for structure detection. A total of 3 factors were extracted, which explained 59.6% of the total variance:

- "I find myself more open minded than before" (0.885), "I find myself more tolerant person than before" (0.844), "I have developed empathy toward minorities" (0.783), "I appreciate more other cultures than before" (0.750), "I find myself more cosmopolite than before" (0.740), "I find myself a better person than before" (0.644), "I have developed empathy toward disadvantaged people" (0.617), "I got more opportunities for professional progress than before" (0.607) have large positive loadings on factor 1, so this factor describes *personal growth and empathetic openness*. The Fulbright program makes Fulbrighters more open-minded, tolerant, cosmopolitan, and empathetic, and makes impact on their personal and professional growth.
- "I am more engaged in activities of non-governmental organizations than before" (0.760), "I am more interested in social issues than before" (0.754), "I find myself more responsible person than before" (0.715), "I volunteer more than before" (0.682), "I am more interested in development of my community than before" (0.674), "I find myself more professional than before" (0.639), "I find myself more determined about my future than before" (0.631) have large positive loadings on factor 2, so this factor describes *social engagement and personal development*. The Fulbright program makes Fulbrighters more engaged in social issues, non-governmental organizations, and community development, and increases the sense of responsibility, professionalism, and determination about the future.

- "I do more teaching than before" (0.696), "I publish more than before" (0.692), "I do more research projects than before" (0.671) have large positive loadings on factor 3, so this factor describes *academic and research engagement*. Thanks to the Fulbright program, Fulbrighters are more engaged in teaching, publishing, and research projects.

The intention was also to measure the attitudes of grantees toward various aspects of obtaining the scholarship and preparing for a stay in the host country, various aspects of life and work abroad, and behavior and attitudes after their stay in the host country. The internal consistency reliability of the scale that measures these aspects was satisfactory (Cronbach's $\alpha = 0.829$ and McDonald's $\omega=0.869$) based on 59 items. The scale was developed by the authors and the respondents rated the statements from 1 to 5, where 1 means "absolutely disagree", 2 "disagree", 3 "neither agree nor disagree", 4 "agree" and 5 "absolutely agree".

The Shapiro-Wilk test revealed that the distribution of all 59 items significantly departed from normality ($p < 0.01$). Therefore a non-parametric Mann-Whitney U-test was used to evaluate whether the individual items from the scale differed by country of origin – US Fulbrighters and non-US Fulbrighters. The results indicated that there was significant difference between the responses of US and non-US Fulbrighters for 43 items. The mean and median values indicate that there were significant differences in attitudes between US Fulbrighters and non-US Fulbrigthers. The most important differences between them can be summarized as follows:

- Both US and non-US Fulbrighters view the Fulbright program as a life-changing experience. They share their experiences with the program, endorse its values, and encourage others to apply. The Fulbright program significantly contributed to their personal development, but for non-US Fulbrighters, it contributed more to their professional development and international recognition and status in society compared to US Fulbrighters.
- Non-US Fulbrighters express a higher level of satisfaction with the support and information received before the program and find the application process less complex than that experienced by US Fulbrighters.
- Non-US Fulbrighters believe that their host country and host institutions met their expectations more than those of US Fulbrighters. They are more active in promoting their home country within the host country compared to US Fulbrighters. Additionally, they perceive people at the host institution and host country to be more friendly and supportive, feeling more accepted and welcomed there than US Fulbrighters.
- Non-US Fulbrighters are more satisfied with all support received from the Fulbright program during the program compared to US Fulbrighters. They also perceive working conditions at host institutions to be better than those at their home institutions, more so than US Fulbrighters.
- US Fulbrighters had more spare time in the host country than in their home country and consider the scholarship sufficient for traveling around the host country. However, living in the host country was a cultural shock for them, and they faced challenges adjusting to the local culture, organizing their stay, communicating with people, and adapting to the host institution. They also felt alienated and lonely and encountered difficulties with socialization in the host country and institution more so than non-US Fulbrighters. They also experienced more challenges in being accepted at the host institution and having problems with local administration and public authorities in organizing their stay.
- Non-US Fulbrighters are more in touch and cooperate with peers from host institutions and express a greater desire to continue working and living in the host country. They

also express frustration upon returning to their home country and wish for their children to live in their host countries in the future. Consequently, they consider and seek options to move to their host countries in the future.

- Non-US Fulbrighters also participate more in formal Fulbright outreach activities and are active members of the US Alumni Association. They are invited more frequently to formal gatherings organized by US embassies/authorities in their home countries and participate more as panel reviewers for the Fulbright program.

5. Conclusion

Analysis of the results of our research revealed significant differences in the "Fulbright effect" between US Fulbrighters and non-US Fulbrighters, as well as among different types of Fulbright scholarships. Non-US Fulbrighters generally reported higher levels of personal and professional growth, including increased openness, tolerance, cosmopolitanism, and empathy. They were more engaged in social issues, community development, and non-governmental organizations, and exhibited greater determination about their future. Moreover, non-US Fulbrighters were more satisfied with support received before and during the program, as well as with their experiences at host institutions and countries.

In contrast, US Fulbrighters faced challenges adjusting to the local culture, organizing their stay, and socializing in the host country. They reported feeling alienated, lonely, and encountered difficulties with socialization and acceptance at host institutions. However, they found the scholarship sufficient for travel within the host country. Non-US Fulbrighters also expressed a stronger desire to continue working and living in the host country, with some considering relocation in the future. They were more involved in formal Fulbright outreach activities and participated more in activities organized by US embassies/authorities in their home countries.

Overall, the research highlighted the transformative impact of the Fulbright program on participants, with non-US Fulbrighters often experiencing more positive outcomes in terms of personal, professional, and cultural development compared to their US counterparts. These findings provide valuable insights into the diverse experiences and perceptions of Fulbright participants, contributing to a deeper understanding of the program's broader impact on individuals and societies. The research on the Fulbright program's impact reveals practical implications for program design and participant support. By recognizing the differences in experiences between US and non-US Fulbrighters, program administrators can tailor support services to address specific challenges faced by US participants, such as cultural adjustment and social integration. Enhancing pre-departure orientations, ongoing mentorship, and cultural integration initiatives can contribute to improving the overall experience for all participants. Furthermore, promoting cross-cultural interactions between US and non-US Fulbrighters can foster empathy and understanding, enriching their experiences and contributing to global engagement. However, the study's limitations, including sample size and bias towards quantitative analysis, underscore the need for future research to diversify samples and incorporate qualitative approaches to ensure a comprehensive understanding of participants' experiences across diverse contexts.

The authors' intention is that this research will open up space for further research on the Fulbright program. The recommendation for future research is to include more respondents and make the sample even more diverse. Considering the predominantly quantitative nature of

the research, it is recommended to conduct more qualitative research as well, potentially overlooking nuanced qualitative aspects of participants' experiences. Additionally, the sample size and lack of diversity in the participants may limit the generalizability of the findings to a broader population of Fulbright participants.

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A scientific paper

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THE IMPACT OF PLACE ATTACHMENT AND PERSONALITY TRAITS ON THE PRO-ENVIRONMENTAL BEHAVIORAL INTENTIONS OF NATIONAL PARK VISITORS

ABSTRACT

National parks are one of the most important natural attractions in a destination because they complement the tourist offerings. Although they can be one of the crucial factors for positioning a destination in the tourism market, an excessive number of visitors concentrated in a given period can negatively impact the environment. Therefore, special attention must be placed on natural resource conservation and protection. One of the ways to mitigate these negative impacts is to understand and promote visitors' pro-environmental behaviour by identifying and analysing its antecedents. Place attachment and visitors' personality traits are often used to explain pro-environmental behavioral intentions; however, there is a lack of research focused on examining the link between pro-environmental behavioral intentions and its antecedents in the national parks. Therefore, the aims of the paper were: to explore the dimensionality of place attachment, personality traits, and specific pro-environmental behavioral intentions, and to examine the influence of place attachment and personality traits on the specific pro-environmental behavioral intentions of national park visitors. The data were collected in Brijuni National Park. An exploratory factor analysis was conducted on a sample of 111 visitors to determine the concepts' dimensions, while a regression was used to determine the links between the concepts.
The results suggested that the place attachment concept consisted of three dimensions (contemplation, place dependence, national park attachment), while the personality traits concept and specific pro-environmental behavioral intentions both were composed of two dimensions (self-perception and interactions, and direct and indirect activities). This research tested the dimensionality of place attachment, personality traits, and specific pro-environmental behavioral intentions in national parks settings and determined the relationship of place attachment and personality traits on specific pro-environmental behavioral intentions.

Key words: *place attachment, personality traits, specific pro-environmental behavioral intentions, national park.*

1. Introduction

Tourism in national parks is an increasingly popular form of tourism and a countervail to the unbalanced tourism that is often present in the destination area in which the national park is

located (Kruczek *et al.*, 2023). The postulates of sustainability on which tourism in national parks is based can indirectly affect the sustainable tourism development in the destination as a whole (Hien *et al.*, 2023). National parks are rich in natural resources and have been promoted to tourists as oases of tranquility and places with recreational and educational content (Koshim *et al.*, 2023), attracting millions of people around the world to these protected areas (Jeong *et al.*, 2021). Nevertheless, given the high number of visitors, these areas can face environmental problems, such as the destruction of natural resources (Esfandiar *et al.*, 2021), which they possess in abundance and which are their main asset and advantage over other destinations. One of the most important ideas that helps to reduce the environmental problems in national parks by contributing to their sustainability while requiring little cost for implementation is the promotion of environmentally friendly behavior among visitors (Esfandiar *et al.*, 2021). To better comprehend pro-environmental behavior, it is decisive to identify the factors that determine the national park visitors' pro-environmental behavior/intentions. Some of the most important factors determining pro-environmental behavior are place attachment (Blankenberg and Alhusen, 2019; Dang and Weiss, 2021; Daryanto and Song, 2021) and personality traits (Halkos and Gkargkavouzi, 2024; Markowitz *et al.*, 2012; Soutter *et al.*, 2020). These two concepts have been used in previous studies (Akhtar, 2022; Busic-Sontic *et al.*, 2017; Buta *et al.*, 2014; Chow *et al.*, 2019; Kvasova, 2015; Zhao *et al.*, 2018) as predictors of pro-environmental behavior or pro-environmental intentions of individuals in different contexts. However, literature shows a lack of studies that simultaneously incorporates the concepts of place attachment and personality traits to explain pro-environmental behavior intentions in the context of national parks. With the aim of filling this gap in the literature, this paper addresses the investigation of the place attachment and personality traits influence on the specific pro-environmental behavior intentions of visitors during their visit to national parks. Furthermore, it was found that there is a lack of adapted scales to measure the concepts of place attachment, personality traits and pro-environmental behavioral intentions in the context of national parks. In this study, adapted scales were developed to measure these three concepts in the context of national parks. The foregoing represents a valuable scientific contribution to the understanding of pro-environmental behavioral intentions of national park visitors. This type of study, which simultaneously examines the influence of the concept of place attachment and personality traits, is rare in the world literature and was conducted for the first time on a sample of Croatian national parks.

2. Theoretical background

Tourism ennobles, but at the same time it often saturates destinations and jeopardizes their long-term economic, socio-cultural (e.g. crime, mixing of cultures) and ecological (e.g. environmental degradation) sustainable development (Pičuljan *et al.*, 2018). To relieve the pressure on destinations and promote sustainable tourism development in these areas, national parks are increasingly becoming sought-after destinations (Jeong *et al.*, 2021). These natural attractions in destinations are primarily rich in natural resources and are suitable for recreation and relaxation, but also fulfill an educational function (Kruczek *et al.*, 2023). They attract different visitor profiles and tourism in national parks is experiencing a steady increase in visitor numbers worldwide (Obradović *et al.*, 2023), including a large number of people who care about the environment during their visit and thus enhance the sustainable tourism development (Jeong *et al.*, 2021). Tourism in national parks is increasingly focused on solving the risks arising from tourism activities in these areas, which are mainly aimed at the destruction of natural resources and the endangerment of plant and animal species (Tuğba, 2013). However, it contributes to the development of sustainable tourism through all three

pillars of sustainability: environmental (e.g. promoting the protection and conservation of natural resources), economic (e.g. employment) and socio-cultural (e.g. increased role of the local community in the development of activities in the national park and multiculturalism in the relationship between the local population and visitors) (Tuğba, 2013). Ultimately, the above-mentioned benefits that contribute to the sustainable development of the national park also have an impact on the destination to which the national park belongs (Aman and Papp-Váry, 2023; Hien *et al.*, 2023; Koshim *et al.*, 2023; Kruczek *et al.*, 2023). Although all three concepts of sustainability (environmental, economic, socio-cultural) are equally important for the health and well-being of the destination, environmental sustainability stands out as the most important, but also the most threatened (Pulido-Fernández *et al.*, 2015).

The concept of pro-environmental behavior or intentions of visitors when visiting national parks is considered one of the most rewarding and popular ways to achieve environmental sustainability, i.e. to achieve a balance between the conservation and protection of natural resources and the tourism activities that take place in these areas (Esfandiar *et al.*, 2018, 2020). Identifying the factors that influence this concept is crucial for a better understanding and consequently a more comprehensive implementation of sustainability in national parks (Li and Wu, 2019). In the context of pro-environmental behavior or intentions, a person acts in a way that minimizes harm to the environment in which he or she resides or operates or actively protects the environment (Lange and Dewitte, 2019). The interpretation of this concept changes depending on the activities of the individual (e.g. resident, tourist). For example, a person may throw their waste in the trash (Esfandiar *et al.*, 2021), recycle (Wan *et al.*, 2021) or require a minimum number of towel changes during their stay at the hotel (Budovska *et al.*, 2020), which is an environmentally friendly action in all three cases. In addition to examining the "individual" pro-environmental behaviors/intentions mentioned above, the literature often uses a number of items that constitute pro-environmental behaviors (e.g., I recycle, save water, minimize waste) (Larson *et al.*, 2015). However, research on pro-environmental behavior is less common than research on the intentions, especially in the context of identifying and understanding the factors that influence the intentions of pro-environmental behavior of individuals in different environments (Han, 2021). Some of the most commonly studied factors influencing pro-environmental behavior intention in the literature include elements of different theories of understanding pro-environmental behavior (e.g. personal norms), place attachment, satisfaction (Yu *et al.*, 2021). Although studies call for an intensification of research on the factors that influence pro-environmental behavioral intentions in national parks (Esfandiar *et al.*, 2021), few factors have been empirically investigated with regard to national parks, such as satisfaction (Ramkissoon, Smith, *et al.*, 2013) and elements of the theory of planned behavior and norm activation model (Sun *et al.*, 2022), while unjustifiably neglecting, for example, personality traits, which may be extremely important for understanding pro-environmental behavior intentions in these areas, considering that they are highly represented in research on other topics related to the environmental protection (Soutter *et al.*, 2020).

Place attachment is a concept that refers to a person's connection to a particular place (Scannell and Gifford, 2010; Wynveen *et al.*, 2017). This concept is multidimensional (Williams and Vaske, 2003; Wynveen *et al.*, 2017) and usually consists of several dimensions (Daryanto and Song, 2021). Although dimensions such as place identity, place dependence, place affect, social bonding, nature bonding, are used in research, they are rarely studied together (Lewicka, 2011), although this would contribute to a clearer conceptualization of this concept (Daryanto and Song, 2021). However, the argument in favor of this practice is certainly the fact that certain dimensions may overlap (Wan *et al.*, 2021) and therefore need to

be used with caution and adapted to each individual research. In most cases, only two to three dimensions are found in the literature (Dwyer *et al.*, 2019). Therefore, the dimensions and their mismatch are a problem when conceptualizing this concept. Place attachment is also studied in the context of predicting pro-environmental behaviorand pro-environmental intentions (Chow *et al.*, 2019; Wan *et al.*, 2021). This is based on the assumption that a person will act more pro-environmentally when they are more connected to a place (Wan *et al.*, 2021). Although it is of great importance in the context of national parks to explain the role of the concept of place attachment in pro-environmental behavior, as these protected areas are sensitive to the impacts of tourism and consequently seek solutions to mitigate them by promoting pro-environmental behavior, this relationship has not been explored as much as it should be, and there are fewer studies examining the relationship between the concept of place attachment and pro-environmental behavioral intentions (Halpenny, 2006; Ramkissoon *et al.*, 2012; Ramkissoon, Graham Smith, *et al.*, 2013a; Ramkissoon, Smith, *et al.*, 2013b; Ramkissoon, Weiler, *et al.*, 2013c; Ramkissoon and Mavondo, 2014).

Personality traits are a psychological concept that refers to human characteristics (Soutter *et al.*, 2020). It consists of a total of five dimensions: Openness, Conscientiousness, Agreeableness, Extroversion, Neuroticism, which is where the name of the concept Big five comes from (Soutter *et al.*, 2020). There are studies in the literature that deal with the relationship between personality traits and various concepts that are directly and indirectly related to environmental protection, such as green consumption (Duong, 2022), green decision making (Busic-Sontic *et al.*, 2017), pro-environmental investments (Akhtar, 2022) and environmental engagement (Milfont and Sibley, 2012). However, there are empirical studies dealing with the relationship between personality traits and pro-environmental behaviors and intentions (Kvasova, 2015; Passafaro *et al.*, 2015; Shen *et al.*, 2019; Wang *et al.*, 2021; Zhao *et al.*, 2018), while studies on this topic in national parks settings are not known.

Research that simultaneously investigates the place attachment and personality traits influence on pro-environmental behavioral intentions in the context of national parks was not found, but only in urban parks settings (Zhao *et al.*, 2018). Finally, the review of the literature found inconsistency in the use of the dimensions of the concept of pro-environmental behavioral intentions in national parks settings; inconsistency in the use of the dimensions of the concept of place attachment in examining the relationship of this concept to visitors' pro-environmental behavior intentions in national parks; inadequacy of personality trait dimensions to measure this concept in the national parks context; lack of research examining the simultaneous influence of the concept of place attachment and personality traits on pro-environmental behavioral intentions in the context of national parks. Therefore, this study focused on identifying and adapting the existing dimensions of the concepts of place attachment, personality traits, and pro-environmental behavioral intentions to the context of national parks and examining the influence of these two concepts on visitors' pro-environmental behavioral intentions in the context of national parks. New, adapted scales were developed to measure all three concepts in the context of national parks, representing a scientific contribution to this topical issue and a valuable step in the research of this topic.

3. Methodology

A national park in Croatia located in Istria County, namely Brijuni National Park was a research site for surveying its visitors (Figure 1). The Brijuni National Park was declared a

national park in 1983 and is an archipelago with a total of 14 islands (Brijuni National park, 2024). This national park is a place of historical, cultural and ecological value and thus a unique example of a protected area, making it a popular year-round destination for tourists who focus their holiday not only on nature, but also on historical and cultural elements.

Figure 1: Location of Brijuni National Park

Source: Brijuni National park official web page, March, 2024

A questionnaire was developed to investigate three concepts; national park visitors' place attachment (i.e., national park attachment), personality traits, specific pro-environmental behavioral intentions in the national park, and visitors' socio-demographic and travel characteristics in relation to the national park. The part of questionnaire related to place attachment, dealt with four dimensions of place attachment, i.e., four items measuring place identity, seven items measuring place dependence, six items measuring place affect, three items measuring social bonding adapted from (Chow *et al.*, 2019) and four items measuring nature bonding adapted from (Raymond *et al.*, 2010). The part of questionnaire related to personality traits included five aspects of personality traits, i.e., three items measuring neuroticism, three items measuring extraversion, three items measuring openness, three items measuring agreeableness and three items measuring conscientiousness adapted from (Zhao *et al.*, 2018). The part of questionnaire related to national park specific pro-environmental behavioral intentions included items adapted from (Halpenny, 2006). A Likert scale consisted of five points ranging from strongly disagree - 1 to strongly agree - 5 was adopted for all items. The last part of the questionnaire included visitors' socio-demographic and travel information related to national park.

The research was conducted in August 2021, as summer is identified as the most appropriate season for visitors' activities in Brijuni national park. The study was carried out on weekdays, throughout the day, considering the all-day circulation of visitors. Visitors were randomly selected to take part in the research anonymously and voluntarily, with no gifts or other incentives offered for participation. Visitors were asked to complete the self-administrated survey in the most frequented places in the national park, e.g. green areas, cafés and boat waiting areas. The purpose of the survey and the procedure for completing the questionnaire, which took 15-20 minutes, were explained to each participant. The questionnaire was available for completion in Croatian, English, German and Italian. The questionnaire data were analyzed using SPSS to display descriptive statistics, perform principal component analysis (PCA) with Promax rotation with an eigenvalue at least of 1.00 to identify possible factors, and calculate Cronbach's alpha coefficients to determine the internal reliability of the factors. In addition, a regression analysis was performed to examine the relationships between the variables.

4. Results

A total of 111 questionnaires were used for the analysis. Table 1 shows the socio-demographic profile and travel characteristics of the respondents. Slightly more female (52.3%) than male respondents (45%) took part in the study. Most respondents were between 36 and 50 years old (42.5%). Most respondents had a high level of education, a university or master's degree (46.7%) and were employed full-time (46.2%). Most of the respondents were Croatian (31.5%), German (18%), Serbian (8.1%), Italian (7.2%) and Austrian (6.3%). Most of them had a monthly net income of between 1000 and 2000 euros (29.8%). For most respondents, it was their first visit to the national park in question (63%).

Table 1: Profile of respondents (n = 111)

Variables	Description	N	%
Country	Croatia	35	31.5
	Germany	20	18.0
	Serbia	9	8.1
	Italy	8	7.2
	Austria	7	6.3
	Other	32	28.8
Gender	Female	58	52.3
	Male	50	45
Age	18 - 25	14	13.2
	26 - 35	32	30.2
	36 - 50	45	42.5
	51+	15	14.2
Education	Secondary school	31	29.5
	College or Bachelor's Degree	24	22.9
	University or Master's Degree	49	46.7
	Ph.D.	1	1.0
	Self-employed and free-lance	14	13.2
	Manager	10	9.4

Variables	Description	N	%
Profession	Employee (full - time)	49	46.2
	Employee (part - time)	7	6.6
	Student/pupil	13	12.3
	Pensioner (retiree)	5	4.7
	Unemployed	5	4.7
	Other	3	2.8
Total personal net monthly income	Up to € 500	14	14.9
	€ 500 – € 1.000	13	13.8
	€ 1.000 – € 2.000	28	29.8
	€ 2.000 – € 3.000	18	19.1
	€ 3.000 – € 4.000	5	5.3
	€ 4.000 – € 5.000	3	3.2
	€ 5.000 – € 6.000	6	6.4
	Above € 6.000 €	7	7.4
First visit to national park	Yes	68	63.0
	No	40	37.0

Source: Authors

In the following, we tested the multidimensionality of the construct of place attachment using principal component analysis. The results can be found in Table 2. The values of the arithmetic mean ranged from 2.66 (Visiting this national park reminds me where I come from) to 4.35 (This national park is important for me to get close to nature). Three factors were determined (Factor 1: Contemplation; Factor 2: Connection with the national park; Factor 3: Place dependence), which explained 68.40% of the cumulative variance, with factor loadings all higher than 0.50 and Cronbach's alpha coefficients of 0.848, 0.799 and 0.726.

Table 2: Principal component analysis results – Place attachment

Factors and items	Mean	Standard deviation	Factor loading	Cronbach's alpha
Factor 1: Contemplation				0.848
Visiting this national park reminds me where I come from.	2.66	1.497	0.952	
Visiting this national park allows me to learn more about myself.	2.72	1.343	0.822	
I learn a lot about myself when spending time in the natural environment in this national park.	3.21	1.257	0.817	
When I spend time in the natural environment in this national park, I feel a deep feeling of oneness with the natural environment.	3.88	1.207	0.652	
Factor 2: Connection with the national park				0.799
I am very attached to the natural environment in this national park.	3.81	1.0746	0.854	
I feel that I have a strong connection with this region through visiting the national park.	3.57	1.157	0.816	
This national park means a lot to me.	3.53	1.296	0.797	
Factor 3: Place dependence				0.726

Factors and items	Mean	Standard deviation	Factor loading	Cronbach's alpha
This national park is important for me to refresh my physical state.	3.938	1.6055	0.900	
This national park is important for me to participate in recreational activities.	3.66	1.182	0.743	
This national park is important for me to refresh my mental state.	4.20	1.086	0.693	
This national park is important for me to get close to nature.	4.35	0.95884	0.611	

Source: Authors

Table 3 summarizes results on the multidimensionality of the construct of personality traits, which was tested using principal component analysis. The values of the arithmetic mean ranged from 3.214 (I like talking with other visitors) to 4.657 (I appreciate the preservation of nature). Two factors were determined (Factor 1: Self-perception; Factor 2: Interactions), which explained 57.61% of the cumulative variance, with factor loadings all higher than 0.50 and Cronbach's alpha coefficients of 0.701 and 0.663.

Table 3: Principal components analysis results – Personality traits

Factors and items	Mean	Standard deviation	Factor loading	Cronbach's alpha
Factor 1: Self-perception				0.701
I feel happy when viewing the flora and fauna.	4.55	0.7596	0.895	
I appreciate the preservation of nature.	4.657	0.6391	0.812	
I am very polite to others visitors.	4.506	0.8266	0.681	
Factor 2: Interactions				0.663
I like talking with others visitors.	3.214	1.3146	0.795	
I keep calmly if emergency occurs.	3.919	1.1373	0.758	
I often try new experience.	4.11	0.8984	0.591	
I am willing to enjoy the flora and fauna beautiful scenery with others.	4.189	0.9583	0.581	

Source: Authors

Table 4 show the results on the multidimensionality of the construct of pro-environmental behavioral intention, which was tested using principal component analysis. The values of the arithmetic mean ranged from 2.315 (Participate in a public meeting about managing this national park.) to 4.568 (Encourage other visitors to reduce their waste and pick up their litter when they are in this national park.). Two factors were determined (Factor 1: Indirect activities to achieve sustainability; Factor 2: Direct activities to achieve sustainability), which explained 63.28% of the cumulative variance, with all factor loadings higher than 0.50 and Cronbach's alpha coefficients of 0.853 and 0.677.

Table 4: Principal component analysis results – Specific pro-environmental behavioral intentions in national park

Factors and items	Mean	Standard deviation	Factor loading	Cronbach's alpha
Factor 1: Indirect activities to achieve sustainability				0.853
Write letters in support of this national park.	2.462	1.4951	0.922	
Volunteer my time to projects that help	2.402	1.4721	0.921	

this national park.				
Participate in a public meeting about managing this national park.	2.315	1.4789	0.855	
Sign petitions in support of this national park.	3.874	1.3424	0.536	
Factor 2: Direct activities to achieve sustainability				0.677
Encourage other visitors to reduce their waste and pick up their litter when they are in this national park.	4.568	0.8906	0.921	
Tell visitors not to feed the animals in this national park.	4.124	1.2804	0.736	
Learn more about this national park natural environment.	4.180	0.9165	0.625	
Pick up litter in this national park left by other visitors.	3.883	1.2339	0.546	

Source: Authors

Multiple regression analyses were performed to investigate place attachment, personality traits – direct and indirect pro-environmental behavioral intention relationships (Table 5). Regarding the correlation between the three dimensions of place attachment (contemplation, connection with the national park, place dependence) and two dimensions of personality traits (interactions, self-perception), self-perception ($p < 0.01$) was found to be significantly correlated with direct pro-environmental behavioral intentions, while contemplation ($p < 0.001$) and interactions ($p < 0.01$) was found to be significantly correlated with indirect pro-environmental behavioral intentions.

Table 5: Multiple regression analysis results - Place attachment, personality traits, and direct and indirect pro-environmental behavioral intention

	Direct pro-environmental behavioral intention			**Indirect pro-environmental behavioral intention**		
	Standardized Coefficient	**Standard Error**	**Significance**	**Standardized Coefficient**	**Standard Error**	**Significance**
(Constant)		2.207	0.026		3.322	0.604
Contemplation	0.116	0.074	0.269	0.363	0.111	**0.001*** **
Connection with the national park	0.130	0.108	0.214	0.051	0.163	0.615
Place dependence	0.012	0.080	0.898	0.143	0.121	0.120
Interactions	0.127	0.098	0.188	0.271	0.147	**0.005** **
Self-perception	0.295	0.178	**0.004** **	-0.164	0.268	0.099
R^2	0.244			0.283		
Adj. R^2	0.208			0.249		
F statistic	6.771			8.287		
Standard error	2.77782			4.18202		

Note: Significance at *** 0.001 level, ** 0.01 level

Source: Authors

5. Discussion

This study investigates the pro-environmental behavioral intentions of national park visitors as determined by two factors, place attachment and personality traits. First, the multidimensionality of the proposed scales to measure place attachment, personality traits,

and pro-environmental behavioral intentions is examined. Second, the relationship between these constructs is examined, focusing on place attachment and personality traits as antecedents of visitors' pro-environmental behavioral intentions.

Ramkisson *et al.* (2012) conceptualized the construct of place attachment for the purposes of research in national parks, consisting of place dependence, place identity, place affect, and social bonding, and tested its dimensionality (Ramkissoon et al., 2013a, 2013b, 2013c). However, they omitted the nature bonding dimension that some studies in other contexts implement to make this construct more complete (Raymond, 2010). Therefore, to measure this construct, we followed the research of (Chow et al., 2019) who used four items measuring place identity, seven items measuring place dependence, six items measuring place affect, three items measuring social bonding and (Raymond et al., 2010) who used four items measuring nature bonding. Based on these studies, the aforementioned factors were adopted and tested for the purposes of this study, with twentyfour items. The principal component analysis identified only three factors and eleven items to measure place attachment in this study. Factor 1 included four items related to the self-reflection during a stay in a national park. Factor 2 included three items related to the connection with the national park. Factor 3 contained four items relating to visitors' dependence on the national park, confirming only the place dependence factor previously identified by (Chow et al., 2019) in its original form, while the other factors were not confirmed in their original form, but the items belonging to the original factors from the two previous studies were distributed in Factor 1 (Contemplation) and Factor 2 (Connection with national park). The results thus partially confirm the findings of (Chow et al., 2019) but also indicate that the construct of place attachment can be measured with fewer items/factors. One of the possible explanations for these results can be the fact that the scale was adapted to the national parks. The smaller number of factors and items is not necessarily a disadvantage, as the factors determined in this study conceptually include almost all items from the proposed factors. Although these results should be taken with caution given the relatively small number of subjects who participated in this study, the results of this study partially support the findings of (Ramkisson 2013s, 2013b, 2013c) and Raymond et al. (2010), who also identified the place dependence factor, however, did not use the same items as in this study. Given the lack of research incorporating the nature bonding into the place attachment construct, it was included in this study, although the final factor structure did not confirm it as a separate factor.

The construct of personality traits in previously studies was not considered in national parks context. Therefore, to measure this construct, we used a total of five factors (neuroticism, extraversion, openness, agreeableness, conscientiousness) and fifteen items implemented by (Zhao et al., 2018) in urban parks context. The principal component analysis identified two factors and seven items to measure personality traits in this study. Factor 1 included three items related to the they include the visitors' self-perception during the stay in the national park. Factor 2 included four items related to the interactions with other visitors in national park. The results suggest that the original structure (Zhao et al., 2018) is not confirmed, which can be explained by the fact that the scale was adapted to the national parks, but it also indicates that it is possible to measure this construct with fewer items and factors. As in the case of the construct of place attachment, most of the items that originally belonged to the above factors were distributed to Factor 1 (self-perception) and Factor 2 (interactions) in this study. The low Cronbach's alpha coefficient (factor 2) of 0.663 can be the consequence of the adaptation of the scale and calls for a possible upgrade that would increase its reliability.

The construct of pro-environmental behavioral intention has been tested related to national parks (Halpenny, 2006; Ramkissoon et al. 2013a, 2013b, 2013c). To measure this construct, (Halpenny, 2006) used three factors and twelve items, while the principal component analysis identified two factors and eight items to measure pro-environmental behavioral intention in this study. Factor 1 included four items related to the indirect activities important to achieve national park sustainability. Factor 2 included three items related to the direct activities important to achieve national park sustainability. The results partially support the findings of (Halpenny, 2006), however, only two factors were found compared to the previous three, which also proves that the intention to behave in an environmentally friendly way can be measured with fewer factors and items. The low Cronbach's alpha (factor 2) of 0.677 could be due to the heterogeneity of the items in this factor. It is noticeable that two factors from this study (Factor 1: Indirect activities to achieve sustainability; Factor 2: Direct activities to achieve sustainability) correspond to the distribution of items in factors identified as "low" and "high" effort pro-environmental behavioral intention by Ramkissoon et al. (2013a, 2013b, 2013c), therefore our results are consistent with their findings.

Although some studies have examined place attachment and personality traits in relation to pro-environmental behavioral intention, this practice is omitted in the context of national parks. Therefore, by examining the effects that place attachment and visitors' personality traits have on pro-environmental behavioral intention in this study, it was confirmed that one factor belonging to the place attachment is related to pro-environmental behavioral intention, which is consistent with the results of (Ramkissoon et al., 2013a, 2013b, 2013c), while both dimensions of personality traits are related to pro-environmental behavioral intention in national parks, which also supports the results of previous studies (Markowitz, 2012; Kvasova, 2015; Zhao et al., 2018,).

This research is important from a theoretical perspective as it simultaneously proposes and tests adapted scales for the constructs of place attachment and personality traits in relation to the pro-environmetal behavioral intentions, an approach that is still lacking in the literature. The results are reduced scales with a smaller number of items to measure the aforementioned constructs, which may facilitate the implementation of visitor surveys. In addition, managers of national parks have gained another improved tool that can help them identify the dimensions of the construct that have the greatest or least influence on visitors' pro-environmental behavioral intentions and promote such behavior among visitors, which ultimately contributes to the sustainability of these protected areas that are increasingly crowded and threatened by visitors.

6. Conclusion

The implementation of environmentally friendly practices resulting from the actions of visitors during their visit to the National Parks is of paramount importance for the conservation and protection of the natural resources of these protected areas. This contributes directly to the sustainability of both the national park and indirectly to the destination in which the national park is located. Research is needed to stimulate the implementation of the above practices from a scientific theoretical-empirical point of view. This research is a continuation of previous research on national parks concerned with explaining visitors' pro-environmental behavioral intentions, as it additionally incorporates the rarely explored concepts of place attachment and personality traits. Although the study was conducted in a national park in the Republic of Croatia, which we can consider as a pilot area where the

adapted scales were tested, the contribution of the study in terms of conclusions is useful for the global academic community in the context of updating the existing literature for two reasons. First, the scales measuring the concepts of place attachment and personality traits were adapted to the national parks context and their dimensionality was determined, resulting in newly reduced dimensions that successfully measure these concepts. In this context, the dimensionality of the scale measuring intentions for pro-environmental behavior was also determined. Finally, the impact of these two concepts on visitors' intentions to engage in pro-environmental behavior was tested through regression, resulting in valuable conclusions that highlight the importance of both concepts in explaining the concept of pro-environmental behavior intentions. Therefore, this study results will certainly extend the existing literature on this topic in a theoretical and empirical context. In addition, the research findings may help protected area managers to focus on specific areas of activity of visitors during their visit to the national park, such as their attachment to the national park and personality traits that have been identified as pro-environmental behavior predictors in previous studies in other contexts. However, despite the aforementioned contribution that this research has made to the scientific community, it is clear that it has several limitations that need to be addressed by future research. The study was conducted on a small number of respondents; only in a single national park; and only a quantitative study (i.e., questionnaire) was conducted. Therefore, further research on this topic in national parks around the world is definitely needed. Emphasis should be placed on replicating this study on a larger sample and conducting qualitative research, such as interviews, to complement existing scales measuring the concepts of place attachment and personality traits.

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A scientific paper

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IMPACT OF QUALITY SUPPLY ON CAMPING TOURISM BUSINESS PERFORMANCE

ABSTRACT

Camping tourism has been experiencing a significant growth as an important alternative to traditional holiday types. A modern-day tourist has been seeking a return to nature and outdoor activities, as well as finding less stressful destinations. In the Republic of Croatia, camping tourism has a considerable share in the demand for tourism supply in camping destinations. As an important form of tourism accommodation supply, the offer of campsites needs to meet quality standards. The supply of quality services in camping tourism indicates the need and necessity for service quality management and measuring of the quality of service. The purpose of this paper was to research and provide arguments in explaining the impact of quality supply on the performance of camping tourism business. By emphasising the importance of quality in guest satisfaction, the paper studies the contribution of high-quality standards to attraction and retention of guests, as well as to creating campsite image. The research methodology is based on the empirical study conducted by authors via a questionnaire in the period from June to September 2022 in Croatian campsites. The general research results lead to a conclusion that high quality standards of services provided at campsites causes a high level of positive satisfaction with campsites. The above-mentioned leads to a conclusion that the research results indicate that the quality of service has a causal connection to the entire camping business, but also to the tourism destination in which the camping ground is located.

Key words: *quality, supply, camping tourism, the Republic of Croatia.*

1. Introduction

Camping – or undertaking a temporary stay away from the place of residence for leisure purposes – has been a popular attraction, as well as a desirable travel option worldwide for quite a long while. Camping experience is entirely opposite to the majority of modern life aspects because it represents an escape of a kind from limitations, expectations and responsibilities of modern life. Camping benefits include flexible and relaxed scheduling, improved social connectivity, rejuvenation during a stay in „natural „landscapes and a range of other personal,

social and health benefits. Family camping is a good way for parents, children, and friends to spend free time together and illustrates the value of enjoying nature (Wong, ChouHuang, et.al., 2021, 51). Outdoor leisure activities include going on vacation, escaping from the daily job or jobs, and focusing on engaging in the content of the activity. Likewise, camping provides tourists with economical accommodation, vicinity of attractions and an increase in travel flexibility – which are highly demanded aspects of the tourism market of the 21st century. A campsite intended for stays and accommodation of camping tourists is a complex structure revealing its true nature on various levels: through the macro-scale of an urban landscape essentially integrated into its context, as well as the macro-scale of flexible and mobile housing units. A campsite is an area intended for camping and it is used by campers for camping. Camping is a nature-based tourism activity whereby individuals spend one or more nights in the open air away from their place of residence. The definition connotes time and space, as well as exposure to natural elements such as bad weather conditions or extreme weather conditions.

In the Republic of Croatia, camping is treated in several legal regulations. Article 29 of the Hospitality and Catering Industry Act (NN, 2020/42) defines camping as a guest stay in a tent, camping house, camp trailer and other equipment appropriate for outdoor accommodation. Furthermore, the Ordinance on the Classification, Minimum Requirements and Categorisation of Accommodation Facilities Motor Camps from the Group "Motor Camps and Other Types of Accommodation Facilities (NN, 2016/54) defines other concepts important for camping tourism, including the definition of a campsite as an accommodation business facility in which guests are provided with camping services, i.e., accommodation in an arranged outdoor space (tents, camp-trailers our motor homes), with the possibility of providing other outdoor services and types of recreation. According to the Eurostat specification (Eurostat, Statistics in Focus, 2010), a campsite is included into Other collective accommodation establishments, or in short Collective tourist accommodation, including holiday homes, tourist campsites and other unclassified collective establishments.

Eremić (2021) states that the issue in the terminology of camping tourism is also reflected in the global nomenclature; thus, in Australia the term boondocking is used, in Northern America terms such as travel park, RV campground, RV resort, trailer park is used, In Denmark the term karavaning is used. In Europe, a campsite signifies a parcel on which there may be a tent or a trailer, while in the US it signifies one parcel within the camping grounds. In order to avoid misunderstandings, some researchers suggest a common term outdoor hospitality (Eremić, 2021). Furthermore, the capacity of a campsite is expressed in the number of places and/or parcels, and the number of beds in Croatian campsites is calculated on the basis of three beds or three persons per parcel, while according to Eurostat methodology it is four persons (Eurostat, Statistics in Focus, 2010).

In general, camping tourism means: 1) freedom travelling, with a dose of adventure, as this is people's inborn instinct; 2) living and staying „a' la carte “, and 3) an ideal form of freedom and adventure. Campers choose their camping methods accordingly. From an economic standpoint, camping represents an outdoor holiday market, while behaviouralists see it as a form of free stay in nature, time limited, in small units, i.e., motorhomes, tents or camp trailers. However, camping is no longer synonymous with an affordable holiday, but it is becoming an increasingly more expensive way to spend one's holiday. This portrayal rings truer than the stereotype of camping as an economical holiday. Nevertheless, this very feature is the main reason of neglecting this type of tourism, which is hardly mentioned in contemporary literature, even though modern camping tourism is becoming an elite holiday type, due to an increasingly expensive camping equipment and higher inclusion of these travellers in various activities in

tourism destinations. In the overall offer of tourist accommodation, the offer of campsites represents an important segment of the carrying capacity of many European tourist destinations (Alkan, 2021, 241). Camping tourism has qualitatively transformed and obtained some other features; therefore, in neither case can it be characterised as cheap, as it symbolises a special worldview and is shifting toward an increasingly more expensive and more attractive holiday. This paper comprises an introductory part focusing on camping tourism as part of a modern supply and featuring camping industry trends. Furthermore, the paper observes the conceptual quality model in the camping service sector, while the final part relates to the empirical research aimed at indicating the service provision in a qualitative sense and camping guest satisfaction with the offered, i.e., consumed service. Therefore, the starting hypothesis of the paper is: The level of high-quality service in a camping resort contributes to the high level of guest satisfaction, thus fostering successful business activity of the camping resort. Finally, concluding observations are provided with emphasis on research limitations.

2. Camping tourism as part of modern tourism supply

The recorded rise in incoming tourism by choosing outdoor accommodation is the consequence of the growing ecological awareness among tourists. Such course of events may appear together with the emergence of the collective awareness of human activity impact on the environment, including leisure. Supporting this is not only the general cultural logic, but the increasing need tourists feel to withdraw from urban life, in an effort to combine the holiday experience with the concepts of deep relaxation and establishing contact with nature.
Furthermore, camping grounds offer the possibility of applying concepts of sustainability and flexibility on a significant territorial area (Rogerson, Rogerson, 2020). Expansion of campsites in areas that hold environmental significance, in the context of seasonal tourist patterns, would guarantee the preservation of environmental and ambient-related value of the area in which they are located due to their mobile natural structure, enabling these areas to „breathe „in periods of high-level tourist activity.

Camping tourism is much more than a common supply that can be found anywhere. Camping is primarily a way of life; it provides a special type of holiday and is rapidly becoming one of the most popular and the most lucrative types of tourism. Camping has been present since ancient times. People in the furthest past used only ready-made or improvised tents in order to seek refuge from bad weather conditions, but they did this as a form of survival, and not like today, when their main motives are recreation and rest. Until recently, camping tourism was targeted toward the older generations; therefore, its development, marketing and prices were equally targeted. The improved infrastructure, increased living standards, transport innovations, technological advancements and a lot of other offers have opened the door to other markets that are rapidly changing the tourism trend, to which it is necessary to adapt. The new generations (Y, Z and Alpha) have led to the transformations in the supply, and camping tourism has started to become one of the most luxurious aspects of tourism, increasingly changing in order to attract guests to whom it would not be the top choice. Contemporary trends in tourism contribute to increasing demand for accommodation facilities in unique environments of preserved nature. Awareness of health and the environment contributes to the popularization of glamping on the tourist market (Petruša & Vlahov, 2019).

The current changes in the camping market are seen in the changes in camping styles and implementation of new business models. The European tourism megatrends are the following (Cerović, 2014):

- Globalisation of the camping industry that brings changes in technology, liberalisation of products and services and increased mobility;
- Upcoming demographic changes and grey tourism;
- Sustainable development movement that appreciates human capital and celebrates natural and cultural resources;
- Access to information – the internet, browsing platforms, smart phones, GPS navigation and digital TV have increased the availability and transparency of information;
- Personalisation – creating camping products tailored to individuals, and not to a target group has become a challenge for campsite management;
- Sustainability – camping tourism can contribute to this trend by developing in a sustainable and ecologically acceptable way. Innovations in ecology are considered challenging for campsites across Europe;
- Health and well-being – taking this trend into consideration represents a solution to the seasonality of camping tourism and makes campsites attractive destinations throughout the year.

These global trends have a high impact on the trends in the camping industry, which has been directed toward differentiations and uncovering new market segments. It is time for adaptability, but also regeneration. It is time for a change in public opinion about camping and its positioning within the tourism trend of „luxury leisure ". Camping development recognises two trends (Cerović, 2014): the „7 P TRENDS"– a return to camping value trends and „NEO CAMPING" – a trend of developing new differentiated types of camping products. New camping relates to sustainable and luxury camping. Cerović (2014) calls this new megatrend the „neo-ecology „and emphasises the significant effect and popularity of the so-called „green tourist „movement that contributes to the general interest in „green" stays in nature, such as camping is.

According to differentiation and specialisation processes, there have been an increasing number of campsites showing a high level of specialisation in both equipment and service. Some of them are eco-camps, children camps (mini, midi, teen), thematic camps, technological camps, pet camps, sports camps, organic camps and others. Camping is entering a phase of a promotional offensive. In order to reach younger generations, it is becoming cool (Cool camping: The best campsites in the UK and France). The demand is becoming more diverse: camping for campfire enthusiasts, camping with a breathtaking view, forest camping, seaside camping, luxurious lakeside camping, staying in retro camping homes and similar.

3. A conceptual model of quality service in camping tourism

The World Tourism Organisation emphasises the importance of the quality segment perceived by tourists in a particular tourism destination. Camp (1989) states that there are at least ten reasons for introducing a tourism destination quality system: quality provides a competitive edge, quality services and products are sold more easily on the market, quality products and services encourage guest/tourist loyalty, quality brings higher profit, quality management leads to a stability of the tourism sector and protects jobs, quality enhancement in a destination also enhances the quality of life of the local population, quality management facilitates access to financing, effective advancement monitoring diminishes the repetition of expensive mistakes, careful data collection provides tools to make the right management decisions, supervising quality management advancements enables understanding that drives self-initiated tourism management.

In the dynamic tourism market, the competitive advantage is achieved by possessing special characteristics sought and accepted by tourists, and by which particular tourism service providers are differentiated from their competitors. The key to competitive advantage is the analysis of tourist values and experiences, which comprises the following steps (Stipanović, 2006): identifying the main characteristics sought by tourists; assessing the qualitative value of various characteristics – ranking the values of individual characteristics; evaluating own achievements on the tourism market and competitors' achievements based on different tourist values, as evaluated by tourists themselves; examining how tourists in individual segments assess our performance in relation to a specific competitor; constantly monitoring tourist values.

The conceptual quality model represents a theoretical framework that is used for a better understanding and measuring of service quality. The model helps to identify key factors that affect the perception of quality service and enable tourism stakeholders to enhance their services in order to meet the needs and expectations of their consumers. Phillip Kotler stresses that a service is any act or activity that one side can offer to another, but which is intangible in essence and is not anyone's property. Provision of services may and may not be related to a tangible product (Kotler, Keller, & Martinović, 2014).

In the world of growing competition, which started in the 1990-s, quality is no longer an option, but a constituent part of a strategic company response to the dynamics of business activity and changes. Quality and innovation of tourism products and services have become deciding factors in competing on the tourism market, which is demanded to have a proactive attitude in thinking and acting. On the one hand, the supply follows the changes in demand preferences; on the other hand, it follows the changes in demand, the rise in expectations and it is becoming more difficult to satisfy them (Rudančić, 2014).

According to Vrtodušić Hrgović, Cvelić Bonifačić, (2018) quality service is key to successful business activity because user satisfaction often leads to loyalty, repurchase of service and recommendation to others. There are several methods and tools used to measure quality of service, the most frequent of which include (Kane, 2023): user satisfaction questionnaires: Includes questionnaire distribution among users so they could express their opinion on their experience with the service, its quality and their satisfaction; following key performance indicators (KPIs): KPIs are identified, helping in monitoring and measuring key service aspects, such as response time, waiting time, retention rate and other relevant metrics; mystery shopping: Mystery shoppers are engaged that present themselves as real consumers in order to assess the service from the inside, gathering feedback on experience; complaint and feedback analysis: Consumer complaints and feedback are monitored to identify issues and areas for improvement; focus groups: Meetings with small groups of consumers are organised to obtain a deeper understanding of their opinions and attitudes toward services; Benchmarking: comparing one's own quality of service with the best practice examples in the industry in order to recognise disadvantages and improvement opportunities; performance data analysis: quantitative data are analysed to discover causes, trends and disadvantages in the provided services.

The extent to which service quality is significant in camping tourism is visible from the Croatian Auto Club questionnaire aimed at studying campers who come to Croatia. Based on this research, the following was determined: The questionnaire results show that campers are ready to pay for what they seek in campsites – quality service, service staff and innovative promotion channels. This is not surprising since tourists from around the world, regardless of the desired type of accommodation, want quality and value. A recent statical analysis has shown that

Croatia put a stop to the decrease in the number of overnight stays in campsites; however, this should not cause satisfaction, but products and services need to be further developed in order to meet the increasing quality demands (Croatian National Tourist Board (HTZ, 2023).

Furthermore, camping tourism quality is increasingly becoming a measuring unit for competitiveness, since establishing a camping ground in a tourism destination is far more accessible than building commercial accommodation facilities. Thus, numerous rural households and family farms that have vast natural areas can purpose a part of these green surfaces to form smaller campsites within their estates. Most frequently, they have the necessary infrastructure (electricity, water, sewage network), but they face issues with the lack of appeal of the area as well as modest understanding of tourism business activity. These campsites are bordering between rural and camping tourism and are vague in terms of quality categorisation.

Quality management is one of the fundamental determinants of successful development and competitiveness of a campsite company. In Europe, camping tourism is recognised as a competitive advantage of European economy, and one of the main projects is forming a European tourism quality label. The goal of defining and testing quality is quality rating. Placing quality at the top of the ladder is the basis of the competitive advantage that leads to improvement as well as enhancement of quality (Milohnić & Gržinčić, 2010).

According to the EU parliamentary resolution, in September 2011, the European Commission adopted the Strategic Proposal for the Implementation of the Common European Label for Tourism Quality: EQT Label – European Tourism Quality Label. The aim is to encourage trust in high quality as opposed to uncertified hospitality facilities in Europe and the world.

The implementation of a quality system is under the purview of government institutions, while the role of consumer-camper protectors has been undertaken by automobile organisations, publishers and travel organisers. ADAC and ANWB have developed a particularly strong and consistent assessment system in Europe, which is updated on a yearly basis. The most well-known systems quality assessment in camping are implemented by: ADAC / ANWB – results are published in the camping guide and ADAC camping, ADAC / ANWB – results are published in the ANWB Campsite Guide, ACSI – the results are published in the guide Camping führer Europa.

Each year during the CMT fair (Camping, Motor, Touristik), the ADAC Camping Caravanning Führer from Munich promoted special recognitions for quality in the camping supply in several categories (Sladoljev, & Pilar, 2020): the quality of service and serviceability, the formation of the campsite and parcels, quality and supply of sanitation facilities, ecology effect management, presentation of the total offer, and special awards. The awarding of ADAC stars indicates the quality of a campsite supply. One or half a star can be awarded. The final categorisation springs from individual results achieved in five different assessment areas, which are divided into ten individual categories. According to Sladoljev and Pilar (2020), the areas are the following: the organisation of sanitation facilities, organisation of campsite space and its surroundings (including the check-in reception department), campsite's supply (purchase opportunities and gastronomy offer within the campsite), supply of leisure activities (such as animation and bathing opportunities (beaches and swimming pools within the campsite). Along with the above-mentioned assessment system, there are numerous efforts of marketing assessment by publishers, including the following: Alan Rogers and his classifications, such as „The best campsites in Europe „or „The best French campsites “, as well as other plentiful thematic publications, such as „The best beach campsites “, „The best dog-friendly holiday campsites “,

etc. In 2013, ADAC and ANWB consolidated the European campsite assessment system, published simultaneously in ADAC and ANWB guides. The common system also includes the consolidated system of inspection service and campsite supervision. This is a starting point for creating the common criteria for camping quality in Europe.

4. Empirical research on the level of service quality in Croatian camping resorts

As special interest tourism, camping has increasingly been drawing the attention of travellers who seek experiences in nature and relaxation in an environment providing authentic experiences. Accordingly, camping resorts are becoming key destinations featuring diverse amenities and services to provide their guests with a pleasant and unforgettable stay in nature. In that sense, research into quality levels at camping resorts has become essential to understanding how the level of provided services affects the total guest satisfaction and experience.

Empirical research of quality levels in Croatian camping resorts and of the relationship between quality and the total performance of a campsite focuses on the analysis of the quality of service in camping resorts. The research objective is to study the way in which the quality of service at a camping resort affects total guest experience, and how this relationship reflects on the general performance of a campsite.
Studying the relationship between the quality of service and the total performance of a camping resort has the potential to offer valuable insight for the enhancement of guest experiences and the increase of competitive advantage. By analysing empirical data, this research tends to offer insights into campsite business activities, as well as tendencies related to enhancing the level of quality service and the campsite performance itself.

4.1. Research methodology

The research was conducted between June and September of 2022. The research was conducted at randomly selected campsites, but with the purpose of obtaining insight into the quality of service at higher-rating campsites. Therefore, the authors selected ten campsites of the highest category (4* and 5*) located on the Croatian coast (Istria and Kvarner). Individually, the campsites received around 2,500 guests, which is up to 25,000 campers in total. The research questionnaire was distributed to guests upon departure via provided e-mail address with a request to be completed. As an additional motivation for gathering responses, there was an option of winning the main prize – a seven-day stay at individual campsites. The online research was conducted by comparing the obtained positive and negative guest reviews leading to a specific percentage of guest satisfaction. With the purpose of measuring quality via a questionnaire, the comparison of quality assessment by mystery guests and by internet platforms was made. The camping resorts voluntarily shared mystery guest data for analysis, so the authors could provide a better presentation of campsite expectations with the quality level offered, and in relation to this, how guests finally reacted and assessed the quality offered. Furthermore, campsites that participated in this research requested anonymity of their company names. The research comprised 1,773 questionnaire respondents, 2 mystery guests, and 756 reviews on online camping business centre platforms.

The questionnaire was completely anonymous. All questions were close ended, i.e., multiple choice that the respondents selected in accordance with their preferences. The data collected by the questionnaire differed depending on the characteristics of questions. The question categories were the following: sociodemographic characteristics of respondents, which also included the

number of the parcel at which they stayed; question category related to reception, parcel, holiday home, sanitation facilities, the quality of service in restaurants and bars, animation, sports, beach, supermarket and the campsite in general. The next category of questions was related to time of holiday planning, reasons for selecting a specific campsite, methods of finding information about the campsite, checking guest reviews on TripAdvisor, Expedia, Booking.com platforms beforehand and willingness to recommend the campsite to friends; the last question was different and offered an opportunity to respondents to express their suggestions and ideas for future enhancements and increase in the quality supply of the visited camping resort.

4.2. Research results

Due to the volume of results obtained via the questionnaire, this part of the paper shows individual results related to camper satisfaction with the provided services and the quality of amenities at selected campsites. Research results are shown in tables and graphs followed by results interpretation in the form of text with the main findings and characteristics of research. Research methods that were primarily used in this paper are comparison and deduction of results obtained via the questionnaire completed by campsite guests in the 2022 season. Four essential quality elements were assessed such as reception, beach, food and beverage, and sanitation facilities.

Table 1: Synthesized overview of the respondents' sociodemographic structure

		Number of respondents	**(%)**
Gender	Male	668	37.67
	Female	1,105	62.33
Age	20-30	192	10.83
	31-40	582	32.82
	41-50	354	19.97
	Over 50	645	36.38

Source: Authors

The results of the above-mentioned analysis show that women are more prone to respond to questionnaires; 62.33% of all respondents were women, while the other 37.67% were men. According to the age structure of respondents, the majority were respondents older than 50, 36.38% of them, while respondents aged 20 – 30 are the least represented, with a low share of 10.83%. The above-mentioned leads to a conclusion that camping tourism consumers are mainly older people; however, a possible assumption is that at the moment of conducting the questionnaire, younger people were not interested as much in completing it.

Reception is the most important campsite success factor because it is the first and last service encountered by guests, and it is directly related to the entire guest experience at the campsite. The quality of providing services is measured via reception because an employee should possess all characteristics of the quality of service, which are: reliability, professionalism, competence,

approachability, friendliness, guest communication, credibility, safety, empathy and tangible elements.

Table 2: Response structure related to the quality of check-in / reception service

	Mystery guest	Questionnaire	Internet platforms
Number of completed checks / visits / collected assessments and comments	2	1,773	756
Reception	80%	92%	92%

Source: Authors

Table 2 shows that mystery guests were very satisfied with reception service, having reviewed it positively in the scope of 80%. Also, the questionnaire determined that 92% of guests – campers were very satisfied with the quality of reception service, i.e., hospitality and professionalism of reception staff. Campsite guest reviews on internet platforms, such as Booking.com, Expedia, TripAdvisor, etc. show a 92% of high satisfaction with reception performance, which indicates exceptional quality of reception service during their check-in, stay, and check-out.

The basic attractions of Croatian campsites are excellent locations in the vicinity of tourism resources and natural beauties, primarily the sea, coast and the associated beach. A beach is a space on which campers spend most of their time, whether alone or with family and friends. A beach provides ideal surroundings for various forms of recreation and relaxation. Since the beach offers campers a direct contact with the ground, it needs to be well-tended, and its cleanliness needs to be at a high level.

Table 3: Response structure related to satisfaction with beaches

	Mystery guest	Questionnaire	Internet platforms
Number of completed checks / visits / collected assessments and comments	2	1,773	756
Beach	100%	83%	90%

Source: Authors

The analysis results show that mystery guests were completely satisfied with the beach and its maintenance (100%). The questionnaire determined that 83% of respondents expressed their satisfaction. The high percentage of satisfied guests may assumably be due to their ability to enjoy sunbathing, walking along the coast or doing various water sports. This is significant because it enables guests to actively participate in physical activities, and at the same time a beach offers an opportunity to relax with the sound of the sea and the natural beauty of the surroundings. Guest reviews on internet platforms such as Booking.com, Expedia, TripAdvisor, etc. show 90% of guest satisfaction with the beaches, which confirms high guest satisfaction with beaches. However, regardless of the above mentioned, the stated percentage indicates room for improvement.

Next step in research was to find out how campers assess the quality of service and supply of catering facilities in their selected campsites. Catering facilities included restaurants, bars and cafés.

Table 4: Response structure related to the quality of catering service

	Mystery guest	Questionnaire	Internet platforms
Number of completed checks / visits / collected assessments and comments	2	1,773	756
Catering facilities and supply	88%	82%	79%

Source: Authors

The expressed satisfaction of mystery guests is 88%, while 82% of guests expressed satisfaction with the catering supply. Analysis of guest reviews on internet platforms such as Booking.com, Expedia, TripAdvisor, shows that 79% of guests were satisfied with the supply of food and beverage, which is satisfactory in principle, but does not correlate with the standards of 4- and 5-star category of camping resorts. The guests' comments show statements such as a lack of vegetarian dishes on offer, offer of authentic dishes and short working hours.

Food and beverage play a highly important role in total guest experience with a campsite. They are an essential factor affecting campers' satisfaction. Food and beverage service should always maintain high quality, and staff serving and preparing food and beverages need to comply with the Standards of Procedure (SOP). Likewise, everyone should be familiar with the standards of hygiene and the HACCP. Campsites offering diverse and high-quality catering supply have a higher competitive advantage. Food and beverage may also be key determinants in guests opting for a specific campsite.

Sanitation facilities are the essence of a campsite infrastructure. The total grade of the quality of service of a campsite is highly impacted by the quality of maintaining the sanitation facility as well as the order and functionality of its features (showers, faucets, flow of hot and cold water, air purifiers within spaces, lighting)

Table 5: Response structure related to campsite sanitation facilities

	Mystery guest	Questionnaire	Internet platforms
Number of completed checks / visits / collected assessments and comments	2	1,773	756
Sanitation facilities	100%	82%	100%

Source: Authors

The analysis of two mystery guest reviews shows that they were extremely satisfied with sanitation facilities, providing a positive rating of 100%. The rating of sanitation facilities by campsite guests was positive in the scope of 82%, which correlates with a high level of satisfaction with this service category. The analysis of guest reviews on internet platforms such as Booking.com, Expedia, TripAdvisor, etc., shows the high scope of 100% satisfaction with the quality of sanitation facilities for 2022. A possible assumption is that specific camping

resorts have invested in maintenance, modernisation and ensuring hygiene standards of these facilities, which has consequently led to long-term positive effects on campsite reputation and guest satisfaction.

5. Concluding observations

In this research, data was collected and analysed for four factors of campsite supply quality (reception, beach, sanitation facilities, food and beverage). Campsite recognisability certainly contributes to campsite categorisation, which is not only reliant on standards and international norms, but also positive guest feedback and rating related to the level of satisfaction with the provision of quality services. The starting hypothesis in this paper was confirmed by the very high level of percentage points in campers' satisfaction (ranging from 82-92%). Furthermore, the above-mentioned indicates that it is very important to implement well-managed strategic policies in campsite service quality management and for campsite marketing managers to continuously listen to the demanding tourist market. Namely, the modern-day tourists-campers want and seek something always more innovative and encompassing better amenities that are provided. Nevertheless, guests also severely punish when the price does not correspond with the offered level of quality. The perceived and experienced service by guests at Croatian campsites guarantees and achieves two types of benefits: tangible and intangible mutual benefits. The intangible benefit is reflected in the high level of positive psychological satisfaction of campsite guests due to the experienced quality service, while the tangible benefit is the positive economic and financial performance of the campsite. Namely, a satisfied campsite visitor will spend more, become a loyal campsite guest, wish to return to the same destination, recommend the campsite based on their satisfaction, and through their increased demand for quality service, will contribute to an equal or increased occupancy of accommodation capacities and the total campsite performance as a free marketing tool.

In conclusion, this research should be taken with its limitations that were brought about and reflected primarily in the size of the sample and a short time frame of questionnaire availability; therefore, it does not reflect the total campsite supply in the Republic of Croatia, due to the mentioned reasons. In this sense, the authors propose a justified need for further implementation of this type of research, which is derived from the processes of studying developmental factors of camping tourism, whereby the objectives, methodology and even classification need to be adapted to the economic and social conditions, and which is reflected in the area of the Republic of Croatia related to the camping industry. Such an assumption would establish the legitimacy of further development, valorisation and affirmation of quality of service and business activity of Croatian campsites as business entities.

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A scientific paper

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THE "EXTRA" SPARKLE IN HIGHER EDUCATION INSTITUTIONS: EXPLORING STAFF PERCEPTIONS TOWARDS CORPORATE VOLUNTEERING

ABSTRACT

The analysis of barriers to volunteering and the intraorganizational conditions that can promote or hinder employee engagement in volunteer programs are important for researchers and practitioners. Despite the relevance of these topics, they remain unexplored in the context of Higher Education Institutions (HEIs), especially from the staff perspective. This represents an important theoretical gap, as HEIs are institutions that act in the public interest and represent the ideal context for spreading the culture of corporate volunteering due to their potential to connect theory to practice. Therefore, this study aims to explore how intraorganizational support moderates the relationship between both motivations and barriers to volunteering with the personal/impersonal outcomes of participating in these activities. The research is based on a sample of 155 public HEI employees obtained from the Northern Euro-region of Portugal/Galicia. The results of the partial least squares structural equation modeling (PLS-SEM) suggest that motivations to volunteer were positively associated with personal/impersonal outcomes stemming from these activities, while barriers to volunteering were negatively related. When testing the moderating effects, we found that HEI intraorganizational support weakened (strengthened) the positive (negative) relationship between motivations (barriers) to volunteer and the personal/impersonal outcomes stemming from volunteer activities. Overall, this empirical evidence allows us to understand both motivations and barriers to volunteering, as well as how intraorganizational conditions discourage participation in volunteering.

Key words: *corporate volunteering, intraorganizational support, motivations, barriers, personal and impersonal outcomes.*

1. Introduction

In recent years, corporate volunteering (CV) has become a most discussed corporate social responsibility (CSR) activity both by academics and practitioners (Afkhami *et al.,* 2019; Rodell *et al.,* 2016; Schie *et al.,* 2018). CV is an act of giving employees time, knowledge, and skills as part of community service, outreach, or socially responsible activities often sponsored by companies without any additional compensation or direct personal remuneration (Rodell, 2013). Therefore, CV programs provide a multitude of benefits to organizations by boosting the brand image and reputation (e.g., Plewa *et al.,* 2015), improving job performance (e.g., Rodell, 2013), and enhancing employee attitudes (e.g., Haski-Leventhal *et al.,* 2019).

Despite the payback of CV is extensive for multiple stakeholders (Sekar and Dyaram, 2021), extant literature highlights that the rate of employee participation in volunteering is low (Gómez and Fernández, 2017; Grant, 2012; Willems and Dury, 2017). Although past studies have examined the relevant factors that account for employee participation in volunteering programs (e.g., Brockner *et al.,* 2014; Pajo and Lee, 2011; Peloza *et al.,* 2009; Sekar and Dyaram, 2017), most of them primarily focus on individual motives (e.g., Haski-Leventhal *et al.,* 2019; Schie *et al.,* 2018) and demographic profile of participants (e.g., Lanero, 2017; Wilson, 2000) to explain the likelihood of engaging with CV.

In light of the above, the literature has been ignoring the relevance of contextual elements (Hidalgo and Moreno, 2009), specifically the role played by the organizational context to explain employee participation in volunteering programs (Sekar and Dyaram, 2021). According to Johns (2017), organizational contextual elements offer potential opportunities or constraints in dynamically determining the employees' decision to engage in CV. Though the relevance of contextual factors is discussed (Sekar and Dyaram, 2017), extant research addressing their effect on CV is too narrow (Afkhami *et al.,* 2019). Accordingly, it is imperative to assess the influence of organizational contextual factors on employee participation in volunteering programs, particularly, within Higher Education Institutions (HEIs) which represent the ideal context for spreading the culture of CSR (Tormo-Carbó *et al.,* 2016).

The present study thus explored how organizational support acts as a relevant contextual factor in determining employee engagement with CV. Specifically, we assessed how HEI intraorganizational support moderates the relationship between both motivations and barriers to volunteering with the personal/impersonal outcomes stemming from volunteer activities. The remainder of this paper is structured as follows. Section two briefly characterizes CV and then discusses the topics related to staff engagement with volunteering. Section three introduces the data collection and analysis methodology used. The results are covered in section four, and section five provides the conclusions drawn and suggestions for future research.

2. Theoretical background

2.1. Motivations and barriers to volunteering

Corporate volunteering (CV) – also labelled as employee volunteering or employer-supported volunteering – encourages employees to get involved in several community/social-related activities, with active support from the employer for both corporate-driven and employee-led programs (Pajo and Lee, 2011). Organizations offer diverse ways of supporting volunteering activities such as allowing employees to volunteer during work hours and encouraging team-based activities enabling them to work together effectively (Sekar and Dyaram, 2017). Employees' involvement not only contributes to effectively carrying out volunteer activities but also helps influence their work attitudes, hone varied skill sets and eventually build organizational public image (Sekar and Dyaram, 2017). There is evidence on how active involvement and volunteering have a positive effect on staff work attitudes and morale, greater organization loyalty, commitment, and overall job satisfaction (e.g., Do Paço and Nave, 2013; Gatignon-Turnau and Mignonac, 2015; Kim *et al.,* 2010), job-related skills and development (e.g., Caudron, 1994).

Previous research has been examining CV through the lens of social exchange theory (SET) and social identity theory (SIT). On the one hand, SIT highlights how CV enhances organizational commitment by enabling employees to view their organization as more *prosocial*, respected by external stakeholders and, thus, deserving of their emotional attachment (Kim *et al.,* 2010; Peloza *et al.,* 2009). On the other hand, SET shows how employees feel compelled to reciprocate the benefits they receive from CV by giving back to their employing organization (Al Kerdawy, 2019; Booth *et al.,* 2009). This emphasis on collective organizational outcomes has produced a focus on how employees *perceive and react* rather than *experience* CV, resulting in limited examination of its capacity to generate both positive and negative outcomes. Grant (2008) notes that organizational strategies do not always create intended outcomes, whereas Gatignon-Turnau and Mignonac (2015) found that employees possess the capacity to both reflect on and resist organizational motivations.

CV research has also drawn from volunteer motivation theory (e.g., Clary *et al.,* 1998) to examine the relationship between staff motivations, volunteer experience, and organizational outcomes (Brockner *et al.,* 2014; Grant, 2012; Rodell, 2013). Clary *et al.*'s (1998) functional typology identifies six personal and social functions served by volunteering: values, understanding, enhancement, career, social, and protective. Importantly, this typology emphasizes the diversity and co-existence of multiple motivations, the blurring between prosocial and self-serving motivations, and the significance of *volunteer experience* in shaping individual and organizational outcomes (Cook *et al.,* 2023). Attempts to understand the factors that explain the volunteer experience, such as the type of activity, confirm the premise that individuals can have different motivations for doing the same volunteering (Sekar and Dyaram, 2017). These motivations include altruistic values, personal development, community concerns, ego enhancement, and social adjustment (Kao *et al.,* 2023). Employee volunteer motivation can be defined as the motivation of employees to voluntarily participate in activities or affairs outside the organization, which is mainly based on social orientation and personal growth needs (Hurtz and Williams, 2009). Overall, volunteer participation is part of social motivation (Han *et al.,* 2020) and volunteers are motivated to volunteer to care for other people (Kao *et al.,* 2023). Based on these findings, the present study's first hypothesis was formulated as follows:

Hypothesis 1. *Employee's self-oriented motivations have a positive effect on personal/impersonal outcomes stemming from volunteering.*

Understanding the complex interaction of volunteer motivations, experience, and the volunteering organization context has been key to explaining the variance in volunteering behaviour and the organizational factors affecting volunteers (Studer and Von Schnurbein, 2013). Volunteer research has called for greater complexity through theorizing the *volunteer context,* examining the volunteer ecology (i.e., social, cultural, and structural environments) and its complex interactions with paid staff, other volunteers, organizational programs, and mission (Brudney *et al.*, 2019). Further research on the volunteer-voluntary organization fit reveals how volunteers have to reconcile organization-level factors with their values and motivations (Englert *et al.,* 2020). Cook *et al.* (2023) argue that CV activities are not generically *prosocial* but are more place-based and personal, suggesting a strong connection between the volunteering activity and the individual.

Despite several benefits to all stakeholders, many organizations often find a declining trend in the rate of employee participation (Gómez and Fernández, 2017; Grant, 2012; Willems and Dury, 2017). They often do not find what attracts and sustains employee participation in volunteering programs (Grant, 2012; Solomon *et al.,* 1991). Further, on the other hand, the philosophy of CV implies the involvement and support of employees to become inseparable to effectively carry out these activities (Sekar and Dyaram, 2017). The role of employees goes beyond giving their time in the volunteering program, to a more active involvement with significant contributions to the implementation and success of CV programs. Hence, one of the pertinent challenges for organizations in driving these volunteering programs is attracting and recruiting employees to participate in these activities (Sekar and Dyaram, 2017). Several scholars have highlighted the need to explore ways of moving and encouraging staff participation (e.g., Solomon *et al.,* 1991). However, others caution about using any strategy to motivate employees to subscribe to volunteering programs, in running the risk of employees feeling compelled to participate rather than voluntarily (Clary and Snyder, 2002).

In other words, mandating their participation in CV might impact employee motivation adversely and can run contrary to the philosophy of volunteering (Stukas *et al.,* 1999). Within this context, self-oriented barriers can hinder people's inner drive to volunteer by blocking their capacity to meet their own needs or objectives linked with CV (Grant, 2012; Willems and Dury, 2017). An example of the influence of self-oriented barriers on personal of outcomes of volunteering can be illustrated by examining the impact of time constraints on employee satisfaction and well-being. Individuals with limited time or conflicting commitments might view volunteering as an imposition instead of a chance for self-development or satisfaction (Willems and Dury, 2017). Similarly, self-oriented barriers can also affect impersonal outcomes of volunteering, such as organizational reputation and community impact. For instance, employees who perceive themselves as lacking the necessary skills or expertise to contribute effectively to volunteering initiatives may hesitate to participate or may feel inadequately prepared to make a meaningful contribution (Afkhami *et al.,* 2019). The current research thus included one more hypothesis:

Hypothesis 2. *Employee's self-oriented barriers have a negative effect on personal/impersonal outcomes stemming from volunteering.*

2.2. The moderating role of intraorganizational support

Organizational culture is understood as a system of shared values and norms. Employees internalize the organizational culture and embed their values with that of the organization. Therefore, they reveal a positive response to activities that are aligned with the value systems of the organization (Sekar and Dyaram, 2021). According to Afkhami *et al.* (2019), individual factors determine employees' decision to participate in volunteering programs. However, it is equally important to assess the influence of organizational context in influencing specific staff behaviour either by creating a constraint or providing opportunities (Johns, 2017; Sekar and Dyaram, 2021). The role of the organization has become inseparable in the CV programs, as these initiatives are often effectively run and monitored by the organization. As such, it becomes a prerequisite to seek and understand whether organizational contextual factors have any role in attracting employees to volunteering programs (Afkhami *et al.*, 2019; Sekar and Dyaram, 2021).

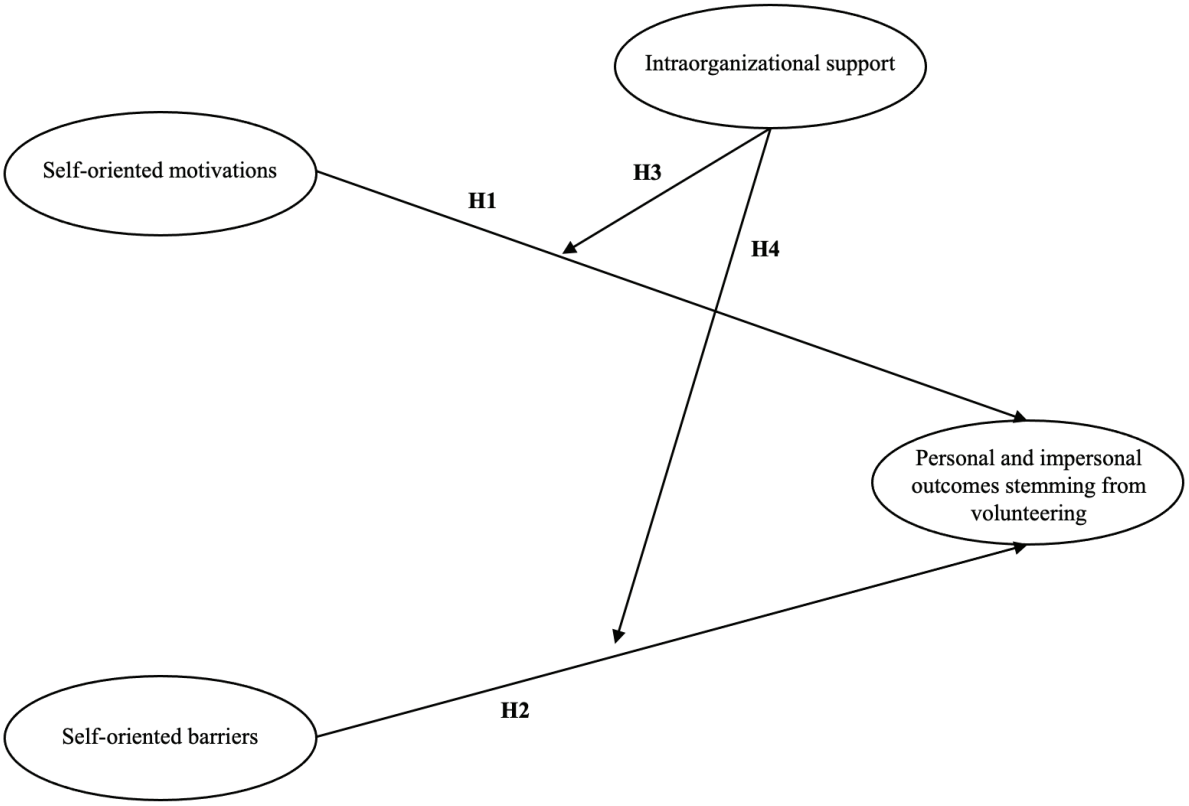
When it comes to organizational contextual factors, it is noted that organizational support around the overall management of CV programs will impact employee attraction (Afkhami *et al.*, 2019; Opoku-Dakwa *et al.,* 2018). There are several organizational efforts for volunteering activities that influence the perception of employees on CV, and it can act as a potential source to facilitate staff participation in volunteering (Sekar and Dyaram, 2021). The Qi *et al.*'s (2019) study pointed out that, when employees perceive organizational support, they develop a sense of obligation to help the organization achieve its goals. Perceive organizational support comes from how employees attribute and judge how an organization treats them (Silva *et al.,* 2022). Drawing upon the theoretical arguments of SET, employees who perceive organizational support will work harder and be more loyal to the organization in return (Kao *et al.,* 2023). In addition, the psychological mechanism of staff perception of their organization's loyalty (commitment) is related to the concept of social exchange and a psychological contract between employees and their organization (García *et al.,* 2021). Perceived organizational support is, therefore, capable of affecting employees' work attitudes and behaviours through the effort-anticipated reward association and the reinforcement of personal emotional needs (Shabbir *et al.,* 2021). Given the existing research, the current study's last two hypotheses were as follows:

> ***Hypothesis 3.*** *Intraorganizational support positively moderates the impact of employees' self-oriented motivations on personal/impersonal outcomes stemming from volunteering, such that this relationship is more positive as the level of intraorganizational support increases.*

> ***Hypothesis 4.*** *Intraorganizational support positively moderates the impact of employees' self-oriented barriers on personal/impersonal outcomes stemming from volunteering, such that this relationship is less negative as the level of intraorganizational support increases.*

The four hypotheses defined were incorporated into the research model (Figure 1).

Figure 1: Research model



Source: Authors

3. Methodology

3.1. Data collection and sample

The research analysis unit is the public Higher Education Institutions (HEIs) employees, from the Northern Euro-region of Portugal/Galicia. The questionnaire was distributed, by email, to the HEIs directors for approximately two months between mid-March and April 2022, requesting the dissemination of the questionnaire by its employees. By the end of the data collection period, the sample included 155 fully completed questionnaires from 26 HEIs. Table 1 shows the sample characteristics.

Table 1: Sample characteristics

Respondents Characteristics					
Age			*Education level*		
19-24	1	0.65%	Secondary Education/ Technical Course	1	0.65%
25-34	14	9.03%	Bachelor/ Degree	13	8.39%
35-44	37	23.87%	Master	27	17.42%
45-54	57	36.77%	PhD	114	73.54%
55-64	39	25.16%			
More than 65	7	4.52%			
Collaboration in HEI			*Gender*		
Less than 1 year	12	7.74%	Male	66	42.58%
1-5 years	24	15.49%	Female	89	57.42%
More than 5 years	119	76.77%			
Total Volunteer's	**155**				

Source: Authors

The research model was assessed using the partial least squares structural equation model (PLS-SEM) method (Hair *et al.,*2014) with SmartPLS software version 3.3.9 (Ringle *et al.,* 2015). PLS-SEM is a composite-based method for structural equation modeling, which is useful for theory testing with a prediction perspective (Rasoolimanesh *et al.,* 2021). PLS-SEM is an ideal procedure for estimating and assessing the proposed relationships in path models with latent variables, as it facilitates the examination of complex frameworks by supporting the unrestricted use of different variable types (Hair *et al.,* 2014).

Following Cohen's (1992) recommendation for multiple ordinary squares regression, one would need only 54 observations to detect R^2 values around 0.25 assuming a significance level of 5% and a statistical power of 80%. Therefore, the minimum sample size should be 54 and our sample contains 155 cases, so data adequacy is met. Moreover, our dataset contained missing values which were coded with the value -99 (Sarstedt *et al.,* 2021), and were estimated using the mean replacement of missing data option. Lastly, box plots diagnostic using SPSS software version 28 also showed influential observations, but no outliers, allowing us to proceed with model estimation.

3.2. Variables

3.2.1. Dependent variable

The target variable was personal and impersonal outcomes stemming from volunteering. The respondents were asked to indicate the degree of agreement with the results/consequences of participating in volunteer activities, using a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). The questionnaire included a scale developed by Afkhami *et al.* (2019) that contained 17 items related to volunteer's skills, personality, subjective well-being, work outcomes, organizational outcomes, and communal outcomes.

3.2.2. Independent variables

The explanatory variables were employee's self-oriented motivations and barriers to volunteering. *Motivations* were determined based on the respondents' responses to the following item: "Please rank the following reasons for your involvement with volunteer

activities". The employees scored each item on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"). The scale was taken from Clary *et al*.'s (1998) work including 14 items organized around six personal and social functions served by volunteering: values, understanding, enhancement, career, social, and protective. *Barriers*, in turn, were measured by 16 items based, for example, on the volunteer's responsibility, physical boundaries, and economic situation, which can constrain the engagement in CV. This scale was based on Willems and Dury's (2017) study. Items used a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree").

3.2.3. Moderating variable

The moderator is intraorganizational support which was assessed by asking respondents: "Please rank the following statements related to intraorganizational conditions for employee participation in volunteer activities according to their importance". The employees scored each item's importance on a 5-point Likert scale ranging from 1 ("Not important") to 5 ("Extremely important"). This scale was taken from Afkhami *et al.*'s (2019) work, including 10 items distributed by employer support, organizational characteristics, and time availability of volunteers.

3.2.4. Control variables

Control variables included the volunteer's age, gender, education level, professional career, and collaboration in HEIs. Previous research on CV asserts that individual factors, such as age and gender (e.g., Do Paço and Nave, 2013; Willems and Dury, 2017), education and professional career (e.g., Willems and Dury, 2017; Wilson, 2000), as well as the context and nature of volunteering work (e.g., Wilson, 2000), influence employees' decision to participate in volunteer activities. The research model thus included these controls to provide alternative explanations for our findings.

4. Results

The assessment of the measurement model was established, indicating a satisfactory level of all requirements (Rasoolimanesh *et al*., 2021). Specifically, Table 2 represents the indicators' reliability and loadings of each construct. To ensure sufficient reliability, we retained in the analysis the outer loadings that were equal to or above 0.60 (Hair *et al.,* 2013). All average extracted variance (AVE) values exceeded the threshold of 0.50 (Fornell and Larcker, 1981), supporting the construct measures' convergent validity. A single construct (barriers to volunteering) showed a lower AVE value (AVE = 0.477), but, as it presented acceptable levels of internal consistency reliability, the construct was retained in the analysis according to the procedures highlighted by Hair *et al.* (2019). The composite reliability (CR) ρ_C had values of 0.828 and higher, which were clearly above the expected minimum level of 0.70 (Hair *et al.,* 2019). In addition, the Cronbach's alpha (CA) values ranged between 0.742 and 0.913, which was also acceptable (Hair *et al.*, 2019). The results, therefore, suggested that the construct measures exhibited high levels of internal consistency reliability.

Table 2: Items and loadings

Constructs and Items		Loadings	Mean (SD)	AVE	CRρ_C	CA
Volunt_motiv: Motivations to volunteering [Reflective]			4.051 (0.947)	0.546	0.828	0.742
motiv7	With volunteering I learn new knowledge	0.768				
motiv8	With volunteering, I am not looking for new challenges	0.705				
motiv9	With volunteering I meet people with the same interests	0.725				
motiv10	With volunteering I can live socially.	0.726				
Volunt_barrier: Barriers to volunteering [Reflective]			1.961 (1.103)	0.477	0.864	0.819
barrier3	Volunteering is physically difficult to me.	0.720				
barrier4	I need more energy to be a volunteer.	0.688				
barrier5	I do not have adequate skills to be a volunteer.	0.642				
barrier6	Volunteering does not bring me benefits.	0.727				
barrier7	I have more important things to do than volunteering.	0.733				
barrier10	I do not have time to be a volunteer.	0.716				
barrier13	Volunteering does not give me the recognition (visibility) that I want.	0.600				
Volunt_org_cond: Intraorganizational support [Reflective]			4.482 (0.953)	0.583	0.926	0.913
org_cond4	Managers participation in volunteering.	0.787				
org_cond5	Perceived organizational support.	0.894				
org_cond6	Existence of a volunteering culture in the HEI.	0.839				
org_cond7	Employee image about HEI social responsibility.	0.695				
org_cond8	Authorizations of the HEI management teams to use work time for volunteering.	0.672				
org_cond12	Build trust among volunteers in the usefulness of the volunteering programs developed by the HEI management	0.737				
org_cond13	The way in which HEI management teams interact in volunteer programs.	0.791				
org_cond14	Appropriate planning of the volunteer programs.	0.656				
org_cond17	Alignment of the volunteer programs with the capabilities of the volunteer.	0.766				
Volunt_result: Personal and impersonal outcomes stemming from volunteering [Reflective]			4.197 (0.796)	0.511	0.919	0.903
result1	Increases the ability to work in team.	0.807				
result2	Increases the communication skills.	0.713				
result3	Increases the modesty.	0.718				
result4	Increases the generosity.	0.816				
result5	Increases the happiness.	0.716				
result7	Increases the patience.	0.655				

Constructs and Items		Loadings	Mean (SD)	AVE	CRρ_C	CA
result8	Increases the self-confidence.	0.609				
result9	Increases the satisfaction with life.	0.666				
result11	Improves the communication with colleagues.	0.731				
result13	Increases the responsibility.	0.669				
result16	Increases social solidarity.	0.689				

SD, standard deviation; AVE, average variance extracted; CR, composite reliability; CA, Cronbach's alpha.

Source: Authors

To validate the discriminant validity, the heterotrait-monotrait ratio of correlations (HTMT) should be below 0.85, following the threshold suggested by Henseler *et al.* (2015), and the square root of AVE for each construct should be greater than the correlation involving the latent variables based on the criterion introduced by Fornell and Larcker (1981). Table 3 shows that the discriminant validity via Fornell-Larcker's criterion was reliable, and the values of HTMT were in line with the requirement (Henseler *et al.,* 2015).

Table 3: Discriminant validity

	Volunt_barrier	Volunt_motiv	Volunt_org_cond	Volunt_result
Fornell-Larcker criterion				
Volunt_barrier	*0.697*			
Volunt_motiv	-0.310	*0.739*		
Volunt_org_cond	-0.032	0.138	*0.763*	
Volunt_result	-0.420	0.523	0.322	*0.715*
HTMT				
Volunt_motiv	0.333			
Volunt_org_cond	0.138	0.165		
Volunt_result	0.470	0.561	0.324	–

The italic numbers on the diagonal are the square root of AVE. Off-diagonal values are correlations.

Source: Authors

The structural model was assessed by considering the path coefficients and their significance levels. Path significance was evaluated based on p-values calculated after executing a bias-corrected and accelerated (BCa) bootstrapping with 5,000 sub-samples. The quality of the structural model was first evaluated using the coefficient of determination (R^2) (Table 4). We found that the variables included in the model explain 47.5% of the variance in personal and impersonal outcomes stemming from volunteering. It is worth noting that the effect size (f^2) complements the R^2 assessment, considering the relative impact of an independent variable on the dependent one through the changes in R^2 values (Cohen, 1988). According to Cohen (1988), the f^2 effect size can be classified as follows: $f^2 \geq 0.35$ (high), $0.15 \leq f^2 < 0.35$ (medium), $0.02 \leq f^2 < 0.15$ (small), and $f^2 < 0.02$ (negligible). Overall, our f^2 effect sizes are mostly classified as medium, small, and negligible. The evaluation analysis also revealed no collinearity issues for each set of predictors, as all the variation inflation factor (VIF) values were below the threshold of 3 (Hair *et al.,* 2019).

Table 4 summarizes the direct and interactive effects and their significance. Control variables such as volunteer's age, gender, education level, professional career, and volunteer collaboration in HEI did not show any significant effect (i.e., the p-values were above the less

conservative significance level of 0.10). On the other hand, we found that motivations to volunteer were positively associated with personal and impersonal outcomes stemming from volunteer activities (H1: beta value [β] = 0.339; p < 0.001), while self-oriented barriers were negatively related to them (H2: β = -0.323; p < 0.001). This empirical evidence, therefore, provides support to hypotheses 1 and 2.

Table 4. Direct and interactive effects

Relationship	Std Beta	Std Error	t-value	p-value	95% CI LL	95% CI UL	VIF	f^2
Direct effects								
Volunt_barrier → Volunt_result	-0.323	0.087	3.720****	0.000	-0.453	-0.169	1.304	0.153
Volunt_motiv → Volunt_result	0.339	0.102	3.324****	0.000	0.181	0.516	1.313	0.167
Volunt_org_cond → Volunt_result	0.274	0.110	2.483**	0.007	0.049	0.404	1.103	0.130
Volunt_age → Volunt_result	0.079	0.084	0.933	0.175	-0.060	0.216	1.383	0.009
Volunt_HEI_collab → Volunt_result	-0.009	0.091	0.097	0.461	-0.158	0.140	1.561	0.000
Volunt_educ → Volunt_result	0.052	0.090	0.572	0.284	-0.079	0.226	1.696	0.003
Volunt_gender → Volunt_result	0.009	0.088	0.101	0.460	-0.131	0.161	1.291	0.000
Volunt_career → Volunt_result	-0.110	0.090	1.227	0.110	-0.262	0.028	1.850	0.012
Interactive effects								
Volunt_barrier × Volunt_org_cond → Volunt_result	-0.166	0.129	1.291†	0.098	-0.327	-0.006	1.871	0.071
Volunt_motiv × Volunt_org_cond → Volunt_result	-0.197	0.131	1.555†	0.066	-0.443	-0.070	1.879	0.068

**** significant at p-value < 0.001; *** significant at p-value < 0.005; ** significant at p-value < 0.01; * significant at p-value < 0.05; † significant at p-value < 0.10.

Source: Authors

The results also confirmed that intraorganizational support had a direct and positive effect on personal and impersonal outcomes stemming from volunteer activities (β = 0.274; p < 0.01). The analysis of interactive effects, however, has shown that intraorganizational support weakened the positive relationship between self-oriented motivations and personal/impersonal outcomes stemming from volunteering (H3: β = -0.197; p < 0.10), whereas it strengthened the negative relationship between self-oriented barriers and personal/impersonal outcomes stemming from volunteering (H4: β = -0.166; p < 0.10). These findings may appear counterintuitive as we initially anticipated the opposite effect for both relationships. Consequently, the theoretical assumptions underlying hypotheses 3 and 4 did not find empirical support. We delve into the implications of these results in the next section.

5. Discussion and conclusion

The results for hypothesis 1 confirm that employees' self-oriented motivations have a positive effect on personal and impersonal outcomes stemming from volunteering. This positive relationship can be elucidated through the lens of SET (e.g., Al Kerdawy, 2019; Booth *et al.,* 2009; Kao *et al.,* 2023) in which volunteering is conceptualized as a form of social exchange where individuals invest their time, skills, and resources in exchange for personal and social benefits. When employees are driven by self-oriented motivations, they are more likely to

perceive volunteering as personally rewarding and beneficial. This perception fosters a positive attitude towards volunteering, leading to increased engagement to CV. Employees who are intrinsically motivated to volunteer are more likely to derive enjoyment and satisfaction from their participation, leading to positive *personal* outcomes such as increased self-esteem, self-efficacy, and overall well-being (Afkhami *et al.,* 2019). Their enthusiasm, dedication, and willingness to invest time and effort can have a *ripple effect,* inspiring others to get involved and fostering a culture of altruism and social responsibility within the organization or community. As a result, self-oriented motivations not only benefit the individual employee but also contribute to the achievement of broader organizational or societal goals, leading to positive *impersonal* outcomes such as enhanced community cohesion and organizational reputation (Afkhami *et al.,* 2019).

On the other hand, the results for hypothesis 2 show that a negative relationship exists between employees' self-oriented barriers and personal/impersonal outcomes derived from volunteering. Self-oriented barriers can undermine individuals' intrinsic motivation to volunteer by impeding their ability to fulfil personal needs or goals associated with a CV program. For instance, employees facing time constraints or competing priorities may perceive volunteering as a burden rather than an opportunity for *personal* growth or fulfilment (Willems and Dury, 2017). Employees with significant barriers will experience a sense of dissonance between their values and their ability to engage in altruistic behaviours, leading to negative affective outcomes and reduced engagement in volunteering programs (Grant, 2012; Willems and Dury, 2017). Consequently, they can feel less inclined to contribute positively to the broader community or organization through volunteering efforts, thereby diminishing *impersonal* outcomes (Afkhami *et al.,* 2019).

With regards to the moderating effects, the results for hypothesis 3 show that the relationship between employee's self-oriented motivations and personal/impersonal outcomes stemming from volunteering becomes less positive as the level of intraorganizational support increases. This might seem counterintuitive but there are plausible explanations for this finding. The negative moderation effect of intraorganizational support suggests that when organizations provide extensive support for volunteering activities, it may inadvertently diminish the impact of self-oriented motivations to volunteer on personal and impersonal outcomes. This phenomenon can be explained by SET (e.g., Al Kerdawy, 2019; Booth *et al.,* 2009; Kao *et al.,* 2023) which posits that individuals engage in reciprocal relationships with their organizations, exchanging efforts, resources, and contributions for rewards and benefits. When organizations provide high levels of support for volunteering, employees may perceive their volunteering efforts as part of their organizational role rather than as voluntary contributions motivated by personal interests or values. In such circumstances, the intrinsic motivation derived from self-oriented reasons can be overshadowed by extrinsic factors associated with organizational support, such as compliance or instrumental motives. Consequently, extensive intraorganizational support might create a sense of dependence among employees, leading to reduced feelings of autonomy and ownership over their volunteering activities. Employees will perceive their contributions as guided or controlled by organizational expectations rather than driven by their intrinsic motivations, which can decrease the personal fulfilment and satisfaction derived from volunteering.

In a similar vein, the results for hypothesis 4 suggest that the relationship between employees' self-oriented barriers and personal/impersonal outcomes stemming from volunteering becomes more negative as the level of intraorganizational support increases, which is also a counterintuitive finding. This phenomenon can be explained by the concept of *reactance arousal* (e.g., Bélanger *et al.,* 2021; Nesterkin, 2013), wherein individuals experience

heightened resistance or aversion in response to perceived threats to their freedom or autonomy. When organizations offer substantial support for volunteering, employees facing self-oriented barriers will perceive the organization's effort as an attempt to exert control or influence over their volunteering decisions. The perception of external pressure or manipulation can trigger reactance mechanisms, leading to increased resistance or defiance towards CV. Employees may resist the organization's efforts to facilitate their participation in volunteering, viewing them as intrusive or unwelcome interventions that undermine their autonomy or personal agency. As such, the provision of extensive support will inadvertently highlight the disparity between the staff's perceived capabilities and the organization's expectations or standards of volunteering participation. Employees facing self-oriented barriers can compare themselves unfavourably to their peers or colleagues who can engage in volunteering despite similar constraints, leading to feelings of inadequacy, guilt, or self-doubt. This social comparison process will further intensify the negative impact of self-oriented barriers on outcomes, exacerbating the staff perception of volunteering as a mandatory or obligatory task rather than a voluntary choice driven by personal interests or values, which leads to decreased satisfaction derived from CV.

All in all, while the negative moderation of intraorganizational support on the relationship between employee's self-oriented barriers and personal/impersonal outcomes stemming from volunteering can be attributed to the activation of reactance mechanisms and social comparison processes, the same moderating effect on the relationship between employee's self-oriented motivations and outcomes highlights the complex interplay between individual motivations and organizational context. Although organizational support can provide opportunities and resources for employees to engage in volunteer activities (e.g., Kao *et al.,* 2023; Qi *et al.,* 2019; Silva *et al.,* 2022), it may also diminish the intrinsic value and personal significance of employees' contributions, thereby attenuating the positive outcomes associated with self-oriented motives.

5.1. Theoretical and practical implications

Our study has several theoretical and practical implications. From a theoretical point of view, this research aimed at discovering the relevance of intraorganizational support on the employees' participation in CV. The study is one of its kind that attempted to go beyond the individual psychological variables and considered the relevance of contextual elements in determining staff engagement with volunteering programs. According to several scholars (e.g., Hidalgo and Moreno, 2009; Johns, 2017), most studies ignore the indispensable influence of organizational context in influencing individual employee behaviour either by creating constraints or providing opportunities. Most often, extant studies consider the staff-related psychological variables alone and largely ignore the fact that volunteering activities take place within the organizational context. Injecting employees' perspectives reveals that they reflect on their organization's motives for adopting CV and that their interpretation of *legitimate* organizational gain is shaped by their motivations and barriers. Therefore, the results reaffirm that volunteering literature should expand to consider the contextual elements in assessing employee volunteering behaviour.

The findings of this study also have important implications for practitioners. There is a growing concern over the rate of employee participation in volunteering programs (Gómez and Fernández, 2017; Grant, 2012; Willems and Dury, 2017). Accordingly, identifying factors that could facilitate better staff participation will form the knowledge repository for organizations, particularly, HEIs, to integrate it as part of their CV program design. Organizational fit sends a signal to employees that volunteering activities are also a reflection

of their organizational values, and they deem to support those activities. Therefore, our research highlights the importance of maintaining a delicate balance between organizational support activities and intrinsic motivations/barriers to volunteering. By adopting a tailored approach to provide support, fostering a culture of volunteering, promoting autonomy, and requiring feedback from employees, HEIs can cultivate a conducive environment that maximizes the positive impact of volunteering activities while preserving employees' intrinsic motivations and enhancing their overall well-being and satisfaction.

5.2. Limitations and future research

We also acknowledge the limitations of our work, which offer opportunities for future research. This study has explored the relevance of intraorganizational support with specific reference to CV implementation. However, Opoku-Dakwa *et al.* (2018) highlight that organizational support for CSR initiatives can be categorized into human support, informational support, material support, and psychosocial support. Future studies should consider these categories to expand existing research on volunteering. Furthermore, a longitudinal study of volunteering behaviour can provide additional insights into how employees' participation in CV changes over time. The generalizability of the study findings can also be limited to the geographical context in which the research has been conducted. Future studies should expand the analysis to other countries and regions to account for the influence of distinctive cultural settings.

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A scientific paper

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DIFFERENCES IN SATISFACTION AND FUTURE BEHAVIOUR BETWEEN FIRST-TIME AND REPEAT HIKING EVENT VISITORS

ABSTRACT

Mountain areas of Croatia, including Velebit, are considered lagging areas, whose economic development greatly depends on tourism. Due to their sensitive and diverse landscape, developing tourist products that are in line with sustainable development is needed. Hiking products in the form of individual, as well as organized and commercial visits (events), fall into this category since hikers have a great sense of responsibility towards nature, and their travels are mostly motivated by nature. Being sustainable means having an economically sound business as well, and organizations achieve this goal by having satisfied and loyal customers (willing to return and recommend the product to others). The level of satisfaction and loyalty might differ depending on customers' previous experience with the product, namely if they are first-time or repeat users.

This paper aims to analyse differences in satisfaction with nine different event attributes and total satisfaction between first-time and repeat participants of an organized commercial hiking event held on Velebit mountains in 2022 in Croatia. Additionally, their intention to return to the event and recommend the event to others is discussed. In total, 170 questionnaires were analysed with 87,6 % share of first-time event participants. Both groups showed high levels of satisfaction with all analysed items (attribute and overall satisfaction), with first-time participants being slightly more satisfied. Statistically significant differences were found only in one attribute, "attraction of the trail". Also, both groups expressed high intentions to return to the event and recommend the event to others, with no statistically significant differences. Recommendations towards enriching additional activities at checkpoints, and inclusion of variables such as motivation and expertise levels in future research are given.

Key words: *hiking event, commercial organization, satisfaction, future behaviour.*

1. Introduction

Mountains and highlands are an "important source of water, energy and biological diversity" (UN, 1992) which makes them a "major eco system of our planet" (Mountains of the World: Challenges for the 21st Century, 1997). However, there is still a debate on how to define them. Even though interpretations using their height as a reference point have certain shortcomings since they ignore "the essential attributes of mountain regions as landscapes including valleys, which give mountains their distinct character" (Nepal and Chipeniuk, 2005, 315), they seem to be most used ones. In that sense majority of geologists classify a mountain as a "landform that rises at least 1,000 feet (300 meters) or more above its surrounding area" (National Geographic, 2023). Although demarcations are not strict and can be arbitrary, for statistical purposes, 500 meters height above sea-level is a limit, while elevations "below that height are considered hills" (CBS, 2018, 39). Applying that point of view, about 21 % of Croatia's surface is above 500 meters, and the highest peak called Dinara is at 1 831 meters (CBS, 2018). There are several mountain chains in Croatia, and of interest for this paper is Velebit. "Velebit is a cult and mythical Croatian mountain, 'a holy mountain', a symbol of national identity." (Šikić, Gurlica and Šarić, 2017) It is a home to two national park (Paklenica and Northern Velebit) and several nature parks. However, it is also an area characterised by sparse population density and poor connectivity, making them lagging areas of Croatia (World Bank, 2019). Once an area committed to forestry, farming, and livestock breading, nowadays turns its development towards tourism. And although "tourism should be one, and not the only, means of livelihood and economic development in diversified mountain economies" (Lama and Sattar, 2004) it does play a key role in mountain development (Dax, 2004). According to World Tourism Organization (WTO, 2019, 50), mountain tourism is a

> "type of tourism activity which takes place in a defined and limited geographical space such as hills or mountains with distinctive characteristics and attributes that are inherent to a specific landscape, topography, climate, biodiversity (flora and fauna) and local community."

It is "driven by the human desire to explore the outdoors and experience nature in unique settings" (Food and Agriculture Organization of the United Nations and World Tourism Organization, 2003). Consequently, mountains are a home to different types of tourism such as sports tourism (Bartoluci, Škorić, Andrijašević and associates, 2021), walking (CBI, 2021; LEADER European Observatory and AEIDL, 2001; WTO, 2019a) or adventure tourism (UNWTO and ATTA, 2014) with hiking, walking and nature tourism as predominant activities (Food and Agriculture Organization of the United Nations and World Tourism Organization, 2003). The growth of adventure tourism market is driven by rising tourists' inclination towards soft adventure activities including hiking, but also trekking, cycling, camping, etc. (GVR, 2023), indicating that there are numerous entrepreneurial opportunities (CBI, 2021) in this field. Hiking, as well as all other types of activities in mountains, have become a commodity enjoyed by many, individually or as a part of package adventure holidays which have gained in popularity starting from 1980s (Pomfret, 1982). Nevertheless, even today one of the main challenges is product development (Food and Agriculture Organization of the United Nations and World Tourism Organization, 2003). This is recognized by Croatian government as well since active types of tourism including mountain tourism, have been identified as activities with high potential but currently "lacking strategic approach to its development and product management" (Strategija razvoja održivog turizma do 2030 godine, 2022). Therefore, more detailed research concerned with all forms of mountain tourism is needed, and particular attention should be paid to pull factors influencing the (hikers') choice of a destination (Mohd Taher, Jamal, Sumarjan and Aminudin, 2015).

One of those pull factors relates to organizations and how they do their job both in terms of external and internal evaluation of organizational effectiveness i.e., success (Dhoopar, Sihag, and Gupta, 2023). Different effectiveness measures are used for different constituents (Hitt, 1988), and as a possible external effectiveness measure organization often use customer satisfaction surveys which seems especially important when discussing service sector. Indeed, satisfaction is one of the "key judgements that consumers make regarding a tourism service" (Bowen and Clarke, 2002) and is considered a "crucial element to sustain the competitive business in the tourism industry" (Meng, Tepanon and Uysal, 2008). Satisfaction represents "the degree to which one believes that an experience evokes positive feeling" (Jeong and Kim, 2020, 943), it is "a judgement that a product, or service feature, or product or service itself, provides a pleasurable level of consumption – related fulfilment, including levels of under or over fulfilment" (Oliver 1997 quoted in Meng, Tepanon and Uysal, 2008, 44). Satisfaction is a rather complex term as its antecedents are not only perceived quality (Perić and Čuić Tanković, 2021) of performance operationalized by product attributes, but also consumers' expectations and desires (Yun and Pyo, 2016). This means that it is not enough to provide a consumer with a good quality product. One needs to make them feel good, and this will happen if their expectations are met, and their desires fulfilled. Additionally, service quality in an active sport tourism environment is multidimensional (Perić and Čuić Tanković, 2021) since it entails several different attributes, which makes the process of achieving higher levels of consumers' satisfaction even more complex. Therefore, although the activity itself is the central motivation/desire for active event sport tourists, other attributes of the service cannot be neglected. Additionally, importance of each attribute for overall satisfaction seems to vary depending on the span of consumers' relationship with a firm (Mittal, Katricshis and Kumar, 2001).

This paper aims to analyse attribute and overall satisfaction levels expressed by participants of an organized commercial hiking event in Velebit mountains of Croatia depending on their previous experience with the product (are they first time or repeat users). Furthermore, their future behaviour depending on previous experience is discussed.

1.1. Literature review

Hiking is a niche tourism (CBI, 2021; CBI, 2021a; Nepal and Chipeniuk, 2005; Richins, Johnsen and Hull, 2016) appearing as a part of all three previously mentioned types of tourism. Hiking refers to walking on a hilly terrain or at a steady pace (LEADER European Observatory and AEIDL, 2001, 9), it is a "natural exercise that promotes physical fitness, is economical and convenient, and requires no special equipment." (Britannica, 2023) It is a soft adventure activity (UNWTO and ATTA, 2014) that should not be confused with trekking (CBI, 2021a). It may be differentiated into three types: day hiking, summit hiking, long distance hiking with trips lasting a day or with overnight included, and spans between 4 to 50 kilometres (CBI, 2021). Hiking is more a form of a recreation than a sport (LEADER European Observatory and AEIDL, 2001, 10) but is basic to several sporting activities such as mountain climbing, skiing, orienteering, etc. (Britannica, 2023).

Hikers are active sport tourists (Gibson, Lamont, Kennelly and Buning, 2018) who visit hiking trails on their own or as a part of a group. Different organizations such as mountain clubs, or commercial companies such as tourist agencies (Kyle, Graefe and Manning, 2003) or event organizers, put together events for hikers making them a part of active sport event market. They are associated with eco-friendly and socially responsible cluster of "potential sport tourists" in Europe (Terzić, Demirović, Petrevska and Limbert, 2021). This cluster

encompasses mostly males aged 36 to 45 years, employed, and married with the highest education level and monthly income. They are often childless, and for them responsibility for people and nature comes first. Studies have shown the most important motivating factors influencing hikers' choice of a destination are relaxation (Pan and Ryan, 2007) and rest, followed by nature exploration (Molokáč, Hlaváčová, Tometzová and Liptáková, 2022). Although hikers are mostly domestic tourists visiting destinations in their proximity, a trend of "hiking as an increasingly practiced lifestyle and motive of travel beyond local destinations" has emerged (Food and Agriculture Organization of the United Nations and World Tourism Organization, 2003).

One can argue that a satisfied customer is a returning customer, meaning that satisfaction positively influences future behaviour, and majority of tourism studies have confirmed this relationship (Alegre and Cladera, 2007; Chi, 2012; Jang and Feng, 2007; Kozak, 2001; Žabkar, Brenčič and Dmitrović, 2010). Studies researching sport event tourism differentiate between both active (event) participants and spectators (Škorić, Mikulić and Barišić, 2021). Of interest for this paper are active sport event participants and studies indicate that there is a positive relationship between satisfaction with the event and intention to return to event (Kaplaniodu and Gibson, 2010; Plunkett and Brooks, 2018) or destination where the event was held (Jeong, Kim and Kim, 2020; Jeong, Kim and Yu, 2019).

Nevertheless, this relationship between satisfaction and future behaviour shows a degree of uncertainty (Kaplanidou and Vogt, 2007). There is evidence both in tourism in general (Jang and Feng, 2007), for active sport tourists (Kaplanidou and Vogt, 2007) and mountain tourists, including hiking (Mohd Taher, Jamal, Sumarjan and Aminudin, 2015), that this relationship is not significant. Studies have shown that not only satisfaction, but also motivation, and prior experience (whether they are first-time or repeat visitors) influence visitors' future behaviour (Alegre and Cladera, 2009; Chi, 2012). Findings seem to be somewhat contradictory (Del Chiappa, Tinaz and Tuco, 2014), showing that repeat visitors tend to be more likely to return or spread word of mouth (Alegre and Cladera, 2009; Chi, 2012; Li, Cheng, Kim, and Petrick, 2008; Petrick, 2004) and show higher levels of satisfaction (Li, Cheng, Kim and Petrick, 2008; Petrick, 2004; Shavanddasht and Allan, 2019), but the opposite as well (Anwar and Sohail, 2004; Del Chiappa, Tinaz and Tuco, 2014).

Looking into differences between first-time and repeat visitors is helpful to destinations since it is harder and costlier to attract new visitors (Jeong and Kim, 2020). It is of critical importance for the success of an organization as well (Anderson and Mittal, 2000; Bowden, 2009), as the likelihood of their survival becomes at stake without loyal consumers (Assael, 1984 in Jeong, Kim and Kim, 2020). Even at the same level of rated satisfaction, "repurchase rates are systematically different among different customer groups" due to differences in satisfaction thresholds, response bias and nonlinearity between satisfaction and repurchase behaviour (Mittal and Kamakura, 2001). Therefore, "firms cannot treat newly acquired and loyal customers the same way" (Mittal, Katricshis and Kumar 2001, 352). That is why the aim of this paper is to analyse the level of satisfaction among different types of hikers, namely first-time and repeat visitors, and their intention to revisit and recommend the product (hiking event) to others.

There have been only several studies exploring differences between first-time and repeat hiking tourists (Oh, Kim, Choi and Pratt, 2019). According to Pan and Ryan (2007) visitors with strong (higher) motivations to visit, who live close to the mountain (within a 30 km radius), and who are repeat visitors have higher satisfaction levels and stronger intent to

recommend the part to others. Although not exploring first-time and repeat visitors, Li, Zhou and Ryan (2017) state that experts (which are more likely to be repeat visitors) were more satisfied than others and reported higher intention to revisit. Similarly, Song, Gaefe, Kim and Park (2018) identify three subgroups of hikers: novice, affection-driven and expert groups. Novice group was less experienced with highest number of those that visited the trail in question for the first time and could fall into a category of first-timers. This group reported lower levels of satisfaction with activity, the nature and amenity dimension as well as less intention to revisit the trail. Oh, Kim, Choi and Pratt (2019) concluded that first-time and repeat hikers sought different benefits (have different needs) from their hiking experience on the trail located in the island, and that repeat visitors showed higher satisfaction with the trail.

It should be stated that all previously mentioned research was conducted with hiking tourists that have visited hiking trails or natural parks on their own and not as a part of an organized or commercial group (Kyle, Graefe and Manning, 2003). Also, mostly overall satisfaction measures have been used, and not attribute ones. There is evidence that the relationship between satisfaction and attribute-level performance is non-linear and asymmetric (Busacca and Padula, 2005) indicating the need to research into attribute satisfaction as well. This paper aims to analyse differences between first-time and repeat participants of an organized commercial hiking event in Croatia. Following the logic of Del Chiappa, Tinaz and Turco (2014), and Škorić, Mikulić and Barušić (2021) that repeat visitors' expectations are higher second time around, and consequently their satisfaction might be lower if those expectations have not been met, a first hypothesis was developed in the following manner:

H1 = First-time Highlander hiking event participants are more satisfied than repeaters.

Additionally, the intention to return to the event and recommend the event to others by both groups (first-time participants and repeaters), will be discussed. Based on previous research conducted with hikers, following hypothesis have been developed:

H2 = Repeat Highlander hiking event participants are more likely to return than first-timers.
H3 = Repeat Highlander hiking event participants are more likely to recommend the event to others (spread "word of mouth") than first-timers.

2. Methods

2.1. Study setting and design

An event known as a *Highlander* is a long-distance hiking event that requires active participation but has no competitive character, i.e. it is not a race. First *Highlander* event was organized in Velebit mountains of Croatia in 2017, and has since spread to three continents and 13 countries (Highlander, 2023). Participants can, depending on a country staging the event, choose between four different formats named after constellations (Orion, Pegasus, Hercules and Ursa Major) (Higlander, 2023a). They differ according to number of miles to be hiked (from 15 to 100 miles) and consequently the number of days needed to hike that distance (2 to 5 days' journey). Depending on the format, according to CAI hiking scale of difficulty, they would fall into category T (Turistico) or E (Escursionistico), or T1 (Hiking) and T2 (Mountain hiking) using SAC scale (Molokáč, Hlaváčová, Tometzová, and Liptáková, 2022).

It is a soft adventure hiking event which does not require specialized competences or equipment. It is open to everybody, but the organizers do recommend 100-200 km of light hiking in the months leading to the event to better prepare for the trail. It is a safe event, participants are given safety instructions, recommendations on packing, and organizers prepare food and drinks for each participant and for every day of the event. Along the trail checkpoints are established where volunteers helping the participants are stationed, and additional education or entertaining programme is provided. Even if the risk is being minimised by the organizers, it can still be regarded as adventure since adventure is a subjective and relative term (Đurin, 2022).

Highlander events are organized at two different locations in Croatia. On Velebit mountain (National parks of Northern Velebit and Paklenica) participants can choose between three formats (Orion, Pegasus and Hercules) and on mountains of Medvednica above Zagreb just Pegasus format. In this paper, events held on Velebit in 2022 are being analysed. In total 180 participants filled the questionnaire yielding a 31 % response rate. After elimination of the ones not properly or fully filled, in total 170 questionnaires were analysed. The questionnaire was developed by the organizers, and it is the same for all event formats, and every location where they are held.

Participants were asked to rate their satisfaction on a scale from 1 (dissatisfied) to 5 (very satisfied) with nine attribute variables and their overall satisfaction (Table 1). As a variable showing future intentions, participants were asked to say if they intend to return to the event (either the same or other *Highlander* events at different locations) and to recommend the event to others.

2.2. Results

Majority of participants were males (62%) and between 40 and 49 years of age (38%). Participants are mostly coming from Croatia (92%) but also from Slovenia, Czech Republic, Poland, Serbia, Germany, France, Columbia, Great Britain, Austria, Bosnia and Hercegovina, Irland, and Hungary.

For majority of interviewees this was the first time they participated at the event (87.6 %). This means that this is the first time they participated at a *Highlander* hiking event of any kind and at any other location. Therefore, first-time visitors means that this is their first experience with *Highlander* events and company organizing these events, and not hiking in general. However, when asked if they participated at any other similar event, a small portion of first-timers (16,8 %) stated that they have hiked before either on their own or as a part of mountaineering clubs. Only 21 interviewees had prior experience with *Highlander* events and for the purpose of this study, they are referred to as repeat visitors. Majority of them (14 interviewees) experienced *Highlander* events in other countries (such as Slovenia, Serbia, Macedonia or Bosnia and Herzegovina), and only 7 have prior experience with Velebit (they participated at Velebit *Highlander* events in the previous year). The results about satisfaction levels for each of the analysed event attribute and overall satisfaction for first-time participants and repeat participants are presented in Table 1.

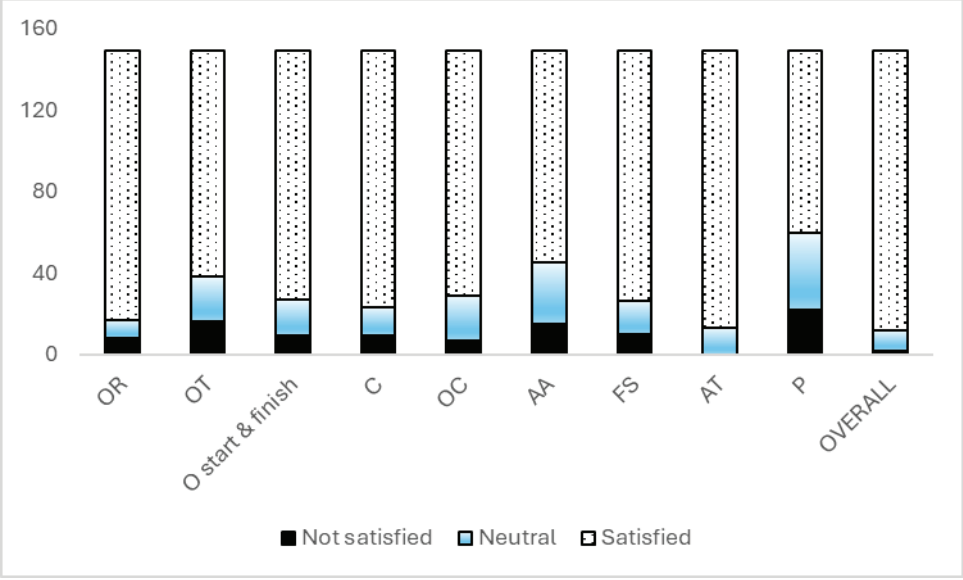
Table 1: Attribute and total satisfaction

Attributes	*FIRST-TIME PARTICIPANTS*			*REPEAT PARTICIPANTS*			T-TEST
	Mean	**SD**	**N**	**Mean**	**SD**	**N**	
The process of online registration (OR)	4,52	0,859	149	4,19	1,167	21	0,229
Organization of transfers (OT)	4,14	1,163	149	3,48	1,365	21	0,018
Organization and capacities at start and finish zones (O start & finish)	4,35	0,915	149	4,14	0,964	21	0,338
Communication with organizers before and at the event (C)	4,42	0,916	149	4,10	1,044	21	0,142
Organization of checkpoints (OC)	4,33	0,919	149	4,10	0,889	21	0,275
Additional activities at checkpoints (AA)	4,05	1,089	149	3,71	1,007	21	0,179
Food supply (FS)	4,33	0,940	149	3,90	1,044	21	0,058
Attractiveness of the trail (AT)	4,68	0,627	149	4,52	0,814	21	0,292
Price of the registration fee (P)	3,63	1,009	149	3,24	0,995	21	0,096
Overall satisfaction (OVERALL)	4,67	0,662	149	4,57	0,811	21	0,531

Source: Authors

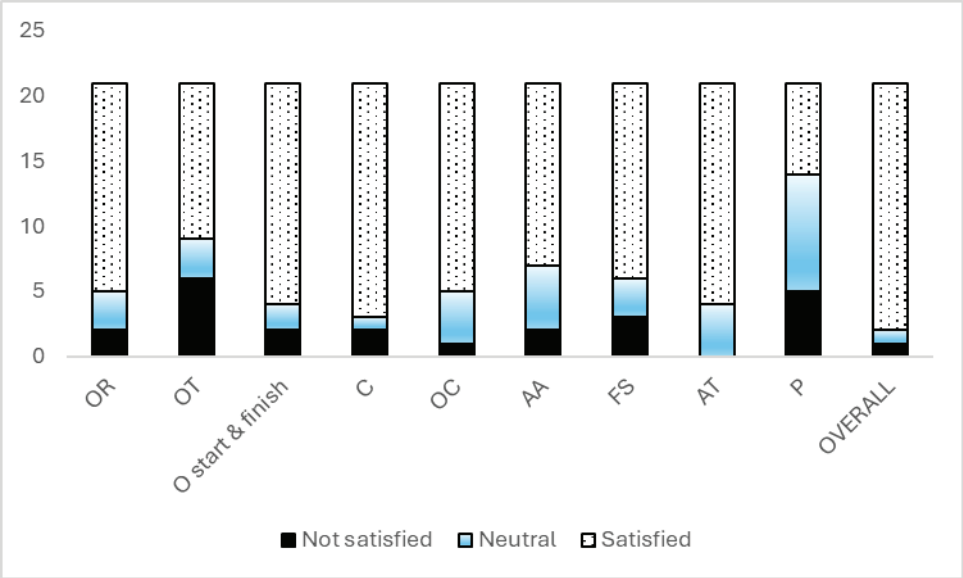
It is evident that first-time participants do show somewhat higher levels of satisfaction with each event attribute and overall satisfaction. These differences can be more clearly seen in graphs 1 and 2 where grouped satisfaction ratings are showed. "Not satisfied" group accounts for interviewees grading that attribute and overall satisfaction with grades 1 (very dissatisfied) and 2 (dissatisfied), and group called "Satisfied" includes gradings of 4 (satisfied) and 5 (very satisfied). Group entitled "Neutral" represents the views of those neither satisfied nor dissatisfied.

Graph 1: Grouped satisfaction ratings for first-time participants



Source: Authors

Graph 2: Grouped satisfaction ratings for repeat participants



Source: Authors

It is evident that repeat participants have a somewhat higher share of those who were unsatisfied, while neutral ones vary. Interestingly, "Attractiveness of the trail" is the only attribute that was not rated as unsatisfactory in both observed groups. Additionally, a statistically significant difference in satisfaction levels was found only for attribute "Attractiveness of the trail" ($p = 0{,}038$) leading to rejection of first hypothesis. Both groups of participants seem to be very satisfied. The lowest mean score in both groups was for the attribute "Price of the registration fee" (3,63 for first-time participants and 3,24 for repeat participants), and both groups were most satisfied with "Attractiveness of the trail" (4,68 mean score for first-time participants and 4,52 for repeat participants).

Almost all participants expressed intention to either return to *Highlander* events (95.3 %) or recommend the event to others (98.2 %). Interestingly all repeat participants said that they will return and recommend the event to others, and about 95 % of first-time participants would do the same. However, based on the results of Pearson's chi-square test both second and third hypothesis can be rejected since that higher levels of repeat participants' intention to return to the event (1,183; $p=0.28$) and recommend the event to others (0,460; $p=0.512$), were not statistically significant (Tables 2 and 3).

Table 2: Crosstabulation of variable intention to return to *Highlander*

FIRST-TIME PARTICIPANTS		INTENT TO RETURN TO HIGHLANDER		TOTAL
		Yes	No	
Yes	Count	141	8	149
	% within first-time participants	94.63%	5.37%	100.00%
	% within intent to return	87.04%	100.00%	87.65%
No	Count	21	0	21
	% within first-time participants	100.00%	0%	100.00%
	% within intent to return	12.96%	0%	12.35%
Total	Count	162	8	170
	% within first-time participants	95.29%	4.71%	100.00%
	% within intent to return	100.00%	100.00%	100.00%

Source: Authors

Table 3: Crosstabulation of variable intention to recommend the event ("word of mouth")

FIRST-TIME PARTICIPANTS		WOM		TOTAL
		Yes	No	
Yes	Count	146	3	149
	% within first-time participants	97.99%	2.01%	100.00%
	% within WOM	87.43%	100.00%	87.65%
No	Count	21	0	21
	% within first-time participants	100.00%	0%	100.00%
	% within WOM	12.57%	0%	12.35%
Total	Count	167	3	170
	% within first-time participants	94.24%	1.76%	100.00%
	% within WOM	100.00%	100.00%	100.00%

Source: Authors

3. Discussion and conclusions

Research has shown that all hiking event participants (both first-time and repeat visitors) were most satisfied with the attribute "attractiveness of the trail". The attribute connected with nature element, attractiveness of the route, the scenery has proven to be an important factor for hikers in terms of motivation (Molokáč, Hlaváčová, Tometzová and Liptáková, 2022), their desires (Nepal and Chipeniuk, 2005) and sought benefits (Oh, Kim, Choi and Pratt, 2019). Additionally, discovery (viewing new places and things, having adventure, viewing the scenery, and enjoying the wilderness) has shown a positive relationship with hiking satisfaction (Bichler and Peters, 2021) making high satisfaction with this attribute desirable by organizers. Interestingly, statistical differences in satisfaction levels between first-time and repeat participants were found only for this attribute. This could be explained by the fact that

"observing fantastic natural landscape" was more important benefit sought by first-time visitors (Oh, Kim, Choi and Pratt, 2019). Due to their previous experience with the trail, repeat participants already had a chance to enjoy that scenery and their expectations were higher and different second time around. For repeat visitors "feeling relaxed" is more important benefit (Oh, Kim, Choi and Pratt, 2019) forming a link between satisfaction and attributes that "generate a sense of relaxation, namely the pull of the mountain scenery" (Pan and Ryan, 2007), which might explain why they were most satisfied with this attribute. Attraction of the trail is an attribute that cannot be controlled by the organizers. However, the choice of the trail is, and organizers do put the choice of a location at a forefront of their promotional activities calling them "iconic" (Highlander, 2023b).

Although first-time event visitors showed a somewhat higher levels of satisfaction, other attributes, which are under organizers' control, did not yield any statistically significant differences between first-time and repeat visitors of the event, thus rejecting the first hypothesis. The results are in line with the results gained by Chi (2012). First-time visitors graded all but one attribute above 4 (satisfied) and repeat visitors did the same for four attributes (organization of transfers, additional activities at checkpoints, food supply, and price of the registration fee).

It should be noted that both groups were least satisfied with the price of the registration fee. Since functional value (including price and "value for the money") has shown to positively influence both satisfaction and destination loyalty (Jeong, Kim and Kim, 2020) organizers should find ways to accommodate this relationship. Perhaps improving additional activities at checkpoints might be a way to do this, making visitors feel they got more for their money. Educational programmes concerned with the trail itself (Oh, Kim, Choi and Pratt, 2019) or hiking and leisure education, as well as skill enhancement (Li, Zhou and Ryan, 2017) would further increase hiker satisfaction.

Both first-time and repeat event visitors expressed high levels of intention to revisit the event and recommend it to others, but second and third hypothesis are rejected since there is no statistically significant difference between the groups, which is not in line with previous research on hikers (Li, Zhou and Ryan, 2017; Oh, Kim, Choi and Pratt, 2019; Pan and Ryan, 2007; Song, Gaefe, Kim and Park, 2018). Possible explanation for this might be in the fact that those researchers analysed opinions of individual hikers and not the ones involved in an organized commercial hiking event. Also, they explored intentions to return to destination and not intent to repurchase a service as was the case here. However, the role of an organizing company in the sense that it provides sufficient information/education, is able to answer all queries and ensures safety before, during and after hiking, does have a significant effect on revisit intentions (Mohd Taher, Jamal, Sumarjan and Aminudin, 2015) and organizers have to ensure that these demands are met.

4. Limitations and future research proposals

Basic limitation of the paper refers to the fact that the organizers developed the questionnaire, which might lead to some design flaws. For example, factors such as motivation and expertise level (Li, Zhou and Ryan, 2017; Song, Gaefe, Kim and Park, 2018) have shown to be important predictor of satisfaction and intent to return. It is therefore advisable to include these factors in the questionnaire for a more detailed future analysis. also, some external attributes (outside organizations' influence) related to the landscape scenery are important

pull factors for hiking (Molokáč, Hlaváčová, Tometzová and Liptáková, 2022) and emerge as a strong predictor of the revisit intentions to mountain (Mohd Taher, Jamal, Sumarjan and Aminudin, 2015), future research should include these factors as well when researching future behavioural intentions of hikers.
Additionally, the aim of this paper was not to research into connection between overall and attribute satisfaction and future behavioural intentions, but a positive relationship was assumed. It would be advisable to investigate this relationship in the case of an organized commercial event.
Finally, a comparison between different (*Highlander*) events could also help in explaining differences in satisfaction between different types of consumers, i.e. hikers. Tracking these differences over time is another proposal to be considered and discussed with event organizers.

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A scientific paper

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IMPACT OF CROATIA'S SPORTS SUCCESSES ON DOMESTIC TOURISM AND ITS SUSTAINABILITY

ABSTRACT

The paper analyzes the extent to which Croatian sporting successes affect Croatian tourism and the main question is there correlation and causality between Croatian sport successes and the increase in the number of tourist arrivals and overnight stays in Croatia. The thesis that Croatia's sport successes have a positive effect on tourism trends can often be heard in the public space, with the explanation that Croatian athletes promote Croatia in the world through their successes, and some of the arguments claim that such promotion of Croatian tourism could not be achieved by other, classic forms of the promotions. While such claims remain at the level of speculation for now, it can be said that Croatian sport, having achieved a series of truly exceptional successes at the international level, has increased visibility of Croatia not only in the field of sport but also on the world tourist map. However, the question remains to what extent this has affected tourism trends. If Croatia's sport successes are indeed responsible for the increase in the number of tourists, it should be investigated which destinations are exactly the most popular and whether these destinations are ready to receive more tourists. This question is necessary because Croatia has been struggling with unsustainable tourism for decades, which is taking an increasing toll, both ecologically and socially. Now, with the existing infrastructure, Croatia is not ready for more tourists. Until there are clear, quantitative, and qualitative indicators of the influence of domestic sports successes on Croatian tourism, based on which the offer could then be valorized and improved, Croatia should/could focus more on sports tourism, which could alleviate seasonality, reduce pressure on the coast and islands and make tourism more sustainable.

Key words: *sustainable development, sustainability, sport, sports tourism, tourism.*

1. Introduction

In public discourse, the assumption is often emphasized that Croatia's sports successes play a significant role in promoting the country as a desirable tourist destination. It is believed that this type of promotion allows Croatia to have a presence on the world stage in ways that surpass the capabilities of traditional marketing. Despite the intuitive persuasiveness of this thesis,

supported by the global visibility that sports achievements provide, systematic research that would quantitatively and qualitatively evaluate such claims is largely limited. The aim of this research is therefore to thoroughly examine and quantify the impact of sports successes on the tourist attractiveness and sustainability of Croatia, thus making a valuable contribution to the discussion and understanding of this dynamic. Given the exceptional sports achievements that Croatia has achieved at the international level, there is a clear increase in the country's visibility not only within the sports sphere but also globally in the tourism sector. However, a precise assessment of the impact of these achievements on tourist movements requires a more detailed analysis. Considering Croatia as a geographically and economically smaller country that stands out in the global tourism market, it becomes evident that there are additional factors contributing to its competitiveness and attractiveness. Among these factors, sports emerge as a potentially key component, although further research is needed to understand the specificity and depth of its impact. Additionally, the question arises of the readiness of individual destinations for an increased influx of tourists that could result from sporting successes, as well as the impact on the sustainability of tourism in light of the ecological and social challenges that the country faces.

Significant sports achievements, such as the success of the Croatian national football team at the 2018 World Cup, the success of tennis players Marin Čilić and Iva Majoli, and the gold Olympic medals won by Croatian rowers and handball players, provide insight into how specific sports successes contribute to the perception of Croatia as a tourist destination and how they can influence tourism trends and sustainability in Croatia. Therefore, at the core of this research lies the effort to thoroughly explore and quantify the consequences that specific sports achievements have on the tourist attractiveness and sustainability of Croatia. In order to deeply understand these dynamics, the study focuses on analyzing the impact that significant sports events and achievements, such as the success of the Croatian national football team in international championships, have on the country's tourism flows. In this regard, the study directs attention to two key aspects: a quantitative analysis of changes in the number of tourist arrivals and overnight stays, and a qualitative evaluation of changes in the perception and reputation of Croatia as a destination in the international tourism market. The research was conducted with the question of the quantitative impact of selected sports triumphs on tourist movements within Croatia, with a special emphasis on changes in the number of arrivals and overnight stays. In addition, the study aims to understand how the successes of Croatian athletes at the international level contribute to the qualitative aspects of the tourism offer, influencing the perception and reputation of the country as a desired tourist destination. Furthermore, the possibility of identifying specific elements or strategies in tourism promotion that effectively use sports achievements to enhance the sustainability of Croatia's tourism sector is explored. In this context, the following hypotheses were set: first, that sports successes have a positive effect on increasing tourist arrivals and overnight stays, especially after internationally significant sports events; second, that the perception of Croatia as a desirable tourist destination improves with the success of its athletes, thereby contributing to strengthening the national reputation; and third, that the implementation of tourism strategies that integrate sports achievements significantly contributes to the development of sustainable tourism in Croatia.

2. Recent trends in domestic tourism

Croatia is a globally popular tourist destination, primarily thanks to its relatively preserved nature, favorable climate conditions, diverse terrain, and exceptionally indented coastline with numerous islands. Although the Croatian Tourist Board, together with the current ruling

political parties, tries to convince citizens that Croatia's popularity as a tourist destination is primarily the result of different strategies and carefully crafted policies, that is not true - in fact, the reality is quite the opposite: tourism in Croatia mostly happens accidentally and by inertia due to factors unrelated to institutional strategies, plans, and policies. Croatia still largely sells the concept of "sun and sea" in the global tourism market and actually - despite the nominal existence of a large number of strategies, action plans, etc. - lacks a clear vision for tourism development. One of the outcomes of this situation is the emergence of spontaneous tourism: in a country struggling with the pressure of economic crisis, rising unemployment, an inefficient state apparatus, government corruption, etc., tourism becomes a kind of lifeline for many over-indebted and underpaid citizens. Thus, year after year, the number of apartments increases (where quantitative growth does not necessarily accompany an increase in quality), and Croatia as a tourist destination continues to grow in popularity thanks to its natural beauty and relatively good geographical and transportation position.

For the purpose of a deeper understanding of the dynamics between sports achievements and tourism, this paper applies an analytical methodology focused on reviewing secondary data. Data selection is based on rigorous criteria that allow for a precise analysis of the relationship between the sports successes of Croatian athletes and tourism trends in Croatia. Priority is given to data related to tourist movements (arrivals and overnight stays) for the period preceding and following significant sports events, such as world and European championships where Croatian athletes have achieved notable successes. The analysis includes data collected from the Croatian Tourist Board and other relevant institutions that monitor tourist flows. The analysis is based on a wide range of sources, including statistical data from the Croatian Tourist Board, media reports on sports achievements, as well as academic and professional literature on the subject of tourism and sports. Specific emphasis is placed on identifying and analyzing trends in tourist movements that may be directly or indirectly linked to the successes of Croatian athletes on the international stage. The goal is to provide an objective assessment of the existing evidence on the impact of sports achievements on the perception of Croatia as a desirable tourist destination and its tourism sustainability.

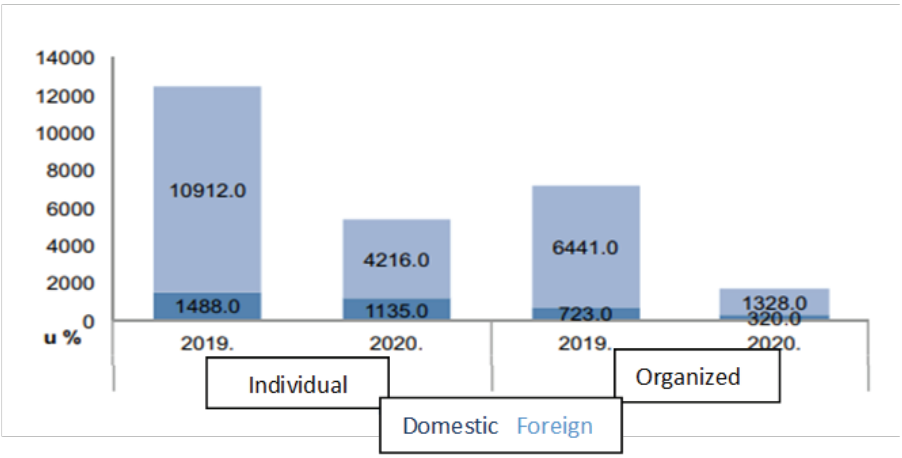
The methodological approach, based on a comprehensive analysis of available data, enabled an objective evaluation of the impact of sports achievements on tourist movements and contributions to the development of tourism sustainability. Through this methodology, the work not only identifies basic trends but also provides insight into how specific sports events can serve as a catalyst for promoting Croatia as a desirable tourist destination and stimulate thinking about further strategies for sustainable tourism development. In the upcoming segment, the focus is on presenting specific data that reflect how Croatia, faced with global challenges such as the COVID-19 pandemic, continues to maintain its status as a leading country in the tourism sector, with research on a long-term growth trend that further confirms its growing popularity among international tourists. The popularity of Croatia as a tourist destination, both globally and on a global level, is evidenced by data from the previous decades when tourist numbers almost continuously increased - Croatia has been experiencing practically constant growth in tourist traffic for many years - reaching its peak in 2019, the last pre-pandemic year, when a record number of arrivals and overnight stays were recorded. After that, tourist movements, not only in Croatia but worldwide, decreased due to the spread of the COVID-19 disease. Prior to that, Croatia was ranked 27th on the list of leading tourist countries (Sustainable Tourism Development Strategy by 2030, 2022). In 2019, Croatian tourism (which is relevant in this case as pre-pandemic) generated a total revenue of 10.539 billion euros - for comparison, 10 years earlier, in 2009, the revenue generated was 7.115 billion euros (Ministry of Tourism, 2020).

Tourism is one of the key economic activities in Croatia, accounting for almost a fifth of the GDP when activities that benefit from tourism directly and indirectly are combined (Sustainable Tourism Development Strategy by 2030, 2022). According to the data from the Croatian Bureau of Statistics (2020), in 2019, the direct contribution of tourism to the total GDP was 11.8 percent, and according to the World Travel & Tourism Council (WTTC), the direct and indirect contribution of tourism to the GDP is around 25 percent. This share has been rapidly increasing since the early 2000s: in 1999, 2000, 2001, and 2002, the share was around 12 to a maximum of 13.9 percent, but then in 2003, it sharply rose to 19.9 percent, and in the following years, with minor variations or stagnation, it generally increased (Ministry of Tourism, 2005). Today, Croatia is among the countries with the highest share of tourism (direct and indirect) in the total GDP, with Greece at 20.3 percent, Portugal at 17.1 percent, Malta at 15.8 percent, Spain at 14.1 percent, Cyprus at 13.8 percent, Italy at 13.1 percent, and Austria at 11.8 percent. Furthermore, an additional issue is that the share of tourism in GDP continues to rise (Sustainable Tourism Development Strategy by 2030, 2022), which is a clear indicator of negative trends in the Croatian economy, such as the lack of production, the closure of numerous industries, and so on. In fact, the development of tourism largely relies on the fact that other industries especially manufacturing ones, in Croatia have been practically destroyed. Moreover, the further growth of the already high share of tourism in GDP is also a clear predictor of the increasing negative consequences of the mass tourism growth - existing and growing apartments concreting of the coast are just some of them. For example, one of the characteristics of Croatian tourism is that Croatia is one of the EU countries with the highest share of private accommodation - private accommodation accounts for over 60% of total accommodation (Sustainable Tourism Development Strategy by 2030, 2022), which can also be viewed in the context of apartments, or the haphazard nature of tourism caused by poor economic conditions and the decline of most other industries, leading more and more citizens to turn to tourism as a primary or additional source of income. Experts have been warning for years that an economy model heavily reliant on tourism is not adequate or sustainable for a variety of reasons. One of them is the fact that tourism is a very sensitive industry, especially when it comes to natural disasters, which are becoming more frequent due to climate change, as well as unrest, wars, conflicts, and public health issues, such as the current pandemic, which has clearly demonstrated the fatal consequences of overdependence on tourism for the economy. In this regard, Dioko (2022) emphasizes that relying on tourism increases the economy's vulnerability to economic downturns and risks during emergencies and global challenges, such as the COVID-19 pandemic. Investments in tourism alone are not sufficient to promote economic development; the real contribution of tourism to economic growth is achieved when it is integrated into a broader development strategy targeting key drivers of average income (Du et al., 2016). Although there is a proven positive relationship between tourism and economic growth, the degree of this relationship varies depending on the country and within different quanta of countries. Tourism activities are recognized as key drivers of economic growth, employment, income generation, and foreign exchange earnings, and play a role in improving the balance of payments and increasing government revenues (Khalil et al., 2007).

Tourist movements in recent years clearly show this. Thus, 2019 was a record year in many receptive tourist countries, including Croatia, and this trend would likely have continued, but the COVID-19 pandemic that followed in 2020 halted that potentially upward trajectory and drastically reduced tourist movements. The World Health Organization (WHO) declared the pandemic in March 2020, after which tourist numbers began to plummet. The World Tourism Organization (WTO) declared 2020 as the "worst year in the history of tourism" due to a decrease of one billion tourist arrivals compared to 2019, resulting in a global decrease of 74 percent in tourist arrivals (in the crisis before the pandemic, in 2009, the global decline in tourist

arrivals was 4 percent, which today, compared to pandemic figures, seems almost insignificant (World Tourist Organization, 2020). However, despite this rather bleak scenario on the global tourism scene, more optimistic predictions began in the second half of 2020, announcing the imminent growth of international tourist arrivals, which eventually came true. In Croatia in 2019, before the pandemic, a total of 19,564,000 tourist arrivals were recorded (both individual and organized), of which 17,533,000 were foreign and 2,211,000 were domestic tourists. The following year, after the declaration of the pandemic, the total number of arrivals decreased by almost three times (Graph 1), with 6,999,000 tourist arrivals recorded, including 5,544,000 foreign tourists and 1,455,000 domestic tourists (Tourism in numbers 2020, 2021). There was a significantly larger drop in the number of foreign tourists compared to domestic, which can be easily explained: first, after the declaration of the pandemic and during a period of high infection rates, restrictions on international travel were in place, especially travel by airplanes, buses, and other means of mass transportation; second, each country encouraged its residents to vacation within their own country to help with economic recovery. Ultimately, for citizens, during a pandemic that brought economic stagnation, rising unemployment, and uncertainty, it was more acceptable and primarily more cost-effective to go on vacation to a destination within their own country rather than abroad.

Graph 1: Tourist arrivals in 2019 and 2020 in Croatia

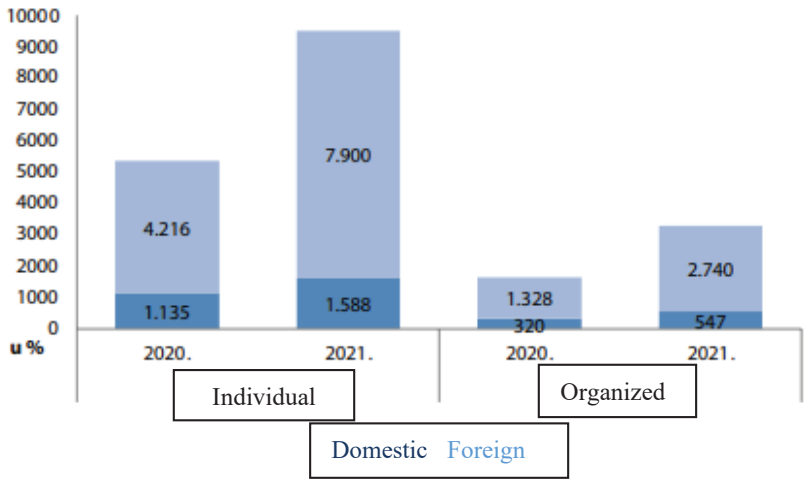


Source: Tourism in figures 2020, 2021

When it comes to the number of overnight stays, in 2019, Croatia recorded 91,243,000 overnight stays, while in 2020, that number dropped by more than 50 percent, with only 40,794,000 overnight stays recorded (Tourism in numbers 2020, 2021). The biggest drop was observed in the hotel accommodation segment, while private accommodation remained in the first place in terms of the number of overnight stays achieved, with a share of 48.8 percent in total accommodation in 2019 and 59.3 percent in 2020 (Tourism in numbers 2020, 2021) - it is clear that the pandemic has influenced an increase in demand for private accommodation, probably due to less crowding and easier isolation in such facilities compared to hotels. In other pandemic years, namely 2021, a significant recovery in tourist movements is noticeable compared to the previous, first pandemic year (this supports the claim that tourism, although extremely sensitive, is also a very flexible industry that relatively quickly recovers from crises and shocks that cause its stagnation and/or a decline in tourist movements). Thus, in 2021, a total of 12,775,000 tourist arrivals were recorded in Croatia (Graph 2), of which 10,640,000 were international tourists and 2,135,000 were domestic tourists (both individual and organized arrivals included) (Tourism in numbers 2021, 2022). Regarding the number of overnight stays,

a total of 70,2021,000 overnight stays were recorded in 2021, of which 62,847,000 were foreign and 7,354,000 were domestic (Tourism in Numbers 2021, 2022). In 2021, Croatia achieved an average of around 70 percent of the pre-pandemic traffic, or from 2019, in terms of arrivals, and about 86 percent of the 2019 traffic in terms of overnight stays (Ministry of Tourism and Sports, 2021). At the time of writing this article (early 2023), a complete official statement on tourism trends for 2022 has not yet been issued, but according to the basic data from the Croatian Tourist Board (2023), or the initial data from the eVisitor system, which includes tourist traffic in commercial and non-commercial facilities as well as nautical charter, Croatia recorded 18.9 million arrivals and 104.8 million overnight stays in 2022, which is 37 percent more arrivals and 25 percent more overnight stays compared to the previous year. Foreign tourists accounted for 92.3 million overnight stays, while domestic tourists accounted for 12.5 million overnight stays.

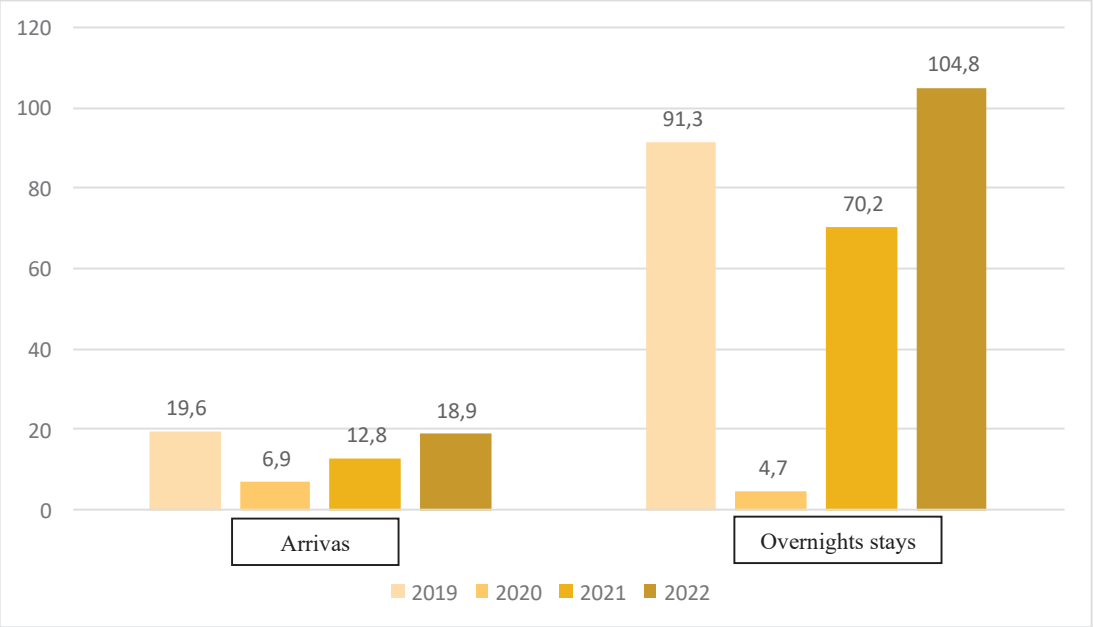
Graph 2: Tourist arrivals in 2020 and 2021 in Croatia



Source: Tourism in figures 2020, 2021

Comparison of tourist movements in 2019, 2020, 2021, and 2022 (Chart 3) shows that the biggest drop due to the pandemic, as expected, was recorded in the first pandemic year, 2020, and that tourism started to recover after that. For example, when comparing the numbers from 2022 with those from the pre-pandemic 2019, it is evident that tourism in 2022 significantly recovered - last year, more than 90 percent of arrivals and more overnight stays were achieved than in the record pre-pandemic year of 2019 (Croatian Tourist Board, 2023). It should be noted that the decline in tourist movements varied significantly when comparing counties and destinations in Croatia, so, generally speaking, the southern part of Croatia was more affected by the pandemic, with a greater decline in tourist numbers than in the northern part of the country (State Bureau of Statistics, 2020), which supports the fact that the northern part of the coast is more developed and visited, except for a few very strong destinations in the southern part such as Dubrovnik and Split. In 2022, according to the data from the Croatian Tourist Board (2023), the most overnight stays were recorded in Istria County (29.5 million), followed by Split-Dalmatia County (19.5 million) and Primorje Gorski Kotar County (18.3 million). Next are Zadar County (14.9 million), Dubrovnik-Neretva County (8 million), and Šibenik Knin County (6.8 million).

Graph 3: Comparison of tourist trends in 2019, 2020, 2021 and 2022 in Croatia (in millions)



Source: Authors according to Tourism in numbers 2019/2020/2021/2022; HTZ, 2023

When it comes to numbers at the city/destination level, the most overnight stays in 2022 were achieved by Rovinj (4.2 million), Dubrovnik (3.8 million), Poreč (3.4 million), Split (3.1 million), and Medulin (3 million). HTZ data (2023) show that, in terms of guest structure by markets, in 2022, the highest number of foreign guests came from Germany (24.9 million), followed by Slovenia (10.1 million), Austria (8.2 million), Poland (6.7 million), Czech Republic (6 million), Italy (4.2 million), United Kingdom (3.7 million), Slovakia (3.3 million), and the Netherlands (3.3 million). According to HTZ data (2023), the trend that intensified during the pandemic continued in 2022, with the dominance of private accommodation. Thus, 39.4 million overnight stays were recorded in apartments in 2022, significantly less in hotels, 22.9 million, and in campsites 20.8 million. Analyzing the data provided, it is observed that although the COVID-19 pandemic had a significant impact on tourism movements in Croatia, differences in the intensity of its impact between different counties and destinations indicate the existence of inherent differences in the tourism attractiveness and development of certain areas. While some parts of Croatia showed greater resilience to the negative consequences of the pandemic, others experienced significant declines in tourist arrivals and overnight stays.

This phenomenon reflects the complexity of the tourism sector and the need for tailored approaches in its management and promotion to ensure long-term sustainability and competitiveness. It is also important to mention that tourism in Croatia has a significant impact on the local community, social structure, and culture, with dual effects. On one hand, tourist arrivals and the development of tourism infrastructure contribute to economic development, create new jobs, and opportunities for the local population. In rural and less developed areas, tourism often becomes a key factor in economic revitalization and the preservation of cultural heritage. However, on the other hand, tourism can lead to gentrification, loss of local traditions, and social tensions between tourists and the local population. For example, overtourism in coastal areas can lead to increases in property prices and cost of living, making life more difficult for the local population (Koredej De-Villa and Šulc, 2021). Additionally, tourism can disrupt local customs and traditions, altering authentic culture in favor of tourist attractions. The financial dynamics of tourism encompass a wide range of economic benefits and

challenges. Direct and indirect tourism revenues significantly contribute to the national economy, creating a ripple effect that promotes growth in various sectors, from hospitality to services and manufacturing. However, the expansion of the tourism industry also comes with costs, including investments in infrastructure such as roads, airports, and urban development, which are crucial to supporting growing tourist flows (Richards, 2018). In addition, the costs of maintaining public spaces, waste management, and preserving natural resources pose significant challenges. Investment strategies in tourism projects must carefully weigh expected returns on investment against costs and potential risks, considering the long-term sustainability of projects (Cohen and Cohen, 2012). Economically, socially, and environmentally, the effects of tourism have a significant impact on all destinations visited by tourists, regardless of the number of visits or geographic location. While the impacts, whether positive or negative, can be quantified by certain methods over a specific period of time, their intensity and manifestation vary significantly depending on the specific characteristics of each destination. These factors include the capacity of sensitive natural and cultural sites to withstand visitor pressure and the ability and willingness of the community under influence to adapt to the new conditions. There is a growing consensus among experts that the measure of tourism success should not solely be the number of visitors, but rather the extent to which tourism contributes to the local economy and creates net benefits for the destination. Therefore, it is crucial to establish a balance between harnessing the tourism potential and ensuring economic, social, and environmental sustainability (OECD, 2018; Peeters et al., 2018). Furthermore, the funding for this research was carried out solely from the authors' own resources, enabling independent study and analysis of available data without external influences. Self-financing of the research ensured objectivity in interpreting the results and provided a basis for unbiased understanding of the impact of sports achievements on tourism in Croatia. This approach contributes to the academic integrity of the work and encourages further research in this area, opening up space for deeper insights and the development of strategies based on solid scientific evidence. Therefore, continuous monitoring of tourism trends and analysis of the impact of different factors on tourism movements are crucial for understanding and managing tourism in Croatia. This study, based on the analysis of secondary data and independent of external funding, makes an important contribution to understanding the dynamics between sports achievements and tourism, highlighting the need for further research to further explore these connections and provide guidelines for sustainable development of the tourism sector. The idea behind such sustainable development of the tourism sector is to visit locations without causing harm to the local community and nature and to have a constructive impact on the environment, society, and the country's economy (Tang, 2011).

3. Image, reputation and fundamental features of Croatian tourism

The tourist identity of Croatia is largely based on its natural beauty (with only relatively rare recent changes in the form of more significant appearance of other forms of tourism such as recreational tourism, eco-tourism, and some others). This is confirmed by the 2019 TOMAS study, which showed that the sea and nature are the primary motivators for tourists to visit Croatia; with the sea being in the first place, accounting for 86% of tourists' overall motivation, and nature in the second place with a share of 58%, while other motives such as events, hiking, health reasons are very poorly represented (Sustainable Tourism Development Strategy by 2030, 2022). By analyzing the quantitative and qualitative impacts of tourism on Croatia, two significant aspects can be distinguished. The first, quantitative impacts, which are measurable through statistical data on the number of arrivals and overnight stays, and the economic impact on the tourism sector and beyond. The second, qualitative impacts, which reflect changes in the

perception and reputation of Croatia as an attractive tourist destination. Considering the sports successes and their impacts on tourism indicates an increase in tourist arrivals and overnight stays, confirming that sports achievements act as a strong factor in attracting tourists. Statistical data provide a basis for quantifying the economic impact on the tourism sector and beyond. On the other hand, changes in the perception and reputation of the country, partially as a result of sports triumphs, play a key role in shaping Croatia's tourist identity. Security, hospitality, and authenticity, together with a rich natural and cultural heritage, contribute to creating a positive image of Croatia as a destination. This dual perspective - quantitative and qualitative - ensures a deeper understanding of the dynamics between sports achievements and tourism in Croatia. Therefore, while Croatia continues to unintentionally base its tourist image mainly on the concept of "sun and sea", this approach creates challenges, especially in terms of sustainability and pressure on certain destinations at certain times of the year. Croatia's tourist image, which is also shaped by the perception of the country as a safe and welcoming place, along with its natural beauty, reflects the need for a more comprehensive understanding and utilization of tourism resources, including sports achievements, as key elements in promoting the country and its sustainable tourism development. As stated in the latest national tourism development document - the Strategy for Sustainable Tourism Development by 2030 (2022) - "the key feature of Croatia as a tourist destination is its authenticity reflected in hospitable, open, and warm people, the diversity of its regions, and its rich natural and cultural heritage." It also states that "tourism in Croatia is more than just entrepreneurship - it is a way of life." Therefore, when it comes to tourism reputation, it is predominantly positive in the case of Croatia thanks to all of the above. No, due to the conditions and the way Croatian tourism is developing, it is certain that tourism, if it continues to develop in this direction, will jeopardize its most significant resources, which are natural beauties, but it is also important to mention the significant cultural and historical heritage (which is also an important segment of Croatia's tourism identity). In other words, tourism in Croatia is currently mainly a mass form of tourism that endangers the resources on which it is based, as well as Croatia's own image and reputation as a tourist destination. Therefore, it is necessary to develop other, more sustainable forms of tourism. However, despite the fact that tourism in Croatia has been present for a very long time and has been the dominant economic activity for decades (Sustainable Tourism Development Strategy until 2030, 2022), and despite its enormous potential, Croatian tourism still largely relies on, as mentioned, an offering popularly known as "sun and sea", without a clear development strategy and with intensive exploitation of natural and other resources to create additional tourism offerings. Furthermore, most of Croatian tourism takes place in the Adriatic Croatia, and this situation has remained almost unchanged for decades: in 2009, 96 percent of all overnight stays were recorded in the Adriatic Croatia, and in 2019, that percentage was only slightly lower at 94.5 percent (Sustainable Tourism Development Strategy until 2030, 2022).

Tourists in Croatia are mostly foreign; the share of domestic tourists is only about 10 percent, and the most tourists come to Croatia from Germany, Slovenia, Austria, Italy, and Poland, according to data from 2019 (Sustainable Tourism Development Strategy until 2030, 2022). Furthermore, when it comes to the fundamental characteristics of Croatian tourism, it should be noted that this sector is characterized by pronounced seasonality, "the highest in comparison to European Mediterranean countries, which is in direct correlation with the main product of 'sun and sea,' as well as the structure of accommodation capacities" (Sustainable Tourism Development Strategy until 2030, 2022). According to the same source, the dominant form of accommodation capacities consists of rooms, apartments, and holiday homes (66 percent share), followed by campsites (20.4 percent) and hotels (13 percent). However, despite the increasing number and share of rooms, apartments, and holiday homes, this type of accommodation has a low occupancy rate - 27.6 percent (indicating the mentioned quantitative,

but not necessarily qualitative growth), while hotels have the highest occupancy rate - 48.2 percent. The largest number of accommodation facilities (92.5 percent) is located, as expected, in the Adriatic Croatia, which causes significant pressure on the destination, i.e., its space, environment, and infrastructure, which, as mentioned earlier, is mostly inadequate, insufficient, and outdated (Sustainable Tourism Development Strategy until 2030, 2022). The dominance of traditional motifs indicates a strong connection of the tourism sector with the country's natural resources, but at the same time emphasizes the need for diversification of the tourism offer to address the challenges of mass tourism and ensure its sustainability. Pressure on certain destinations during the peak tourist season, as well as inadequate infrastructure, pose challenges that Croatian tourism faces in trying to balance the exploitation of natural resources and the preservation of those same resources for future generations. Despite the high share of foreign tourists and the seasonality that characterizes Croatian tourism, the analysis also points to the need for the development of more sustainable forms of tourism that could contribute to the development and diversification of the tourism offer. Therefore, there is an urgent need for changes in the approach to tourism development in Croatia, focusing on strategies that support sustainable growth and development. This includes promoting the diversification of the tourism offer and improving infrastructure, while preserving the natural and cultural resources that form the basis of the country's tourism identity. Concurrently, understanding Croatia's image and reputation, especially through the prism of sports achievements, is crucial for a deeper understanding of its position in the international tourism market. Sporting events and achievements of Croatian athletes play a significant role in shaping the perception of Croatia as a dynamic, vibrant, and successful country.

4. The impact of Croatian sports successes on trends in Croatian tourism

Croatia has a large number of world-famous and successful athletes. Although the national football team and its spectacular successes may be the first thought when Croatian sports successes are mentioned, the fact is that Croatia has numerous Olympic and other champions and highly ranked athletes in other sports as well. In recent history, these are, among others, boxer Mate Parlov, European and world heavyweight champion, canoeist Matija Ljubek, who won as many as 17 medals in total at the Olympic and Mediterranean Games and world championships, then Đurđica Bjedov, a famous Croatian swimmer who won gold at the Olympics in 1968. Furthermore, table tennis player Dragutin Šurbek won as many as 31 medals at European and world championships, and swimmer Veljko Rogošić is a world champion in marathon swimming. In recent times, the most trophy-winning Croatian athlete is the "queen of Croatian sports", skier Janica Kostelić, and her brother Ivica Kostelić, who also gained world fame. Athletes Sandra Perković and Blanka Vlašić, handball player Ivano Balić also achieved world success. In addition to soccer and handball, the Croatian basketball team also achieved excellent results, and even four Croatian basketball players were admitted to the Hall of Fame in the USA - Krešimir Čosić, Dražen Petrović, Toni Kukoč and Dino Rađa. Currently, the most famous Croatian athlete is probably footballing player Luka Modrić, and before him there were Davor Šuker, Robert Prosinečki, and many other Croatian football players. The Croatian kickboxing heavyweight Mirko Filipović CroCop also gained world fame, then there are the rowers Sinković brothers and numerous great tennis players led by Goran Ivanišević. All of them are responsible for Croatia becoming well known in the world and, as a small country, becoming recognizable. The Cro Sports website states that "thanks to the multiple successes of Croatian athletes and the awards they have continuously won for almost three decades, Croatia is increasingly being recognized in the world as a sports nation" (Cro Sports, 2023). Or, as Beraković and Lulić (2021) state, "there is almost no sport in which, over the past hundred

years, there has not been "someone of us" who has made an effort to rise above other competitors and in the gradation of the adjectives "big" and "good", through dedicated years of work and with talent he skipped over the positive and the comparative and adorned himself with the superlatives "the best" and "the greatest"...". As already mentioned, there is no doubt that such successes have contributed to the world hearing about Croatia, but to what extent and in what ways this affects Croatian tourism is a question that is somewhat more difficult to answer. At the end of last year, in 2022, a conference was held in Opatija where famous Croatian athletes and tourism experts discussed the role and importance of sports in the branding of Croatian tourism and said that top athletes are the best promotion of Croatia (Lalić, 2023), however, this is currently just an assumption, because there is a lack of research that would confirm it. At the conference, it was also pointed out that Croatia should focus more seriously on sports tourism and the organization of sports events. Although, as it was said, Croatia is "too small a country to be able to host the Olympic Games" (Lalić, 2022), experts said that Croatia has already proven itself to be an "excellent host of various competitions and championships" and that it should continue develop in this direction, because "the organization of sports competitions significantly contributes to the promotion of the destination" (Lalić, 2022). In an article about sport as a function of promotion (and the promotion of sport itself) from 2003, the authors Bartoluci and Omrčen state: "World successes of Croatian athletes have (...) a strong promotional role. Their names and results represent one of the best ways of advertising tourist destinations, but also localities that enable the implementation of sports training programs" (Bartoluci and Omrčen, 2003). However, there is still a lack of numerical indicators. Research that deals with the attitudes of tourists themselves about the influence of Croatia's sporting successes on its (tourist) recognition in the world, conducted in 2019 in Split among 201 tourists, showed that among the surveyed tourists, the most famous Croatian athlete was Luka Modrić, followed by Marin Čilić, Dražen Petrović, Janica Kostelić and Sandra Perković. However, more than half of the respondents did not know how to name another Croatian athlete, and the largest percentage of those who knew named Goran Ivanišević, followed by Ivan Rakitić and Dejan Lovren; among the answers are Mirko Filipović, Ivica Kostelić and Iva Majoli (Todorić, 2019). The results of the mentioned research showed that there is a connection between sports achievements and the interest of tourists. "The correlation coefficient of the rank that Croatia is unique according to its sports achievements and attitudes about current satisfaction and future positive intentions to recommend and return to Croatia is positive and statistically significant in all cases. These results support the fact that sports success is positively related to the positioning of Croatia as a tourist destination." (Todorić, 2019).

After the great success of the Croatian football team at the World Cup in Qatar at the end of last year, in 2022, when Croatia won third place (the same as at the 1998 World Cup, while it won second place at the last World Cup in Russia), it became more intense again the question of the influence of Croatian sports successes on domestic tourism. The world football championships are watched by billions of people, so it is expected that the participating countries, especially those that reach the finals, will grow in popularity. At the championship four years ago, according to research by Mediatoolkit, after the match between Croatia and Russia, the word "Croatia" was used three times more on the Internet than three years before (Duhaček, 2022). On the day of the match between Croatia and Russia, Croatia was mentioned 118,482 times in the foreign media. The Croatian Tourist Board reported at the time that it recorded a 200 and 250 percent increase in the number of visitors to its website after the finals, compared to the same period a year earlier. "The most visits were in the hour after the end of that match, from India, Italy, USA, Germany, Croatia, Russia and France" (Duhaček, 2022). Even earlier, in 2017, HTZ published a promotional video featuring famous Croatian athletes led by Luka Modrić and Marin Čilić. After the 2022 World Cup in Brazil, local marketing

experts pointed out a huge increase in interest in Croatia on internet search engines. "Then we won third place and if we translate that into the field of media analytics, look at all the covers of newspapers and portals where Croatia appeared, it's huge. If we look at it in the category called "advertising value equivalent" in marketing and what is the marketing value, we would get a very, very, very large amount. This is a huge promotion for Croatia. Ten Croatian budgets would not be able to do that in terms of marketing," marketing expert Pero Tanta told Index in December 2022 (Duhaček, 2022). The growing interest of foreign media in such events makes Croatia even more visible, and the influence of social networks, where people share content that becomes viral, should not be ignored. The marketing impact of sports seems to be easier to measure than the specific impact of the marketing on tourist arrivals. As already mentioned, this influence is undoubtedly positive, but the question is whether this assumed "significantly greater" influx of guests is properly directed and distributed - and whether it is possible to achieve such a thing in Croatia at the moment - or whether this increased interest additionally contributes to the mass tourism, which results in an additional burden on inadequate infrastructure, nature, etc. Maybe Croatia will take this problem, or phenomenon, seriously and find a way to use it in a constructive manner. To begin with, it would be great if the Sustainable Tourism Development Strategy did not remain just a theory. Optimism is also given by the announcement from the Ministry of Tourism and Sports that this year, in 2023, Croatia will host the second World Sports Tourism Congress of the UN World Tourism Organization (UNWTO) (Novi list, 2022).

5. Analysis of the matter from the aspect of sustainability

If we assume that Croatia's successes at sports attract a larger number of tourists, because Croatia becomes more visible, the question is whether this type of promotion and the increase in the number of tourists contribute to sustainability, or at least one of the goals of the Sustainable Tourism Development Strategy. In other words, the question arises whether there is a positive correlation between the increase in the number of tourists, which occurred due to promotion through sports successes, and the strengthening of sustainability. If the answer is positive, it would mean that such a method of promotion affects the reduction of seasonality, the increase of number of visits to regions other than the coast and islands, the preservation of the environment, space and climate, and the growth of competitiveness, innovation and resilience of domestic tourism - or at least one or some of those goals. One of the ways in which sport can certainly contribute to making Croatian tourism more sustainable is organizing sporting events that will attract a significant number of tourists, and to use the visibility on the global tourist market that Croatia has thanks to its famous athletes and great sporting successes. Holding sports events out of season - this is also an industry that is developing more and more rapidly (Candrea and Ispas, 2010) - would alleviate seasonality, and if these events were organized in lesser-known tourist destinations, then the pressure on the coast and islands would be reduced. Such tourism could certainly be characterized as competitive (sport is always a "safe ticket") and innovative, and to a certain extent the resilience of tourism would also be strengthened because an additional tourist offer would be introduced, thereby dispersing the risk, which is significantly higher when the vast majority offers are based on "sun and sea". All of the above is in line with the objectives of the strategy to strengthen the sustainability of tourism, the only remaining issue is the preservation of the environment and space, i.e. the impact of this type of event on the local community and nature. This largely depends on the approach of the organizers, but if it is taken into account that this approach would somewhat reduce mass tourism, then it can be said that holding sports events out of season would have a positive effect on the preservation of the environment and space. At the same time, sports events

should also be organized in the summer months according to the principle of attracting a smaller number of guests, but with a higher paying power, which also significantly reduces the pressure on the environment and the local community. Furthermore, it is easier to promote healthier and more environmentally conscious lifestyles through sports, so this should also be taken into account as another contribution to strengthening sustainability.

6. Conclusion

This research has delved deep into the dynamics between Croatia's sports success and its domestic tourism, aiming to clarify how extraordinary sports achievements impact the country's tourism attractiveness and sustainability. Despite recognizing sports triumphs as key promotional tools that provide Croatia with greater global visibility, the analysis has revealed complex challenges faced by Croatian tourism in the context of sustainability. Insights obtained through a review of secondary data indicate an increase in tourist arrivals and overnight stays in periods following significant sports events, implying a positive impact of sports success on tourism. Analysis of tourist arrivals and overnight stays before and after significant sports events has shown a positive trend in tourism movements. For example, after the 2018 FIFA World Cup, there was a rise in the number of tourist arrivals and overnight stays, suggesting that sports successes have a positive effect on Croatia's tourism attractiveness. Specifically, sports achievements contribute to improving Croatia's perception and reputation, making it a more desirable destination in the eyes of international visitors. This is evident through increased interest in visiting Croatia, not only to enjoy its natural beauty and cultural heritage, but also to participate in sports and active tourism offerings. Similarly, effectively leveraging sports successes requires integrated marketing strategies that include promotion through social media, collaboration with well-known athletes as ambassadors of Croatia and the organization of sports events that attract international audiences. These strategies can not only increase the number of visitors but also promote the development of sustainable tourism through diversity of offerings and reducing seasonality. Therefore, the analysis has determined that sports successes have a positive impact on increasing the number of tourist arrivals and overnight stays, confirming the first hypothesis. This shows that significant international sports events serve as a catalyst for increasing tourist visits. The perception of Croatia as a tourist destination improves due to sports successes, confirming the second hypothesis. Sports successes contribute to building a stronger national image and reputation, increasing the interest of international tourists, while the implementation of tourism strategies that integrate sports achievements has proven to be an effective approach for the development of sustainable tourism. This confirms the third hypothesis, highlighting the importance of a creative approach in using sports successes to promote tourism offerings. However, this positive trend is not always accompanied by adequate infrastructure readiness or developed strategies for managing the increased influx of tourists in a sustainable manner. Therefore, while sports successes attract attention and potential tourists, questions arise about the long-term sustainability and the capacity of Croatian tourism to effectively leverage this visibility.

Furthermore, the research has shown a lack of specific, quantitative indicators that would measure in detail the impact of sports achievements on tourist flows. Therefore, the recommendation for future research lies in the development of more detailed studies that would quantify this impact, enabling the creation of more thorough strategies that would use sports achievements as a lever for the development of sustainable tourism. The key contribution of this work is in shedding light on the potential of sports achievements in promoting tourism and researching issues of infrastructure readiness and sustainability. Future research should focus

on developing integrated strategies that would combine sports achievements with the development of tourism capacities, considering how these two components together can contribute to long-term sustainable tourism. It is also recommended to research tourists' perception of Croatia as a sports destination, which could provide additional insights into how sports achievements influence travel decisions and ultimately, how sports infrastructure and events can serve as a means for more diverse and sustainable tourism.

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A scientific paper

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DIGITAL TRANSFORMATION AND E-GOVERNMENT SERVICES

ABSTRACT

A strong trend in recent decades has been the rapid increase in the use of computers, Internet, mobile applications, "smart devices", etc. The process of digitalisation is very intense all over the world and in all areas of society. Regarding companies and households, digitalisation refers to the application of new digital technologies in business processes, and everyday households' life that can optimise work, improve productivity, increase efficiency and enable new opportunities and experiences. At the same time, digitalisation also occurs in the public sector where integration of digital technologies is taking place through various channels, including the provision of public services to businesses and households. The aim of this paper is to investigate whether the process of digitalisation of the public sector is keeping pace with the process of digitalisation in the rest of society and to analyse the relationship between the acceptance of technology in society and the digitalisation of public administration. Dataset used in the paper includes 27 countries, for which the data are taken from OECD statistics and the UN e-Government Knowledgebase. The Granger and Dumitrescu-Hurlin tests are used to examine the causality between the variable that represents the general digitalisation of society and the variable that represents the digitalisation of the public sector (Online service index – OSI). To obtain the first variable, a composite indicator Digital transformation index (DTI) is calculated using the weighted normalised values of nine variables, and for e-government OSI is taken from the UN database. The weights are calculated based on Principal component analysis. The results of the Granger causality tests show that the OSI series can be used to predict DTI values and causal influence, in a Granger sense, goes from OSI to DTI.

***Key words**: digitalisation, e-government, principal component analysis, Granger causality test.*

1. Introduction

The beginning of the global digital transformation is associated with the mid-nineties of the 20th century, when the internet first entered the economy and then households. The digitalisation of society refers to the widespread integration and adoption of digital

technologies, driven primarily by the increasing use of digital devices, networks and data. This transformation encompasses various aspects of society such as commerce, administration, communication, education and healthcare. Both governments and the private sector are increasingly utilising digital platforms to transform their operations and increase efficiency. This process removes all boundaries and increases the availability of information. The digital economy, e-business, e-commerce, e-government, and the digitalisation of business processes are both a challenge and an opportunity for everyone - businesses, governments and households. Digital technologies have an impact on cost reductions, the expansion and emergence of new markets, increased competition and changes in various aspects of human business and private life.

The digital economy, especially the use of the internet, is removing all boundaries and increasing the availability of information. To stay in business, companies must adapt to new markets and new market conditions. Modern technology also enables small companies to challenge the main advantages of large companies (economies of scope and access to resources). In addition, small companies are not burdened with the major disadvantages of large companies such as bureaucracy, hierarchy and difficulties in introducing changes. For this reason, large companies are forced to restructure their organisational structure and make it more flexible. To succeed in the digital global marketplace, where rapid adaptation to new markets is a key factor, global organisations need to work in real time. Often e-business is simply equated with online sales and purchases, which is only one part of e-business. E-business is a system for applying ICT technologies to all areas of business activity and a means of communication between all stakeholders.

The digitalisation of the public sector involves the integration of digital technologies and data-driven strategies into the processes and services of public authorities and public organisations. The aim of digitalising the public sector is to improve efficiency, transparency and accessibility as well as the overall provision of public services. E-government has a special role to play in the digitalisation of the public sector. E-government encompasses the use of information technology in public administration and implies the use of ICT solutions to reorganise and improve the provision of government services. E-government is defined as “a way for the government to utilise the most innovative information and communication technologies, especially web-based Internet applications, to provide citizens and businesses with more convenient access to government information and services, improve the quality of services, and provide more opportunities for participation in democratic institutions and processes' (Guo, 2010). The successful implementation of e-government aims to increase the quality of public administration, speed, openness and efficiency through the implementation of ICT solutions and digital transformation in public administration. These goals are aimed at strengthening citizen engagement and participation and improving the accountability, transparency, efficiency and effectiveness of the administration. Depending on the specific needs, priorities and level of development, e-government objectives may vary from country to country or region to region. Governments therefore often develop comprehensive e-government strategies to achieve their goals.

The impact of digitalisation is widespread in businesses, public institutions and among private individuals, and although it has brought many benefits, it has also created new problems, policy issues and challenges that policy makers are struggling with. The aim of this paper is to investigate which parts of society are digitising faster – whether the private sector of society is digitising faster than the public sector or whether this process is going in the opposite direction. The dataset used in this paper covers twenty-seven countries for which the data

comes from OECD statistics and the UN e-Government Knowledgebase. Principal component analysis, Granger and Dumitrescu-Hurlin tests are used to examine the causality between the variable representing the overall digitalisation of society and the variable representing the digitalisation of the public sector.

The paper is organised as follows: The next section of the paper provides a literature review on the digitalisation of government and society. The following section describes the theoretical framework and methodology of the study. The fourth part of the paper contains the results and discussion, while the last part contains concluding remarks.

2. Literature Review

Over the last decade, there has been a increasing body of academic work examining the impact of digitalisation on economic growth. The existing literature recognises that improvements in communication infrastructure and the adoption of digital technologies in the public and private sectors lead to economic growth (Björkroth, 2003; Ishida, 2015). Röller & Waverman (2001) pointed out the reverse causality between the increase in economic growth and investment in communication infrastructure. Toaderet al. (2018) analysed the impact of information and communication technology infrastructure on economic growth in EU countries and concluded that ICT infrastructure is an important driver of economic growth. In addition, Castaldo et al. (2018) showed that broadband has a positive effect on economic growth in OECD countries. Fernández-Portillo et al. (2020) confirmed this assumption by finding that the economic growth of countries within the developed European economies is driven by progress in the diffusion and use of ICT.

A considerable amount of work focuses on the role of the private sector in the digitalisation process. Numerous studies suggest that the progress of digitalisation is accompanied by an improvement in the quality of management and administration and a higher level of competition (Nwankpa & Roumani, 2016). According to Daminov (2022), there are several ways in which the corporate sector is accelerating the digitalisation process. Firstly, the increasing influence and use of ICT gives companies an advantage over the competition, as the use of digital technologies is usually accompanied by more efficient data collection and analysis, as well as more effective communication. Secondly, by developing the infrastructure, companies create the necessary conditions for digital improvements. Companies can also improve digital expertise on both the supply and demand side. This is because private companies offer a whole range of learning opportunities aimed at improving digital skills (supply side), while at the same time companies are increasingly interested in hiring employees with digital skills and knowledge (demand side).

There is a need for uniform technical and security standards at national and international level, which is why the government's task is to create a regulatory environment that influences the development and use of digital technologies (Vasilev et al., 2020). A wide range of literature examines the ways in which governments shape digitalisation (Evans and Heller, 2015; Kattel and Mergel, 2019; Mubarak et al., 2020). Governments can also use various administrative and fiscal incentives to promote digitalisation (Chen et al., 2021). In certain cases, state-owned enterprises can receive direct funding for their own development of digital technologies. In addition, governments invest many resources to provide the entire community with the necessary education and training (Vasilev et al., 2020). The introduction of ICT in the national economy is usually linked to its use in the public sector. The public

sector is often the initiator of the entire system and indirectly influences all transformation processes. Digitalisation has led to significant changes in all areas of the economy. Therefore, it is conclusive that the introduction of e-government increases the efficiency of the public administration system, but also improves the quality of public services for entrepreneurs and citizens (Gersonskaya, 2020).

All over the world, the public sector is using digital technologies to improve the interaction between citizens and officials. The use of new technologies can help achieve the main goals of digital governments, which include improving the efficiency and quality of services by reducing service delivery times, increasing transparency and making service delivery seamless across organisations (Layne & Lee, 2001). The effective implementation of e-government leads to improvements that contribute to economic growth by increasing administrative efficiency and reducing administrative costs (Dunleavy et al, 2006; Cordella & Tempini, 2015; Evans & Yen, 2015; Rustiarini, 2019). By facilitating online transactions, digital signatures and payment systems, e-government can promote e-commerce, boost online businesses and expand the digital economy (El-Ebiary et al., 2021). The public sector, unlike private companies, is not profit-driven but serves society, i.e. citizens as owners of the government in various roles, e.g. as taxpayers, households, entrepreneurs, and is therefore obliged to contribute to "public value" (Twizeyimana and Andersson, 2019). In this sense, the authors propose six dimensions of public value from e-government: improved administrative efficiency, open governance, improved ethical behaviour and professionalism, improved trust in government, and improved social value and well-being. This means that the digitalisation of the public sector and better communication with the government through digital means could also provide incentives for the rest of the economy to digitalise as well. Gersonskaya (2020) points to the leading role of the public sector when we talk about digitalisation.

3. Theoretical framework, model, and variables

The digitalisation of societies refers to the widespread integration and adoption of digital technologies, processes and data-driven solutions in various aspects of human life, including social, economic, political and cultural spheres. This transformation has been favoured by the rapid advances in information and communication technologies (ICT) in recent decades (Ayhan, 2017; Mondejar et al., 2021). As already mentioned, there are numerous aspects of the digitalisation of societies.

In this paper, we attempt to examine the extent to which the process of digitalisation of the public sector is keeping pace with the process of digitalisation of society as a whole. After all, there is no question that public administration is also affected by digitalisation. Our main research question is therefore whether other parts of society are being digitised faster or whether the digitisation of public administration is even ahead. Our starting hypothesis is that there is a causal relationship between the acceptance of technology in society and the digitalisation of public administration. To confirm the existence of said relationship, this paper uses the Granger and Dumitrescu-Hurlin (DH) causality test between the variable representing the general digitalisation of society and the variable representing the digitalisation of the public sector. To obtain the first variable, we calculate a composite indicator - the **Digital Transformation Index (DTI)**. The data used for the calculation comes from the database of official OECD statistics for 27 countries for which all required indicators were available. These countries include Denmark, Finland, Sweden, Norway, the Netherlands, Belgium, Ireland, Spain, France, Luxembourg, the United Kingdom, Lithuania, Germany,

Austria, Slovenia, Estonia, Portugal, Latvia, the Czech Republic, Poland, Hungary, Italy, the Slovak Republic, Croatia, Romania, Greece and Bulgaria.

Composite indicators are useful for several reasons: they simplify complex information by summarising several indicators or variables into a single measure. This makes it easier for policy makers, researchers and the general public to understand and communicate complex phenomena or trends. They also provide a more holistic view of a concept or phenomenon by taking into account multiple dimensions or aspects. Composite indicators can be tailored to specific policy objectives. By including relevant indicators, policy makers can use these composite measures to track progress and evaluate the effectiveness of policies in a more targeted way (Vertesy & Tarantola, 2012).

In this paper, the Digital Transformation Index (DTI) is calculated using the values of nine variables: Households with broadband Internet access at home – variable DT_1, Individuals who have used the Internet daily or almost daily in the last three months - variable DT_2, Individuals who have used Internet banking in the last three months – variable DT_3, Companies with broadband access (fixed and mobile) – variable DT_4, Employees who use a computer with Internet access – variable DT_5, Companies with a website that allows online ordering, reservations or bookings - variable DT_6, companies with a broadband download speed of at least 100 Mbit/s – variable DT_7, companies that use enterprise resource planning (ERP) software – variable DT_8, and companies that place orders via computer networks – variable DT_9. Data are taken from the OECD.stat database from the segments – Information and communication technology - ICT access and use by households, individuals and enterprises for the period 2008 - 2022.

The normalisation of data is a process that involves scaling and converting the values of variables within a dataset into a standard range. The aim is to bring the data to a common scale without distorting the differences in the value ranges (Nardo, et.al. 2005). There are several methods for normalising data (min-max scaling, robust scaling, decimal scaling, log transformation, etc.), but the method usually used in index creation is z-score normalisation. The variables are converted to a common scale with a mean of zero and a standard deviation of one using equation (1).

$$I_{pc}^{t} = \frac{x_{pc}^{t} - x_{pc=\underline{c}}^{t}}{\sigma_{pc=\underline{c}}} \tag{1}$$

where:

- I^{t}_{pc} is normalised value of variable p for country *c* at time *t*
- x^{t}_{pc} is raw value of individual variable p for country *c* at time *t*
- $x_{pc=\underline{c}}^{t}$ is reference country (average value)
- $\sigma_{pc=\underline{c}}$ is standard deviation.

After converting the variables, they are aggregated into the DTI index using equation (2).

$$DTI_{c}^{t} = \sum_{q=1}^{n} w_{q} I_{qc}^{t} \tag{2}$$

where:

- DTI_{c}^{t} is value of Digital transformation index for country *c* at time *t*
- W_q is weights of indicator *q*
- I^{t}_{qc} is normalised value of indicator q for country *c* at time *t*

Aggregation of components into an index refers to the process of combining individual components or variables into a composite index that represents a broader concept or measure.

The process involves assigning weights to the individual components based on their relative importance and combining them into a single value. There are several methods for selecting weights: Equal weights, Expert judgement, Analytical Hierarchy Process, Principal component analysis (PCA), Factor analysis, Delphi method, etc (Nardo, et.al. 2005).

Eigenvalues and eigenvectors play a crucial role in Principal Component Analysis which can be derived from correlation matrix of the standardised data using formula (3).

$$\Sigma = Q\ \Lambda\ Q^{-1} \tag{3}$$

Where:

- Q is a matrix whose columns are the eigenvectors.
- Λ is a diagonal matrix containing the eigenvalues.
- Q^{-1} is the inverse of the matrix.

The eigenvalues in the diagonal matrix Λ represent the variance of the data along the corresponding eigenvectors' directions. The larger the eigenvalue, the more variance is explained by the corresponding principal component. The total variance in the data is the sum of all eigenvalues.
Public sector digitalisation trend is presented by Online Service Index (OSI). OSI is one component of the E-Government Development Index (EGDI) based on a wide-range Survey on United Nations Member States. The survey assesses national websites and how e-government policies and strategies are applied in general and in specific sectors for delivery of crucial services.

To determine whether DTI series can be used to predict OSI or vice versa, we conduct Granger causality (common coefficients) and Dumitrescu Hurlin Causality statistical test – the extension of Granger causality test (individual coefficients). These tests are commonly used in econometrics and finance to assess the causal relationship between two variables. It is based on the idea that if variable X Granger-causes variable Y, then past values of X should contain information that helps predict Y. The test involves estimating two regression models and comparing them to assess the significance of adding past values of one variable to predict another. The null hypothesis H_0 in the Granger causality test is that past values of variable X do not Granger-cause variable Y. The alternative hypothesis H_1 is that past values of X do Granger-cause Y (Wooldridge, 2013).

Granger causality includes two regression models for each variable:

$$\textbf{Model 1: } Y_t = \alpha + \sum_{i=1}^{p} \beta_i Y_{t-i} + \varepsilon_t \tag{4}$$

$$\textbf{Model 2: } Y_t = \alpha + \sum_{i=1}^{p} \beta_i Y_{t-i} + \sum_{j=1}^{q} \gamma_j X_{t-j} + \varepsilon_t \tag{5}$$

Where Y_t is a dependent variable, X_t is a variable that we test if it Granger cause Y_t, and p and q are the lag. α, β_i and γ_j are coefficients to be estimated, and ε_t is the error term. The comparison of the fit of Model 1 with Model 2 (using standard F-test) is used to test the Granger causality from X to Y. If the additional lagged values of X in Model 2 significantly improve the fit, it suggests Granger causality from X to Y.

The Dumitrescu-Hurlin (DH) causality test involves estimating two regressions and then performing a Wald test to examine the null hypothesis of no Granger causality. Unlike the

classic Granger causality test which is based on common coefficients, this test allows individual coefficients so that equation (4) and (5) become (6) and (7):

$$\textbf{Model 1: } Y_{i,t} = \alpha_i + \sum_{j=1}^{p} \beta_{i,j} Y_{i,t-j} + \varepsilon_{i,t} \quad (6)$$

$$\textbf{Model 2: } Y_t = \alpha_i + \sum_{j=1}^{p} \beta_{i,j} Y_{i,t-j} + \sum_{k=1}^{q} \gamma_k X_{t-k} + \varepsilon_t \quad (7)$$

Where α_i are individual fixed effects and $\beta_{i,j}$ are coefficients to be estimated.

In order to conduct Granger causality test and Dumitrescu Hurlin Causality test, we have to ensure that time series data are stationary to avoid spurious correlations. Stationarity is a crucial concept in time series analysis. A stationary time series is one whose statistical properties, such as mean, variance, and autocorrelation do not change over time. Weak stationary is often easier to achieve, and it requires covariance to be constant across time (Wooldridge, 2013). To check that we use Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The primary difference between the PP test and the ADF test lies in the way they handle deterministic trends and serial correlation. The PP test modifies the ADF test to account for potential serial correlation in the errors and allows for more flexible trend specifications. The null hypothesis of the ADF and PP test is that the time series has a unit root and is non-stationary. The alternative hypothesis is that the time series is stationary after differencing.

4. Results and discussion

The DTI is created according to a standard procedure: (1) normalisation of the variables to make them comparable; (2) weighting and aggregation of the normalised variables into a final index. The theoretical framework forms the basis for selecting and combining the variables into a meaningful composite indicator, and data selection is based on the relevance of the indicator and data availability. The following table contains summarised statistics for the selected variables.

Table 1: Summary statistics of the variables used for calculation DTI

	Mean	Median	Maximum	Minimum	Std. Dev.	Jarque-Bera	Obs.
DT_1	74.39689	78.1514	98.6007	13.2953	16.87505	71.82934	373
DT_2	66.92529	68.66655	96.3017	15.3713	17.66997	18.85266	402
DT_3	50.67484	51.1074	96.127	1.5156	25.18615	15.89872	401
DT_4	93.27215	95.4875	100	51.5101	6.967272	1014.732	336
DT_5	48.87189	47.1289	86.4621	16.2534	14.07395	10.45564	381
DT_6	19.19564	17.6904	37.143	5.9849	7.32866	26.42424	343
DT_7	23.95085	16.29925	85.1483	0.468	19.86485	70.45902	316
DT_8	28.04843	27.8347	57.226	4.2748	11.88983	4.892959	248
DT_9	35.76373	33.0752	78.4403	5.1587	16.75665	9.528738	252

Source: Authors

While some analysts choose weights based solely on statistical methods (such as PCA), others may reward (or penalise) components that are considered more (or less) influential, depending on expert opinion, to better reflect policy priorities or theoretical factors (OECD, 2008). In this paper, we use the PCA method to determine the weights. PCA identifies the principal

components in a data set that are linear combinations of the original variables. These principal components are ordered by the amount of variance they explain in the data. Based on the loadings of the original variables on these principal components, weights can be derived for the construction of an index.
To perform the PCA calculation, we first calculate the correlation coefficients between the selected variables. The results are shown in the following table.

Table 2: Correlation matrix for individual DTI indicators

	DT_1	DT_2	DT_3	DT_4	DT_5	DT_6	DT_7	DT_8	DT_9
DT_1	1.000								
DT_2	0.899	1.000							
DT_3	0.814	0.891	1.000						
DT_4	0.577	0.557	0.651	1.000					
DT_5	0.780	0.833	0.850	0.570	1.000				
DT_6	0.441	0.437	0.516	0.258	0.493	1.000			
DT_7	0.493	0.490	0.488	0.460	0.469	0.326	1.000		
DT_8	0.246	0.264	0.224	0.410	0.331	0.190	0.462	1.000	
DT_9	0.678	0.677	0.653	0.505	0.686	0.591	0.367	0.196	1.000

Source: Authors

Table 2 contains the correlation coefficients and it shows the highest correlation between **variable (DT_01)** - Households with broadband Internet access at home and **variable (DT_02)** – Individuals using the Internet daily or almost every day in the last 3 months (CORR: 0.899). The lowest correlation is between **variable (DT_06)** – Businesses with websites allowing for online ordering or reservation or booking, and **variable (DT_08)** – Businesses using enterprise resource planning (ERP) software (CORR: 0.190).
As mentioned earlier, eigenvalues and eigenvectors are key components of Principal Component Analysis. They are calculated from Table 2 using formula (3).
Table 3 contains the eigenvalues of the correlation matrix of nine (standardised) variables that determine DTI. The first principal component explains 59,69% of variance in all individual indicators (eigenvalue of 5.372). The second principal component explains additional 12,52% of variance with eigenvalue of 1.127. The rest principal components have eigenvalues below 1 and explain the 27.79% of the variance in the data set.

Table 3: Eigenvalues of DTI data set

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	5.372	59.690	59.690
2	1.127	12.520	72.209
3	.780	8.663	80.872
4	.534	5.934	86.806
5	.449	4.990	91.796
6	.333	3.699	95.494
7	.221	2.460	97.954
8	.125	1.388	99.342
9	.059	.658	100.000

Source: Authors

Kaiser's criterion suggests retaining factors with eigenvalues greater than 1. The rationale behind this criterion is that an eigenvalue less than 1 indicates that the variance explained by the corresponding factor is less than the variance of a single original variable. Retaining factors with eigenvalues greater than 1 ensures that each retained factor explains more variance than a single variable (Shrestha, 2021). According to this criterion we have chosen two factors where each contributes more than 10%, and cumulatively more than 70%.

To achieve a simpler and more meaningful structure of loadings the we applied varimax orthogonal rotation. The results as well as weights are presented in table 4.

Table 4: Component matrix, rotated component, squared rotated component and weights

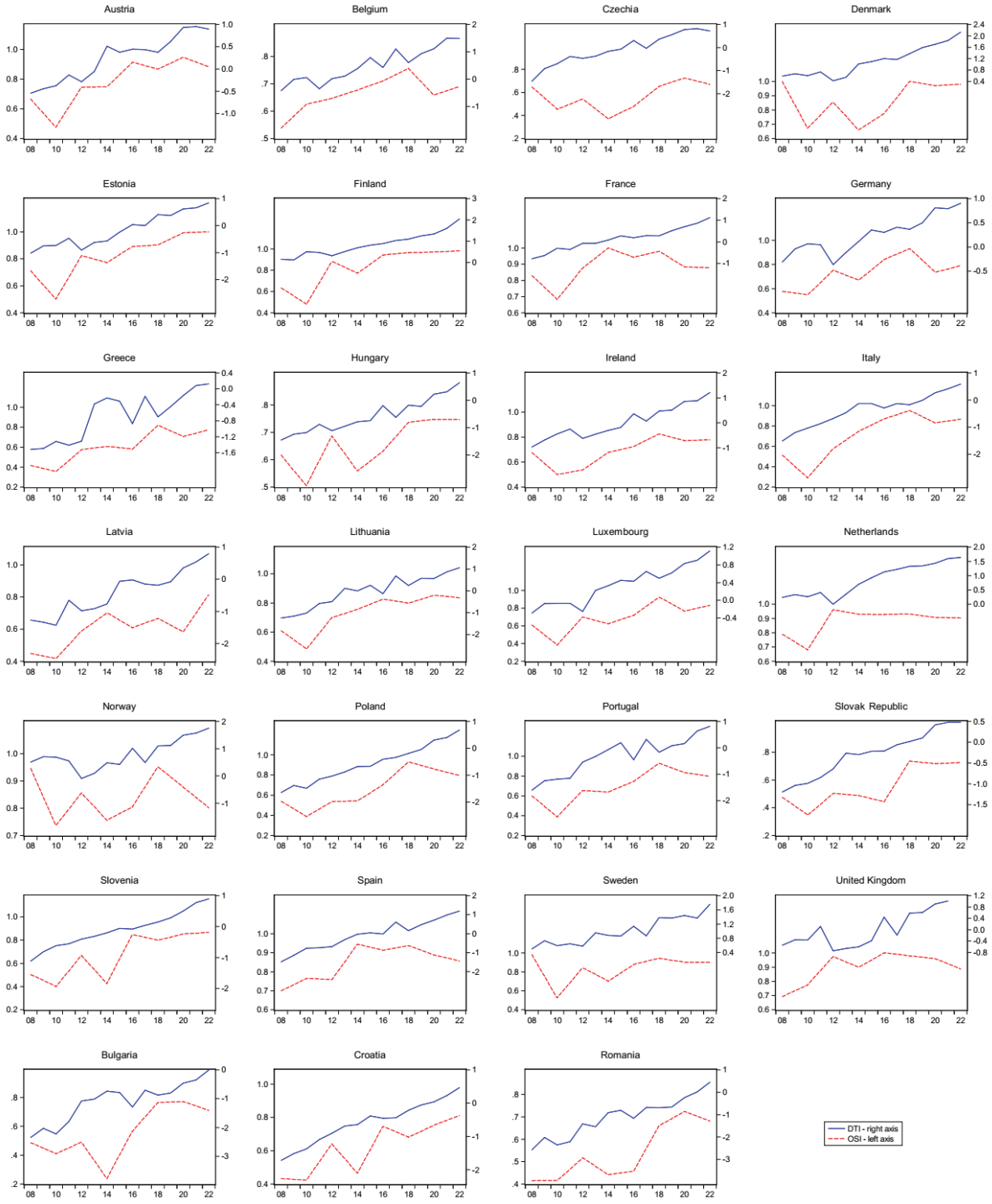
Variable (normalised)	Component matrix (two component extracted)		Rotated component Matrix		Squared rotated component matrix (scaled to unity sum)		Weights
	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2	
N_DT1	0.893	-.143	.862	.275	**0.165**	0.038	**0.135**
N_DT2	0.913	-.153	.884	.275	**0.173**	0.038	**0.045**
N_DT3	0.917	-.160	.890	.270	**0.176**	0.037	**0.062**
N_DT4	0.721	.278	.518	.573	0.060	**0.165**	**0.057**
N_DT5	0.898	-.094	.844	.321	**0.158**	0.052	**0.111**
N_DT6	0.606	-.225	.642	.072	**0.092**	0.003	**0.113**
N_DT7	0.634	.479	.350	.713	0.027	**0.256**	**0.143**
N_DT8	0.417	.793	.015	.896	0.000	**0.403**	**0.148**
N_DT9	0.795	-.250	.822	.135	**0.150**	0.009	**0.052**
				Expl.Var	*4.510*	*1.989*	
				Expl./Tot	*0.694*	*0.306*	

Source: Authors

For each selected principal component, we calculated the loadings of each original variable on that component. The loadings are the coefficients in the linear combination of the original variables that form the principal component. Larger absolute loading values indicate stronger contributions of variables to the corresponding principal component. These weights can be used to interpret the meaning of the principal components and understand how each variable contributes to the overall variance captured by the components. In this case we have two component factors. The first includes variables N_DT1, N_DT2, N_DT3, N_DT5, N_DT6 and N_DT9. Second includes variables N_DT4, N_DT7 and N_DT8. The weights assigned to each one is the proportion of the explained variance in the data set: 0.694 for the first and 0.306 for the second. The final weights for the DTI index are calculated and presented in the last column of Table 4.

Using equation (2) we calculate a series Digital transformation index that represents a quantitative measure that assesses the extent to which a country has embraced and implemented digital technologies. Figure 1 shows the movement of this index and the OSI index for each individual country.

Figure 1: OSI and DTI index



Source: Authors

The results of unit roots of variables in levels and in first difference are given in table 5.

Table 5: Unit root test

	DTI – in levels		OSI – in levels		DTI – 1st difference		OSI – 1st difference	
Method	**Statistic**	**Prob.****	**Statistic**	**Prob.****	**Statistic**	**Prob. ****	**Statistic**	**Prob. ****
ADF	7.63534	1,000	64.7195	0.1507	138.424	0.0000	306.916	0.0000
PP	13.7245	1,000	32.7184	0.9903	403.391	0.0000	153.162	0.0000

Notes: Exogenous variables: Individual effects, Newey-West automatic bandwidth selection and Bartlett kernel.
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.
Source: Authors

Table 5 shows that the series are non-stationary in levels, however, they become stationary after differentiation, which is a prerequisite for the implementation of the Granger causality test. The number of lags reflects the number of past observations to be included in the model when testing for causality. The results of Granger Causality and Dumitrescu Hurlin Causality statistical tests that include one and two lags are given in Table 6. D_OSI and D_DTI represent the change in OSI and DTI series, respectively.

Table 6: Pairwise Granger and Dumitreschu Hurlin Causality Tests

Pairwise Granger Causality Tests						
Number of lags:	**1**			**2**		
Null Hypothesis:	**F-Statistic**		**Prob.**	**F-Statistic**		**Prob.**
D_OSI does not Granger Cause D_DTI	6.87539		0.0002	10.3193		0.0000
D_DTI does not Granger Cause D_OSI	2.09348		0.1012	1.75696		0.1742
Pairwise Dumitreschu Hurlin Causality Tests						
Number of lags:	**1**			**2**		
Null Hypothesis:	**W-stat**	**Zbar-stat**	**Prob.**	**W-stat**	**Zbar-stat**	**Prob.**
D_OSI does not homogeneously cause D_DTI	1.17864	-0.17402	0.8619	5.59184	3.35335	0.0008
D_DTI does not homogeneously cause D_OSI	0.91327	-0.80941	0.4183	3.08504	0.33436	0.7381

Source: Authors

The results of the Granger causality tests show that the null hypothesis that a change in OSI does not cause a change in DTI can be rejected. This means that the OSI series can be used to predict DTI values and that the causal influence (in the sense of Ganger) goes from OSI to DTI. Furthermore, the hypothesis that the change in DTI has no influence on the change in OSI cannot be rejected for both one and two lag models.

On the other hand, the pairwise Dumitreschu-Hurlin causality tests did not confirm the relationship between the changes between these two series when we use only one lag, but the previously mentioned results of the Granger causality tests were confirmed for models with two lags. Namely, it can be seen that the hypothesis that D_OSI does not homogeneously cause D_DTI can be rejected, while the hypothesis that D_DTI does not homogeneously cause D_OSI cannot be rejected. This confirms the direction of the Granger causality relationship, which leads from OSI to DTI.

This direction of the analysed relationship is not a novelty in the literature. E-government services enable shorter administrative processes through faster decision-making and an

increase in the quality of transaction processing (Ndou, 2004), which encourages users to use online public services, which in turn requires digitalisation. Gersonskaya (2020) cites a whole range of benefits of digital public services that could encourage the private sector to follow the government and digitise as well, leading to increased efficiency and quality of business. According to her, the potential benefits that e-government can create in the private sector are the reduction of administrative costs for public services, opportunities for new online services and business products for companies, access to databases, better interaction with government agencies and easier access to information, etc.

Table 7: Relative positions of the countries measured by DTI and OSI indices

Rank	DTI rank in 2022	OSI rank in 2022
1	Denmark	Estonia
2	Finland	Finland
3	Sweden	Denmark
4	Norway	Netherlands
5	Netherlands	Sweden
6	Belgium	United Kingdom
7	Ireland	Austria
8	Spain	France
9	France	Slovenia
10	Luxembourg	Italy
11	United Kingdom	Spain
12	Lithuania	Lithuania
13	Germany	Luxembourg
14	Austria	Latvia
15	Slovenia	Croatia
16	Estonia	Norway
17	Portugal	Portugal
18	Latvia	Poland
19	Czechia	Germany
20	Poland	Ireland
21	Hungary	Greece
22	Italy	Hungary
23	Slovak Republic	Slovak Republic
24	Croatia	Bulgaria
25	Romania	Belgium
26	Greece	Romania
27	Bulgaria	Czechia

Source: Authors

Finally, we can compare the positions of individual countries with regard to the achieved level of the DTI and OSI indices in 2022. Table 7 shows that for indices Denmark, Finland and Sweden are at the top and for indicators Romania, Greece and Bulgaria are at the bottom of the list. Some countries such as Croatia, Italy and Estonia hold a much worse position in digital development of the society as a whole (DTI) than digitalisation of the public sector (OSI). Other countries, such as the Czech Republic, Belgium and Ireland, are significantly behind in the digital development of public administration measured by the OSI index in relation to the digital development of society as the whole.

5. Concluding remarks

The use of new digital technologies in everyday life can optimise work, improve productivity, increase efficiency and open up new opportunities and experiences. The digitalisation process removes all boundaries and increases the availability of information, putting pressure on companies to adapt to new markets and new market conditions. The new technology enables companies to challenge their key market advantages. E-business is a system for implementing ICT technologies in all elements of business activity and a means of communication between all interested parties. At the same time, the introduction of ICT solutions in the public sector increases the quality of public administration, speed, openness and efficiency.

In this paper, we have analysed whether the private sector of society is digitising faster than the public sector or whether these processes are going in the opposite direction. The results of the analysis are consistent with existing studies in this area and show positive, growing digitalisation trends for both the private and public sectors. However, the results indicate that digitalisation in the public sector is driving digitalisation in the private sector, as the public sector is often the initiator of the entire system and indirectly influences all transformation processes. For example, the digitalisation of tax administration is forcing the private sector to use digital solutions in everyday life. Leading countries in the introduction of digital technologies are northern European countries such as Finland, Estonia and Denmark.

The impact of digitalisation is widespread among businesses, public institutions and private individuals, and although it has brought many benefits, it has also created new problems, policy issues and challenges that policy makers are struggling with. The findings of this paper show that policy makers need to raise awareness of the changes that the digitalisation of public services brings to the interactions between the private sector and government. As with much related research, data is the major limitation of the paper. For many countries, not all the necessary data is available and the metrics are too heterogeneous. As digitalisation is a relatively new process and term in business and literature, some terms may still be unclear. In this paper, a framework has been created that could serve as a solid basis for future research in the field of digitalisation and its economic impact.

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A scientific paper

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INTERNAL AUDIT EFFECTIVENESS IN THE PUBLIC SECTOR: ANALYSIS OF FACTORS AND MEASURES IN A DIGITAL ERA

ABSTRACT

The research topic in the field of internal auditing that has gained much scientific attention and is very popular during the last 15 years is internal audit effectiveness. Papers that investigated this topic in most cases focused mainly on the private sector, forming conclusions that need to be compared with the research in the public sector. Internal auditing in public sector organisations has somewhat different characteristics than internal auditing in private sector organisations in terms of attributes and performance, primarily due to the uniqueness of sectors. Because of these differences, research results and conclusions about the internal audit effectiveness in the private sector cannot be easily generalised to the public sector. Previously conducted critical literature review revealed also that there exist some papers and research that investigated the internal audit effectiveness in the public sector. However, the general conclusion is that this topic for the public sector is still mainly under-investigated and scattered on the global level. Therefore, this paper aimed to investigate how to measure the effectiveness of internal audit functions in the public sector from different perspectives, as well as to determine internal and external factors associated with the internal audit effectiveness in a digital era. In order to accomplish that, a systematic literature review approach was adopted, which covered papers on the subject topic between 2009 and 2023. The obtained results served as a basis for the development of a comprehensive conceptual model of the internal audit effectiveness in the public sector, which combines underpinning theories, factors, and different ways of effectiveness measurement. This paper gives valuable insights into the internal audit effectiveness measurement in the public sector in a digital era, both for practitioners and scholars, primarily from a theoretical point of view, as well as directions and agenda for future research.

Key words: *internal auditing, effectiveness, measurement, public sector, digital era.*

1. Introduction

The internal audit function has a prominent status within the corporate governance process and is considered as one of the four cornerstones of corporate governance, along with external

auditing, audit committee, and management (Gramling et al., 2004). It is also considered as part of the corporate governance mosaic, which encompasses dynamic interactions among aforementioned mechanisms (Cohen et al., 2004). Within corporate governance, the internal audit function is considered a valuable source of information, providing assurance, consulting services, and insights to the board and audit committee, upon which lies the greatest responsibility for corporate governance quality (Gramling & Hermanson, 2006). Assurance and consulting activities are key engagements of internal auditing through which it adds value to the company (IIA Global, 2012a).

The internal audit function provides a value for both private and public sectors. In the public sector the internal audit function has a prominent "role in effective public sector governance" and is comprehended as "a cornerstone of good public sector governance" that "supports the governance responsibilities of oversight, insight, and foresight" (IIA Global, 2012b – supp guidance). The internal audit function with its objective approach underpinned by its independence can "contribute to an entity's accountability mechanisms" which are considered one of the key elements of achieving good governance (IFAC & CIPFA, 2014). Historically, the internal audit function in the public sector has mainly been focused on the internal financial controls and assessment of the effectiveness and efficiency in the management of public funds by conducting financial and performance audits (Coupland, 1993; Malan, 1991; Deloitte, 2011). Also, some topics, that internal audit function's review in the public sector include, are "achievement of value for money and the prevention and detection of fraud and corruption" (IFAC & CIPFA, 2014). The role of reassurance in "providing clients with comfort that their spending and other resourcing controls respect and conform to legislation, policies, and procedures" is especially emphasised in the public sector, in contrast to the historical perspective of internal auditors as "the organisation's police force" (Abela & Mitchell, 2014).

When seen through the lens of the agency theory, a principal-agent relationship can be derived from the relationship of the public (principal) and the officials (agents) in the public sector, where "an effective audit activity reduces the risks inherent in a principal-agent relationship" (IIA Global, 2012b – supp guidance). It is important to emphasise that the aforementioned attributes of the value that an internal audit function provides, can only be expected from an effective internal audit function. But how to achieve high levels of the internal audit effectiveness? Which factors inherent to the internal audit function are associated with the concept of the internal audit effectiveness? What is the importance of relations with internal audit stakeholders in this context? Those questions have been intriguing to academics and answers are yet without a consensus (Coetzee & Erasmus, 2017).

The internal audit effectiveness, as a subject matter, has been a research stream in the field of internal auditing that has gained much scientific attention during the last 15 years, with the origins of the research mainly in the private sector. According to Lenz et al. (2018), the concept of internal audit effectiveness has been seen as a "black box" regarding the results of previous academic debates and research. Lenz and Hahn (2015) in their analysis of the empirical research on the internal audit effectiveness, dating back from the revision of the internal audit definition in 1999, concluded that previous research have not tackled theoretical frameworks and have identified many directions for future research. Similarly, Kotb et al. (2020), in their post-Enron literature review on internal auditing, also identified the internal audit effectiveness as one of the most researched topics, but with the conclusion about the ambiguity of factors associated with the internal audit effectiveness that vary across organisational settings. This is also supported by the conclusions derived from a literature review of internal auditing research in Europe conducted by Hazaea et al. (2022). The review concentrated on a period between 1987

and 2022 and concluded that the internal audit effectiveness was among two most researched themes, but one of the most emphasised limitations of previous research was the lack of theoretical lenses and lack of empirical research in the public sector in this regard.

This research aimed to investigate the multidimensionality of the concept of the internal audit effectiveness in the previous research conducted in the public sector. It identified factors and measures of the public sector internal audit effectiveness, as well as theories used for understanding factors analysed in the previous research. The systematic literature review, along with thematic analysis as a method of qualitative data analysis, was used as a research method to investigate how to measure the effectiveness of internal audit functions in the public sector from different perspectives, as well as to determine internal and external factors associated with the internal audit effectiveness. The review focused on the empirical research of the subject matter in the publication period 2009 – 2023 of data sources indexed in Scopus. The rationale for analysing publications in a proposed timeframe was to gain a more comprehensive insight into different research streams in the period of a digital era. Although a few previous literature reviews encapsulate results of the empirical research conducted in some periods of that time frame, this research provides an update by including the most recent research and also identifies relevant underpinning theories, as well as associated factors of the internal audit effectiveness.

This research contributes to the growing body of literature about the internal auditing effectiveness concentrating on filling a research gap concerning influential factors and underpinning theories. The results of the research served as the basis for proposing a conceptual model that synthesises factors that are associated with the internal audit effectiveness in the public sector. By analysing the results of the most recent empirical research conducted in various settings, the model enhances the understanding of all relevant factors associated with the internal audit effectiveness in a digital era.

The structure of the paper is as follows. After the introduction, in the second part of the paper, a theoretical background and a brief literature review about the internal audit effectiveness was shown. In the third part of the paper, research methodology was described in detail. Fourth part indicated and described findings of the analysis, by discussing identified themes in the previous internal audit effectiveness research, which ended with the development of a comprehensive conceptual model of the internal audit effectiveness in the public sector. In the end, contributions for practitioners and scholars were indicated, following with directions and agenda for future research.

2. Theoretical background and literature review

Although it adds value to all organisations, regardless of the sector, internal auditing is an especially valuable component of good public sector governance. Unlike the private sector, which is mainly oriented to “profit-making and increasing shareholder value” (van Rensburg & Coetzee, 2016), the public sector “objectives are usually broad, complex, and not easy to measure” (Onumah & Krah, 2012) and establishing the internal audit function is required by national legislations in many countries (Miekatrien & Bouckaert, 2006). Internal auditing in the public sector has a unique position and an assignment regarding assisting organisations in achieving their objectives. This role is especially important regarding mitigation of specific risks “ultimately resulting in improvement of the performance of the public sector and increased citizens’ confidence” (van Rensburg & Coetzee, 2016).

To maximise its value for various internal and external stakeholders, the internal audit function has to be effective. *Effectiveness* represents the ability to achieve planned objectives, and the definition of the internal audit effectiveness is most often derived from these general understandings as the degree of achievement of set objectives or the level of achievement of one's "raison d'être" or reason of existence (Mihret & Yismaw, 2007). Dittenhoffer (2001) defines effectiveness as the level of achievement of desired objectives and considers that the effectiveness of the internal audit function affects the effectiveness of the auditee. More recently, Lenz and Hahn's (2015) stance on the issue of the internal audit effectiveness included a risk-based approach inherent to the internal audit activity, and they define the internal audit effectiveness as a "risk-based concept that helps the organisation to achieve its objectives by positively influencing the quality of corporate governance."

In one of the first prominent papers with an empirical research regarding the internal audit effectiveness, Arena and Azzone (2009) problematized measures of the internal audit effectiveness and systematised them into *process* measures (based on the quality of procedures, such as the level of compliance with Standards, or ability to perform planned activities), *output* measures (ability to achieve stakeholder needs), and *outcome* measures (impact of the internal audit activities on the effectiveness and efficiency of the auditee). Along with emphasising the importance of its measurement, Dittenhoffer (2001) pointed out that due to the complexity of the internal audit function, establishing criteria for measuring effectiveness is difficult. From the beginning of the research interest in investigating the internal audit effectiveness, measures of effectiveness have been a subject to a considerable debate (Al Twaijry et al., 2003; Mihret & Yismaw, 2007; Mihret & Woldeyohannis, 2008; Ahmad et al., 2009; Cohen & Sayag, 2010; Mihret et al., 2010; Soh & Martinov-Bennie, 2011). Similarly, in their discussion on the internal audit effectiveness, Lenz and Hahn (2015, p. 6) concluded that the internal audit effectiveness "is contextually bound" since the "internal audit function may serve different purposes in their specific organisational context."

Furthermore, there is a strong support for the concept of the internal audit effectiveness in the public sector by prominent professional organisations. The Institute of Internal Auditors Global (IIA Global) in 2009 issued the *Internal Audit Capability Model (IA-CM) for the Public Sector*, which was updated in 2017. It represents a framework for understanding and developing an effective internal audit function and "illustrates the levels and stages through which an internal audit activity can evolve as it defines, implements, measures, controls, and improves its processes and practices" (IIA Global, 2009). IIA Global (2012b – supp guidance) promotes independence, objectivity, unrestricted access, sufficient funding, competent staff, as well as leadership, stakeholder support, and adherence to Standards as "key elements of an effective public sector audit activity". Some of those factors were included in the empirical research of the internal audit effectiveness by academics. Based on the results of the literature analyses of the internal audit effectiveness conducted by Lenz and Hahn (2015), published in the decay that followed the period of the changed definition of internal auditing in 1999, the empirical research focused on the "supply-side" perspective that includes "empirical studies based on self-assessments of internal auditors" and also analysed stakeholders' perspectives and the "demand-side" perspective. While they identified a research gap regarding the demand-side perspective, factors that were identified as important from the supply-side perspective were: "the role of the chief audit executive and the skills and competences of internal auditors, organisational specifics, its politics and culture, support from senior management, and the impact of the board, directly or through the audit committee" (Lenz & Hahn, 2015). The results of internal auditing empirical research in the post-Enron era conducted by Kotb et al. (2020) revealed similar factors associated with the internal audit effectiveness, including management

support, organisational drivers, chief audit executive's leadership, etc., and concluded that "determinants of the internal audit function effectiveness vary across regional and/or organisational settings and that there is no comprehensive assessment model." Lenz et al. (2018) in their comprehensive analyses of the measures of the internal audit effectiveness pointed out that although "in practice, the internal audit effectiveness has been actively debated, in academic research, the internal audit effectiveness remains underexplored."

To summarise, there is no one-size-fits-all approach considering the operationalisation of the internal audit effectiveness in the empirical research, as well as there is no unique nor complete list of the factors or drivers of the internal audit effectiveness. This conclusion applies to research conducted in the public sector, as well as in the private sector (Coetzee & Erasmus, 2017), so further research is needed to fulfil the present body of knowledge. Roussy (2022) pointed out how topics such as "effectiveness, and quality of internal auditing are well documented in the private sector", but "remain virtually unexplored in the public sector." In their review of the research on internal auditing in the public sector published in prominent journals in the period between 2010 and 2019, Nerantzidiz et al. (2022) identified the topic of the operational effectiveness among the three most researched streams in the public sector, but with general lack of underpinning theories.

Based on the analyses of two previous literature reviews (from 2005 to 2018) and the small percentage of published papers based on the public sector internal audit (6 % out of 571 articles published in prominent journals), Roussy (2022) supported the notion on the need for more research "dedicated to the public sector, to shed light on this body of knowledge."

3. Methodology

The research in this paper was driven primarily by an interpretivist philosophical stance and a subjectivist perspective, with an inductive approach to the research, which is supplemented, where appropriate, by a deductive one. A systematic literature review and a thematic analysis were chosen as the main research and data analysis methods for achieving defined research objectives.

Therefore, in this research, a systematic literature review was used as a research method for investigating the factors and measures of the internal audit effectiveness in the public sector, as well as underpinning theories. The search methodology encompassed the adapted protocol of Amani and Fadlalla (2017), based on Khlif and Chalmers (2015). The scope of the research focused on the public sector internal audit effectiveness and the search included publication period 2009 – 2023 of data sources (open access articles, book chapters, and conference proceedings) indexed in Scopus. The year 2009 was chosen as a starting point since it was identified in previous research (Kotb et al., 2020) as a period in which research on this subject matter topic reached its peak. To further investigate the scope of the research, search terms included the following terms: "internal audit", "public sector", and "effectiveness". The search resulted with 71 documents, which were then reduced to only those that related to the subject matter topic. Data sources were inspected to include only those sources that satisfied the following inclusion criteria: empirical research about the factors and measures of the internal audit effectiveness in the public sector. Furthermore, two authors separately screened all documents' titles and abstracts to eliminate data sources that were unsuitable regarding the research topic, its objectives and inclusion criteria in the further step of the data analysis process. This means that unsuitable documents for the research topic and objectives were

eliminated before the next step of the research, data analysis process, started. Then those two authors, who individually screened all collected papers, jointly, with the third author, reviewed the results of the preliminary screening and solved together all identified non-compliances and differences, where the third author acted as an arbiter. This process was similar to that of Kiger et al. (2019). A total of 30 data sources were included in the further analysis. *Microsoft Office* programs were used for the analysis and visualisation of data, including primarily *Microsoft Excel* and *Microsoft Word*.

Once the data sources or subject papers for the final data analysis were defined, a thematic analysis, as a powerful and flexible data analysis approach (e.g., Braun & Clarke, 2006; Kiger & Varpio, 2020), was applied in order to achieve the research objectives. In order to assure the trustworthiness of the research findings and interpretations, after the paradigmatic and epistemological orientations were defined, a generally accepted framework defined by Braun and Clarke (2006) for conducting thematic analysis was adopted (Kiger & Varpio, 2020). This process involved taking the following steps (Braun & Clarke, 2006; O'Gorman & MacIntosh, 2014):

1) *familiarisation with the data* – data transcription (if necessary); authors' active reading and re-reading of the data; writing down relevant information and initial ideas
2) *generating initial codes* – coding data (posteriori) in a systematic fashion across the entire data set; collating data relevant to each code
3) *searching for themes* – collating codes into potential themes at a broader level; gathering all data relevant to each potential theme
4) *reviewing themes* – checking themes against the coded extracts (level 1) and the entire data set (level 2); forming a thematic "map" of the analysis
5) *defining and naming themes* – continuous analysis to refine the identified theme; locating the overall story of the analysis; generating clear definitions and names for each theme
6) *producing the report* – a final opportunity for the analysis, relating back of the analysis to the research question(s) and literature; writing the report of the analysis with vivid, compelling extract examples.

In the first step of the thematic analysis, *familiarisation with the data*, two authors who previously screened all papers and defined the final sample of the papers, separately read the full text of each paper, and made notes individually regarding all papers that were suitable for the inclusion in the research. If there were papers unsuitable for the research, the authors discussed them and further excluded them from the analysis. For all other non-compliances and differences, all three authors discussed and where necessary the third author acted, once again, as an arbiter. From a total of 30 papers that were, after the first screening process, included in the further analysis, seven more papers were discarded due to the fact that they were not empirical papers, but conceptual ones. So, in the end, 23 papers were analysed. For all other steps of the analysis process, two authors, in the same manner, made the analysis, by firstly independently and separately, done the analysis, then consulted with each other and, in the end, consulted with the third author to find a consensus. As stated earlier, themes were primarily, in the first step, generated inductively, but in some aspects, deductive approach was also applied due to the authors' familiarisation with the topic of the research. This systematic process of analysis resulted with the development of a comprehensive conceptual model of the internal audit effectiveness in the public sector in a digital era. It also conveyed important conclusions and implications for practitioners, as well as important conclusions, directions and agenda for future research for scholars.

4. Findings, discussion and contributions

By conducting data analysis, we identified the following overarching themes, which guided the development of a conceptual model of the internal audit effectiveness in the public sector:

- theoretical underpinnings of the internal audit effectiveness
- perspectives and factors of the internal audit effectiveness
- measures of the internal audit effectiveness.

These themes are further in text described in more detail. Combining perspectives and supporting factors, as drivers of the internal audit effectiveness, with the internal audit effectiveness measures, as outcomes, based on underpinning theoretical assumptions, resulted in the development of a comprehensive conceptual model of the internal audit effectiveness in the public sector.

4.1. Theoretical underpinnings of the internal audit effectiveness in the public sector

Based on the conducted research, it was not possible to identify a uniform stance of the authors regarding the approach in selecting a supporting theory in the context of researching the internal audit effectiveness in the public sector. That was to be expected as different authors have explored different perspectives of the internal audit effectiveness, resulting in the identification of various theories (see table 1.) utilised for researching the effectiveness. Moreover, the majority of authors did not employ any specific theory as a foundational basis for identifying the internal audit effectiveness factors, a practice observed in previous research on the internal audit effectiveness in the private sector, supporting the general conclusion on the necessity of considering the internal audit effectiveness as a multidimensional concept.

Table 1: Underpinning theories that guided previous internal audit effectiveness research

Theories	Reference to relevant data sources
absorptive capacity theory	Alqaraleh et al., 2022
agency theory	Alqaraleh et al., 2022; Appiah et al., 2023
behavioural theory	Alqaraleh et al., 2022
contingency theory	Badara & Saidin, 2014
(neo-)institutional theory	Coetzee & Erasmus, 2017; Noor & Mansor, 2019; Vadasi et al., 2019; Appiah et al., 2023
resource-based theory	Alqudah et al., 2019; Shuwaili et al., 2023
social exchange theory	Ma'ayan & Carmeli, 2016
social learning perspective	Ma'ayan & Carmeli, 2016
stakeholder theory	Dzomira, 2020
no theory	Davies, 2009; Onumah & Krah, 2012; Emmanuel et al., 2013; Motubatse et al., 2015; Ahmi et al., 2016; Dascalu et al., 2016; Kasim et al., 2016; Roussy & Brivot, 2016; Santosa et al., 2016; van Rensburg & Coetzee, 2016; Asiedu & Deffor, 2017; Kiliç et al., 2021; Vokshi & Xhemajli, 2022

Source: Authors

As can be seen from table 1., the majority of analysed papers (13 out of 23 papers) did not use underlying theory that would guide their internal audit effectiveness research. The second group of papers were those that used just one underlying theoretical foundation for their research (7 out of 23 papers), and the third group were those papers that used two or more theoretical

foundations from relevant theories (3 out of 23 papers). Those papers used in combination theoretical grounds of social learning perspective and social exchange theory (Ma'ayan & Carmeli, 2016), agency theory, absorptive capacity theory and behavioural theory (Alqaraleh et al., 2022), as well as agency theory and institutional theory (Appiah et al., 2023). The first paper in the sample that considered and used relevant theory for guiding its research was from 2014 of Badara and Saidin (2014) who used the assumptions of contingency theory to study the internal audit effectiveness. As can be also seen from table 1., in recent years, especially from 2019, more researchers have started to base their research on relevant theoretical grounds.

Based on the theoretical foundations established in the prior research, we have chosen to underpin our conceptual model on the premises of neo-institutional theory, as advocated by Coetzee and Erasmus (2017), Noor and Mansor (2019), Vadasi et al. (2019), and Appiah et al. (2023), and resource-based theory as advocated by Alqudah et al. (2019), and Shuwaili et al. (2023). This approach allows for a holistic examination, considering both external influences and internal resources. The resource-based theory provides a foundation for investigating the inherent strengths of the internal audit function, the professional characteristics of internal auditors as individuals whose actions are significant factors in achieving the objectives of the internal audit function, namely its effectiveness. The neo-institutional theory is applicable in the context of researching factors beyond the internal audit function that impact its effectiveness, because it provides a framework for understanding how external factors can shape the behaviour and practices of organisations, including the internal audit function. In this regard, the internal audit function can be considered as an organisation influenced by external factors. The neo-institutional theory provides a foundation for contextualising the factors influencing the effectiveness of internal auditing. By integrating different perspectives, it is possible to gain a more comprehensive understanding of the factors influencing the effectiveness of the internal audit function, considering both external influences and internal resources.

4.2. Perspectives, factors and measures of the internal audit effectiveness in the public sector

The identified perspectives of the internal audit effectiveness in the public sector represented by their supporting factors constitute independent variables that drive and impact the overall effectiveness of the internal audit function.

The first identified perspective of the internal audit effectiveness in the public sector was *the internal audit function's ethics and professionalism perspective*, whose main factors and their definitions are shown and described in table 2. Besides factors of the perspective and their definitions, in table 2. are also indicated supporting attributes that were identified in the analysis of data sources, as well as those sources listed. *The internal audit function's ethics and professionalism perspective* assumes that in order for internal audit function to be effective, the overall function needs to adhere to the relevant professional guidance and regulatory legislation, while internal auditors need to be objective and competent, as well as continually enhance, upgrade and acquire new knowledge, skills and abilities for a modern digital era.

Table 2: The internal audit function's ethics and professionalism perspective and the underlying factors of the internal audit effectiveness

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
IAF's adherence to the relevant professional guidance and regulatory legislations	In order to be effective and efficient, the IAF, as an overall function, and the internal auditor, as an individual, need to abide and conform, in their activities, to the relevant internal audit professional guidance (e.g., IPPF, etc.), as well as to other relevant professional or organisational specific regulatory legislations.	✓ internal auditors need to strictly adhere to the internal audit professional standards and norms ✓ internal auditors need to strictly adhere to and implement adequate regulations and laws ✓ internal auditors need to demonstrate "due professional care" and abide the code of ethics	Emmanuel et al., 2013; Roussy & Brivot, 2016; Santosa et al., 2016; Asiedu & Deffor, 2017; Coetzee & Erasmus, 2017; Vadasi et al., 2019; Kiliç et al., 2021
Individual objectivity	Individual objectivity is a characteristic that is attributed to the internal auditor as an individual, which means that the internal auditor needs to be unbiased when performing its work and avoid conflicts of interests (IIA Global, 2016, p. 4-5).	✓ AC should support the CAE and internal auditors in attaining required level of individual objectivity ✓ not impairing individual objectivity through influences ✓ constant improvement of internal auditors' objectivity	Davies, 2009; Onumah & Krah, 2012; Santosa et al., 2016; Kiliç et al., 2021
Individual competency	Individual competency is a characteristic that is attributed to the internal auditor as an individual, and it comprises knowledge, skills and abilities of the individual internal auditor needed to perform their individual responsibilities (IIA Global, 2016, p. 6).	✓ high level of professional proficiency of internal auditors ✓ intrinsic motivation of internal auditors – their strong motivation and clear perception of their roles and responsibilities ✓ "right" employees' profiles - extensive experience in internal auditing in terms of length of tenure on the job practice - in-depth contextual knowledge of the specifics of the public sector environment and organisation' operations - good communication skills - rigour and reliance on their own judgement - good analytical and synthetical skills ✓ professional designation(s) in accountancy or qualification(s) in internal auditing	Davies, 2009; Onumah & Krah, 2012; Emmanuel et al., 2013; Badara & Saidin, 2014; Kasim et al., 2016; Roussy & Brivot, 2016; Asiedu & Deffor, 2017; Coetzee & Erasmus, 2017; Noor & Mansor, 2019; Appiah et al., 2023
Continuing professional development	Internal auditors need to continually: • enhance and upgrade their existing knowledge, skills and abilities • acquire new knowledge, skills and abilities, throughout various professional development programs. Knowledge, skills	✓ continually upgrading internal auditors' overall competency (technical/technological knowledge and professional/generic skills and abilities) through acquiring IIA professional certifications and through IIA and other professional associations/bodies membership(s), as well as through attending other types of	Emmanuel et al., 2013; Dascalu et al., 2016; van Rensburg & Coetzee, 2016; Vadasi et al., 2019

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
	and abilities together form the term "competencies".	internal/external educations and trainings	

Abbreviations: AC – audit committee; CAE – chief audit executive; IAF – internal audit function; IIA – The Institute of Internal Auditors Global; IPPF – International Professional Practices Framework.

Source: Authors

The second identified perspective of the internal audit effectiveness in the public sector was *the internal audit function's governance perspective*, whose main factors and their definitions are shown and described in table 3. Besides factors of the perspective and their definitions, in table 3. are also indicated supporting attributes that were identified in the analysis of data sources, as well as those sources listed. *The internal audit function's governance perspective* assumes that in order for internal audit function to be effective, internal audit as an organisational function needs to be independent – what is guarded by the appropriate chief audit executive's reporting lines defined by the internal audit standards. This perspective also necessitates that there needs to exist effective working relationships between the internal audit function and its direct stakeholders within an assertive and supporting control environment in the entity, organisation or company. To ascertain effectiveness and good governance of the internal audit function in the public sector, an ongoing quality assurance and improvement program that covers all aspects of the function's activities, needs to be in place.

Table 3: The internal audit function's governance perspective and the underlying factors of the internal audit effectiveness

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
Organisational independence	Organisational independence is a characteristic that is attributed to the internal audit as an organisational function in an organisation, and is guarded by the CAE's reporting lines. As stated in the IIA Attribute Standard 1110 – *Organisational independence*, the CAE must report to a level within the organisation that allows the IAF to fulfil its responsibilities, while IAF must be free from interference in determining the scope of audit engagements and performing its work (IIA Global, 2016, p. 4).	✓ IAF's dual reporting lines in the organisation according to the IIA Standards ✓ CAE must functionally report to the AC and administratively to the top manager (e.g., the deputy minister in a public organisation and the CEO in a para-public organisation) ✓ AC oversees and supports IAF's activities ✓ unrestricted access to information, assets and people to conduct engagements ✓ the auditing processes should be more strategic than operational ✓ internal auditors' remuneration should be fixed pay ✓ IA activities could be outsourced ✓ IAF's freedom from operational responsibility ✓ well defined and communicated internal audit charter and IAF's mandate in the organisation	Davies, 2009; Onumah & Krah, 2012; Emmanuel et al., 2013; Badara & Saidin, 2014; Motubatse et al., 2015; Kasim et al., 2016; Roussy & Brivot, 2016; Santosa et al., 2016; van Rensburg & Coetzee, 2016; Asiedu & Deffor, 2017; Coetzee & Erasmus, 2017; Alqudah et al., 2019; Dzomira, 2020; Kiliç et al., 2021; Vokshi & Xhemajli, 2022; Appiah et al., 2023; Shuwaili et al., 2023

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
An effective working relationship(s) between the IAF and its direct stakeholder(s)	An ongoing, effective and efficient communication, cooperation and coordination of working activities, without duplication of efforts, between internal auditors and their relevant direct internal and external stakeholders that include: • AC members • top managers • auditees • external auditors.	✓ effective and ongoing working relationships between AC and IAF ✓ solid relationship of trust and good and ongoing working relationship between IAF and top managers ✓ respectful and fair behaviour of IAF toward auditees that includes positive internal auditor-auditee relationship exchange ✓ efficient coordination and cooperation with other review groups (e.g., external auditors)	Davies, 2009; Ma'ayan & Carmeli, 2016; Kasim et al., 2016; Roussy & Brivot, 2016; Santosa et al., 2016; van Rensburg & Coetzee, 2016; Coetzee & Erasmus, 2017; Alqudah et al., 2019; Dzomira, 2020; Shuwaili et al., 2023
Supportive control environment	Control environment is one of the five components of the 2013 COSO system of internal control and a component that "has a pervasive impact on the overall system of internal control" (COSO, 2013, p. 4). Control environment equals the "*tone at the top*" that includes expected standards of conduct, or in other words, it comprises "standards, processes, and structures that provide the basis for carrying out internal control across the organisation" COSO (2013, p. 4). In the public sector, it is important that political interference does not compromise expected standards (code) of conduct and importance of the sound control environment that, in the end, positively affects public sector governance.	✓ an environment within which internal auditors can have sufficient freedom to accomplish their task efficiently ✓ relevant governing bodies support that guides overall assertive organisational culture that sends a clear message to the entire organisation that the IAF is a crucial organisational mechanism ✓ public reporting on the IAF effectiveness ✓ political non-interference into any aspect of the IAF's functioning	Onumah & Krah, 2012; Emmanuel et al., 2013; Motubatse et al., 2015; Ma'ayan & Carmeli, 2016; van Rensburg & Coetzee, 2016; Alqaraleh et al., 2022; Vokshi & Xhemajli, 2022; Shuwaili et al., 2023
Quality assurance and improvement	According to the IIA Attribute Standard 1300 – *Quality assurance and improvement program*, the CAE "must develop and maintain a quality assurance and improvement program that covers all aspects of the IAF" (IIA Global, 2016, p. 7). This program, which comprised internal and external assessments, is designed to evaluate (IIA Global, 2016, p. 7): • the IAF's conformance with the IIA Standards	✓ an IAF's external assessment done by an independent IIA-certified reviewer, renewed every five years and obligation to comply with all specific quality assessment criteria ✓ continuous monitoring and self-assessment of the performance of IAF (internal assessment) ✓ assessment needs to cover all aspects of the IAF ✓ number of deviations from the code of conduct	Dascalu et al., 2016; Roussy & Brivot, 2016; van Rensburg & Coetzee, 2016; Kiliç et al., 2021

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
	• internal auditors' appliance of the Code of Ethics • IAF's effectiveness and efficiency.		

Abbreviations: AC – audit committee; CAE – chief audit executive; CEO – chief executive officer; COSO – The Committee of Sponsoring Organisations of the Treadway Commission; IA – internal audit; IAF – internal audit function; IIA – The Institute of Internal Auditors Global.

Source: Authors

The third identified perspective of the internal audit effectiveness in the public sector was *the perspective of managing the internal audit function*, whose main factors and their definitions are shown and described in table 4. Besides factors of the perspective and their definitions, in table 4. are also indicated supporting attributes that were identified in the analysis of data sources, as well as those sources listed. *The perspective of managing the internal audit function* assumes that in order for internal audit function to be effective, chief audit executive needs to define clear, transparent, proactive, future-focused and value-adding strategy, that needs to be operationally supported with appropriate, sufficient and effectively deployed human, financial, material and time resources that are adequately organisationally structured for the achievement of the approved internal audit plan throughout various internal audit activities and engagements.

Table 4: The perspective of managing the internal audit function and the underlying factors of the internal audit effectiveness

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
IAF's strategic planning	Defining clear, transparent, proactive, future-focused and value-adding strategic direction of the IAF for the time period from three to five years. It needs to cover all aspects of IAF's activities that enable internal auditors to fulfil IAF's mission and vision of adding value and protecting organisational value.	✓ IAF's strategy leverages organisation's management of risk ✓ effective and efficient strategic IAF planning ✓ IAF's workforce planning and activities' coordination	Davies, 2009; Santosa et al., 2016; van Rensburg & Coetzee, 2016; Asiedu & Deffor, 2017
Adequate IAF's resources	Appropriate, sufficient and effectively deployed human, financial, material and time resources for the achievement of the approved internal audit plan throughout various IAF's activities and engagements (IIA Global, 2016, p. 11).	✓ specialised human resources ✓ sufficient budget of the IAF ✓ appropriate material resources ✓ professional practices and processes guidance ✓ the existence of sound established criteria to evaluate auditees' practices ✓ efficient and effective usage of CAATT's and other IT tools and techniques ✓ electronic data analysis ✓ usage of the tools, techniques, programs, step-by-step approaches and best practice	Onumah & Krah, 2012; Emmanuel et al., 2013; Ahmi et al., 2016; Kasim et al., 2016; Roussy & Brivot, 2016; van Rensburg & Coetzee, 2016; Asiedu & Deffor, 2017; Dzomira, 2020; Alqaraleh et al., 2022; Shuwaili et al., 2023

Factors of the perspective	Definitions of factors	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
		examples of deliverables provided by the IIA	
Internal organisational structure of the IAF	The appropriate internal IAF's structure in terms of number and types of job positions, teams' allocations according to different criteria, resourcing models, etc., that allow for effective and efficient functioning of the IAF in the organisation.	✓ the probity of IAF's internal organisation ✓ the composition and structure of IA teams ✓ operational workforce coordination ✓ IAF's size	Kasim et al., 2016; van Rensburg & Coetzee, 2016; Coetzee & Erasmus, 2017; Kiliç et al., 2021

Abbreviations: CAATTs – computer assisted auditing tools and techniques; IAF – internal audit function; IA – internal audit; IT – information technologies; IIA – The Institute of Internal Auditors Global.

Source: Authors

In the process of data analysis, the fourth perspective arose that was aimed to be entitled *the internal audit function's engagement process perspective* (table 5.). Based on the research, it has been observed that the factors from this perspective, which relate to the characteristics of the phases of the internal audit process, generally indicate the need for conducting internal audit engagements in accordance with the generally accepted guidelines for the professional practice of internal auditing. This aligns with the *professionalism perspective* explained in table 2., and, therefore, we believe that listing it as a separate perspective is unnecessary, as it is already part of an another one.

Table 5: Potential proposed perspective discarded in the end – the internal audit function's engagement process perspective and the underlying factors of the internal audit effectiveness

Factors of the perspective	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
Scope of work and types of engagements	✓ IAF's scope defined based on risk assessments ✓ no scope limitation ✓ conducting compliance auditing, performance auditing, advisory services, GRC ✓ ensuring the accuracy and reliability of IAFs' engagements ✓ effective communication ✓ developing flexible annual IAF's plans	Onumah & Krah, 2012; Kasim et al., 2016; van Rensburg & Coetzee, 2016; Coetzee & Erasmus, 2017; Kiliç et al., 2021; Shuwaili et al., 2023
Planning engagement	✓ effective and efficient preparation stage of the internal audit engagement ✓ effective and efficient internal audit engagement planning ✓ risk-based internal audit plans ✓ IAF's collaboration with the top management in the planning phase ✓ internal audit plan implementation degree ✓ effective communication	Dascalu et al., 2016; Kasim et al., 2016; Roussy & Brivot, 2016; van Rensburg & Coetzee, 2016; Kiliç et al., 2021
Conducting engagement	✓ effective and efficient fieldwork ✓ effective communication	Kasim et al., 2016
Communicating engagement results, opinions and	✓ IAF's collaboration with the top management when drafting engagement conclusion ✓ IAF achieving consensus with the top management on what needs to be reported to the AC ✓ effective and efficient internal audit reporting stage	Emmanuel et al., 2013: Motubatse et al., 2015; Kasim et al., 2016; Roussy &

Factors of the perspective	Attributes supporting developed factors derived from previous research	Reference to relevant data sources
recommendations and follow-up	✓ internal auditors being independent and impartial during the preparation of the audit report ✓ the usefulness of the internal audit report to its direct stakeholders, as well as indirect stakeholders ✓ the IAF's compilation of findings in the register for better follow-up of the corrective actions and critical audit recommendations taken by management ✓ effective communication	Brivot, 2016; Kiliç et al., 2021

Abbreviations: AC – audit committee; GRC – governance, risk management and compliance; IAF – internal audit function.

Source: Authors

The identified factors of the three perspectives can be measured either quantitatively or qualitatively. Detailed theoretical and empirical investigations, analyses and discussions of ways for measuring the identified factors of the internal audit effectiveness should be a subject of a further research on this topic, as this is very important in today's modern era of digitalisation, automation and adoption of digital technologies.

Furthermore, after identifying independent elements of the model, we also identified dependent elements or measures of the internal audit effectiveness in the public sector that are shown in table 6.

Table 6: The internal audit effectiveness measures

Measures supporting the IA effectiveness derived from previous research	Reference to relevant data sources
✓ auditees' implementation of the IA recommendations (reasons for non-implementation of the IA recommendations) ✓ usefulness of the IA report for governance structures' decision-making process (CEO and CAC satisfaction with IAF) o IAF contributions (governance, combined assurance, risk management, fraud prevention, fraud detection) o value adding of IAF (governance, enterprise risk management, control environment, operational effectiveness, service delivery by entity, forensic investigations, fruitless and wasteful expenditure, irregular expenditure, unauthorised expenditure, combined assurance) ✓ external auditors' reliance on the work of IAF (external auditors' satisfaction with IAF)	Onumah & Krah, 2012; Motubatse et al., 2015; Dascalu et al., 2016; Kasim et al., 2016; Roussy & Brivot, 2016; Coetzee & Erasmus, 2017; Dzomira, 2020

Abbreviations: CAC – chair of audit committee; CEO – chief executive officer; IA – internal audit; IAF – internal audit function.

Source: Authors

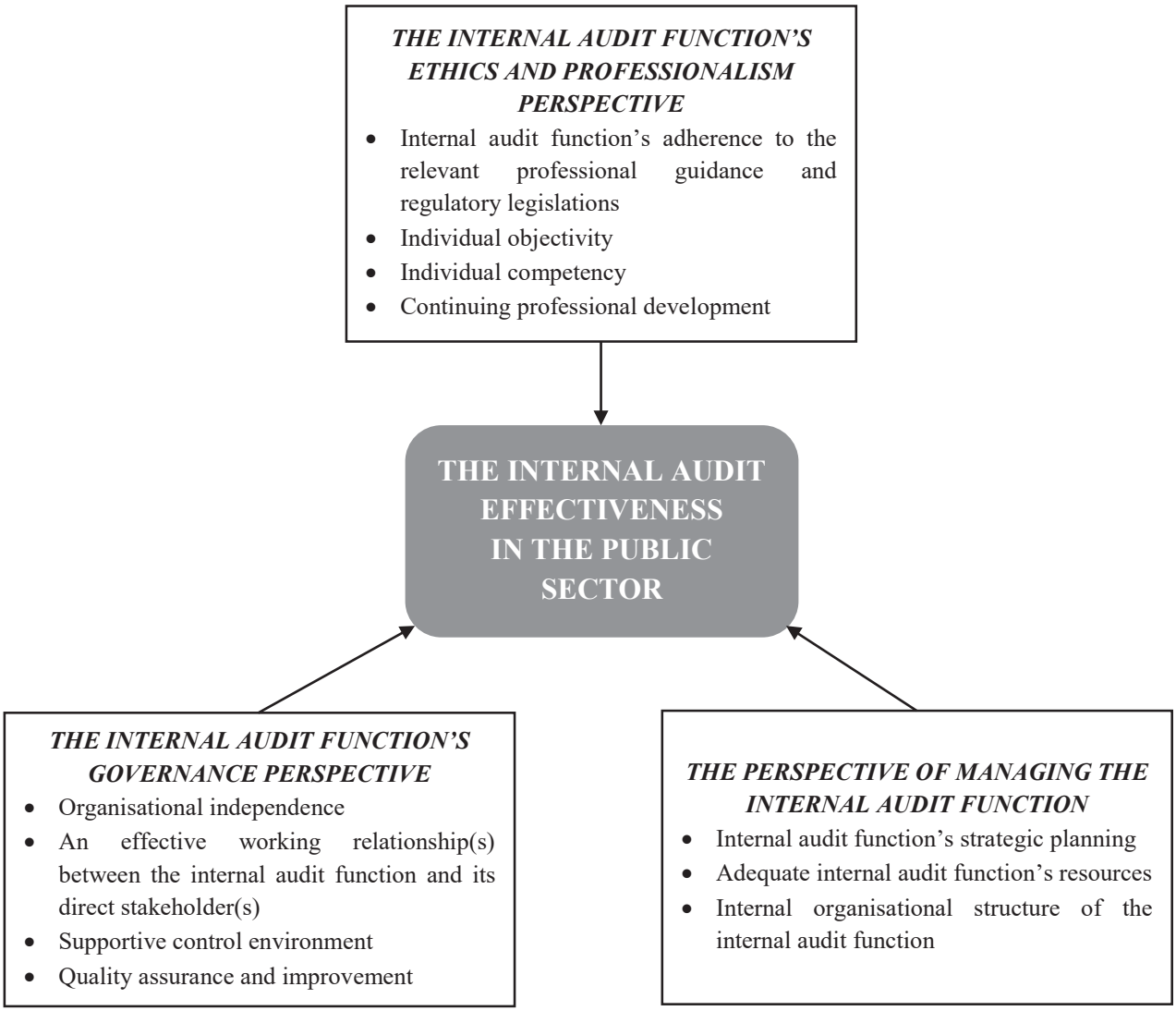
4.3. A conceptual model of the internal audit effectiveness in the public sector

Figure 1. represents a conceptual model of the internal audit effectiveness in the public sector developed by combining identified perspectives and their supporting factors, as independent elements of the model, with measures of the internal audit effectiveness, as dependent ones. The model is grounded in both neo-institutional theory and resource-based theory, offering a comprehensive perspective on the effectiveness of the internal audit function in the public sector.

The conditions that differentiate the public sector from its private counterpart are political interferences and influences, different organisational and governance structures of entities, organisations and companies, as well as public interest for the internal audit function's activities and outputs. This is in our model represented by the internal audit function's governance perspective. Even though some authors (e.g., Coetzee & Erasmus, 2017), based on the literature review, state that there does not exist difference between the internal audit effectiveness in the public and private sectors, this statement is not entirely true, due to the fact that internal audit represents a function whose activities, status, resources, engagements' scope, etc., significantly differentiate between entities in the public sector only, due to the uniqueness of every entity where functions are established. That is also accurate for internal audit functions in companies of the private sector. On the other hand, there are also a lot of similarities regarding internal auditing in both public and private sectors, which relate also to the internal audit effectiveness measurement, but differences of the sectors need to be considered when developing the internal audit effectiveness models. Therefore, our model is comprehensive as it includes all possible drivers and measures of the internal audit effectiveness suitable for the public sector. All of them may not necessarily be applicable to every internal audit function in the public sector when considering effectiveness measurements due to their uniqueness.

To measure their functions' effectiveness, chief audit executives need to consider the state of their internal audit functions, and firstly choose appropriate factors from defined perspectives that are applicable to their functions (independent factors of effectiveness). After that, they need to define appropriate measures of effectiveness (dependent variables of effectiveness). As stated by Mihret and Yismaw (2007), we also adopted the notion that the absence of the aforementioned drivers or independent factors of the internal audit effectiveness in a certain perspective will lead to an ineffective internal audit function in the public sector.

Figure 1: A conceptual model of the internal audit effectiveness in the public sector



Source: Authors

The public sector internal audit functions have been historically known as functions under-budgeted, under-staffed, under high political influence, with questionable levels of independence and objectivity, with their internal auditors poorly motivated due to low remunerations, limited possibilities for career advancements and developments. Furthermore, internal auditors in the public sector were more reluctant to adopt new ways of working, new technologies, etc., than internal auditors in the private sector. This, of course, cannot be valid for all internal audit functions in the public sector, but as seen in the past, the majority had some of those obstacles. All of this needs to change drastically in the contemporary digital era as technologies' adoption can greatly improve the effectiveness and efficiency of the overall internal audit function, which is especially important for the internal audit functions in the public sector. Digital era necessitates the adoption and usage of information and communication technologies, as well as novel digital technologies, which is underscored in the public in comparison to the private sector, due to various reasons. The results of a research conducted by Ahmi et al. (2016) showed that the level of information technologies' adoption by internal audit functions in the Malaysian public sector is high, but their actual usage in internal auditing is low. Emmanuel et al. (2013) stated that today there exists an inevitable need that internal

auditors in the public sector acquire competencies in digitalised operations and electronic data processing. This means internal audit functions in the public sector need to adopt and implement technological solutions at their organisational levels, while internal auditors need to attend specialised educations, training and seminars to upgrade and acquire knowledge, skills and abilities for the era of fourth and fifth industrial revolutions. They need to expand their competencies beyond just traditional accounting knowledge to be able to use new technologies and audit digitalised business operations of their entities, organisations and companies. This will lead to successful internal audit functions' digital transformation, by adopting continuous internal auditing, agile internal auditing, remote internal auditing, etc., which are all enabled by novel technologies adoption, like artificial intelligence, blockchain technology, cloud computing, internet of things, robotics, etc., at internal audit function's and entity's level (Halar, 2022). If all of these technologies, concepts and ways of working are successfully adopted, implemented, used and applied in internal audit functions in the public sector, they can greatly improve their effectiveness.

This paper gives a valuable overview and synthesis of the driving (independent) factors of the internal audit effectiveness in the public sector grouped into three perspectives that represents a novel approach to this research stream. Furthermore, the paper also identifies the outcome (dependent) measures of the internal audit effectiveness in the public sector. When taken together into consideration, these driving and resulting elements of effectiveness form a comprehensive conceptual model of the internal audit effectiveness in the public sector. The resulting conceptual (theoretical) model needs to be further empirically tested, by defining the exact quantitative and/or qualitative measurement approaches and scales (instruments) in the first step, and then empirically validated. This will result in the applicable model of the internal audit effectiveness that chief audit executives in the public sector will be able to use for measuring their internal audit functions' effectiveness. By doing so, chief audit executives will be able to show their entities', organisations' and companies' governance structures the value that internal audit function adds and that it is an integral part of the sound corporate governance mosaic in the public sector in a contemporary digital era. The research conducted in this paper contributes to unifying the literature regarding the internal audit effectiveness in the public sector that has been under-investigated and scattered on the global level.

5. Conclusion

Acknowledging the need for a multidimensional consideration of the internal audit effectiveness, and based on a systematic literature review, this research identified perspectives of the internal audit effectiveness in the public sector, which include external influences on the internal audit function (primary relations with key stakeholders), as well as internal resources of the internal audit function. The identified perspectives are based on neo-institutional theory and resource-based theory, which provide the possibility of a more comprehensive overview of the factors of the internal audit effectiveness. As identified within *the internal audit function's ethics and professionalism perspective*, the effectiveness of the internal audit function depends greatly on its commitment to professional guidelines, coupled with the ethical conduct and professionalism of internal auditors. This entails maintaining objectivity and competence, while continuously enhancing knowledge, skills and abilities to adapt to the demands of a modern digital era. *The internal audit function's governance perspective* connects the factors related to the organisational independence of the internal audit function and the need to establish and maintain constructive and supportive relationships with the environment in which the internal audit function operates, as well as the implementation of quality assessment program. *The*

perspective of managing the internal audit function includes factors related to internal audit resources and the need to optimise the internal organisational structure of the internal audit function.

The conducted research contributes to a few research efforts related to investigations of the internal audit effectiveness in the public sector, offering a comprehensive conceptual model on which is possible to organise the effective functioning of internal audit functions in the public sector. The identified factors within the aforementioned perspectives can be measured either quantitatively or qualitatively. However, it is important to note that the current model does not provide specific measurement scales, rather, it aims to identify perspectives of the internal audit effectiveness. Future research endeavours should focus on defining measurement scales for the identified factors. Comprehensive theoretical and empirical examinations, along with discussions on measurement methodologies, should be undertaken to enhance our understanding of the effectiveness of internal audit functions in the public sector.

This conducted research can complement existing research, supporting the importance of applying neo-institutional theory and resource-based theory in the context of the research related to the internal audit effectiveness. Furthermore, it offers the possibility of conducting more detailed research into the factors of the identified perspectives, as well as their measurement methods. Future research efforts can be focused on testing the model in different contexts to better explore the neo-institutional dimension of perspectives and related factors. The model holds significance for researchers in the field of the internal audit effectiveness, but also for regulators in the public sector, because it connects confirmed factors with a significant impact on the internal audit effectiveness in the public sector.

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