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MODERN COST MANAGAMENT MODELS: ARE THEY USED IN CROATIAN COMPANIES?

MODERNI MODELI UPRAVLJANJA TROŠKOVIMA: KORISTE LI SE U HRVATSKIM PODUZEĆIMA?

ABSTRACT

Cost management is a managerial powerful tool for increasing competitiveness and improving business results. The main objective of cost management is to achieve cost efficiency, which in practice means the realization of the optimal ratio between the costs involved and the results that it achieves. Cost management models statistical analysis in Croatian companies was made. The main aim was to research cost management models used in Croatia as a support for sustaining and enhancing competitiveness. The survey was conducted in November 2012. Using simple random selection procedure 70 Croatian companies were selected from Register of business subjects in Croatian commercial Chamber. The selected companies were surveyed mostly by e-mail (50 companies) but also by phone (10 companies) and by personal contact (10 companies). The final response rate was 41%. The main hypothesis was that Croatian companies fail to apply adequate models of cost management and thereby significantly reduce their efficiency and competitiveness. Modern cost management model usage provides options for managers in their actions to be more precise, efficient and effective. But the research has shown that Croatian companies are mostly using traditional methods of cost management. The further cost management model usage analysis in the Croatian companies showed that most companies consider that they

could achieve significant cost savings thanks to better use of different models of cost management. The empirical research results have shown that Croatian companies do not use adequate models of cost management, thus confirming the hypothesis. Further research aims should be to investigate reasons of not using modern cost management models as integral parts of the companies' strategic orientation.

Key words: *cost management models, Croatian companies, competitiveness, statistics*

SAŽETAK

Upravljanje troškovima je snažan alat za jačanje konkurentnosti i poboljšanje poslovnog rezultata. Glavni cilj upravljanja troškovima je postizanje troškovne efikasnosti, što bi praktično značilo postizanje optimalnog rezultata uz optimalne troškove. U hrvatskim poduzećima napravljeno je istraživanje o modelima upravljanja troškovima. Glavni cilj istraživanja bio je istražiti i analizirati koje modele upravljanja troškovima hrvatska poduzeća koriste kako bi održali im ojačali konkurentnost. Istraživanje je provedeno u studenom 2012 godine. Koristeći proceduru slučajnog uzorka, 70 hrvatskih poduzeća je izabrano iz baze Registra poslovnih subjekata Hrvatske gospodarske komore. Navedena poduzeća kontaktirana su najvećim dijelom e-mailom (50), telefonom (10 poduzeća) ili osobno (10 poduzeća). Od ukupno poslanih 70 upitnika prikupljen je uzorak od 29 ispravno ispunjenih upitnika, što predstavlja stopu odgovora od 41,4%. Postavljena je glavna hipoteza kako hrvatska poduzeća ne primjenjuju adekvatne modele upravljanja troškovima i zbog toga značajno smanjuju svoju efikasnost i konkurentnost. Moderni modeli upravljanja troškovima pružaju različite opcije menadžerima kako bi u svojim aktivnostima i donošenju odluka bili što precizniji, učinkovitiji i djelotvorniji. No, provedeno istraživanje je pokazalo kako hrvatska poduzeća u većini slučajeva još uvijek koriste tradicionalne modele upravljanja troškovima. Također, istraživanje je pokazalo kako hrvatska poduzeća smatraju kako bi mogla ostvariti značajne uštede ukoliko bi koristili različite modele upravljanja troškovima. Rezultati istraživanja su pokazali kako hrvatska poduzeća ne koriste adekvatne modele upravljanja troškovima što potvrđuje postavljenu hipotezu. Buduća istraživanja biti će fokusirana na pronalaženje razloga o nekorištenju modernih modela upravljanja troškovima kao integralnog djela strateške orijentacije hrvatskih poduzeća.

Ključne riječi: *modeli upravljanja troškovima, hrvatska poduzeća, konkurentnost, statistika*

1. Introduction

The subject of this paper emerged as particularly interesting given the crisis conditions of doing business in today's economic environment. In such conditions, costs and cost management are becoming increasingly important factor in the performance of the company in relation to the instability and unpredictability of the overall economic trends. Traditional cost management models do not allow a distinction between the costs and different activities that occur in companies (whether it is a service or manufacturing company). Moreover, they do not offer an answer to the question: where to cut cost? The development and emergence of modern cost management model ensures managerial critical mass of information needed for decision-making in order to optimize costs in existing business conditions in the global market. Using modern cost management model provides options to managers in their actions to be more precise, effective and efficient. The complex transformation processes in companies and other organizations, sometimes caused by institutional changes, require a change in business policy, particularly in the area of cost management.

The purpose of this paper is to investigate the implementation level of existing theoretical cost management models in Croatian companies in order to draw conclusions about the use of modern cost management models in Croatia. Modern cost management models in companies are considered to be active and usually produce results in increasing market competitiveness by reducing operating costs, reducing financial expenses, increasing added value in internal processes and reducing business risk. Therefore, the aim of this paper is to highlight the importance and role of cost management and to explore the characteristics and level of usage models cost management in Croatian companies. The authors have set up hypothesis that *Croatian companies fail to apply adequate models of cost management and thereby significantly reduce their efficiency and competitiveness*. Conducted survey is planned to prove that Croatian companies mostly apply traditional methods of cost management. The survey was conducted by questionnaire method on a selected sample of 70 Croatian companies.

2. Background and literature review

Business conditions are changing rapidly becoming more and more complex. But, for companies this is not the only thing that has changed. According to Drury, factors that are influencing the change in companies and trade market are: a) globalization of trade market; b) privatization of government controlled companies; c) change in product life cycle (it is getting shorter and shorter); d) change in costumer consciences and they expect more for less (lower cost, higher quality, higher reliability, delivery and in choice of new products); and e) the emergence of e-business (Drury, 2012, 36.). Increasing attention is now being given to value chain analysis as a mean of increasing customer satisfaction and managing cost more effectively. Cost management focuses on cost reduction and continuous improvement and change rather than cost containment (Drury, 2012, 36.). It involves process improvements, where an opportunity has been identified to perform processes more effectively and efficiently. Ideally, cost management aim to take actions that will both reduce costs and enhance customer satisfaction (Drury, 2012, 37.). Traditional or static cost management models such as job order costing, process costing, standard costing and variance analysis, traditional budgeting and cost volume profit (CVP) analysis are no longer adequate to be used in the present manufacturing environment (Kaplan, 2003, 24.). Moreover, the shorter product life cycles, advanced manufacturing technologies, decreasing emphasis on labor in the production process and global competition may lead to the misuse of the above tools (Drury, 2008, 37.). To succeed in the present dynamic business environment, companies should link their strategies to quality improvement; increased flexibility in meeting customer's individual requirements; reduce lead times, inventories and cost (Kaplan, 2003, 24.). Thus, management accounting is continuously evolving, with the emphasis shifting from a cost determination and financial control focus, to the provision of advice that results in addition or creation of value, to taking part in decision making and strategy formation (Allott et al., 2000). Traditional cost management models have only emphasis on how to reduce cost to achieve short-term profit and setting price after products are produced. In today competitive market, sustain in the market is not that easy. Customers' satisfaction becomes the most important factor that is determining sustainability of the company, so they need to maximize the value to the customer by a minimum cost. The companies should work with continuous improvement and try to identify and remove non-value added activities. So, companies should have information about cost relevant for decision making process and product profitability. They should be reliable in presence based on past event and trying to predict the future (Lucey, 1996, 31). Modern cost management models enable the evaluation of product profitability through the entire product life cycle and optimizing cost of the whole company. Therefore, this approach is oriented to the long run decisions regarding pricing the product, forming the

adequate product mix, eliminating the non-profit product line, introducing the new product line etc. That is the reason why modern cost management models considered being active and dynamic. But, in order to provide the management with relevant information regarding costs, accounting function in companies need to combine and compare cost management models in the short run and in the long run (Blocher at al., 2005, 24). Only the interaction of these two cost management approaches can give the objective and reliable picture regarding costs (Horngren at all., 2003, 27). While traditional cost management approach is based on traditional cost accounting methods which are focused mainly on manufacturing costs towards the determination of the manufacturing cost per unit, modern cost management approach involves modern managerial (management) accounting methods focused on the total costs through the whole product life cycle. Modern cost management models compared to traditional models tend to perform more precise schedule of indirect costs of the product or service or any other cost object, while the analysis of the cost of added value are trying to eliminate those activities that are not bringing any value to the company.

Modern cost management models, as a powerful management and strategic tool for preserving the value of the company, were developed in accordance with the development of decentralization and diversification of the production program (Blocher at all., 2005, 24). Traditional management model production costs occurred during the dominance of labour-intensive production when the cost of production overheads had a disproportionately small share of total production costs than today. With the development of technology, information systems and globalized business conditions there is a need for the development and use of modern cost management model as the Activity Based Costing method (further ABC method). ABC method is a relatively new approach developed in 1980th year, which eliminates the disadvantages of the traditional cost accounting. ABC method began to be applied in practice in the 1980s in large manufacturing companies and have yielded primarily benefits through cost reduction, integration of some separate activities and very high level of cost control. In such conditions, new modern methods of cost management, as Target Costing and „Kaizen" method, had also appeared. In the period from 1990th to today there was an explosion of new models of cost management, such as the ABC method, cost management based on the life cycle, benchmarking strategies, Balanced Score Card and etc. Today, traditional methods of allocating costs are not desirable in terms of reducing costs and increased interest of producers for accurate information on product costs in order to achieve greater market competitiveness, and thus higher levels of profitability. The table below gives an overview of cost management models.

Table 1 Overview of cost management models

Cost models	Model origins	Prerequisite
Traditional Product Costing - TPC	Where costs occur?	Cost allocation rates and different calculation
Process Based Costing -PBC	What causes overheads to appear?	Processes, decomposition processes at II. level (the process steps or stages in the process) , bases to allocate costs
Activity Based Costing - ABC	Why costs appear?	Activities, decomposition activities at III. level
Activity Based Budgeting - ABB	What are the capacities needed for production of product or service?	Normative and standards
Target Costing - TC	How high cost may be?	Knowledge about cost structure, knowledge about market and preferences of costumers
Life – cycle Costing (LCC)	When the cost of product or a service will be covered?	Knowledge about costs in total life cycle of a product or a service

Cost models	Model origins	Prerequisite
" Kaizen " Costing - KC	Can you do better?	The existence of developed procedures
Value Engineering - VE	Can I still reduce costs?	Functional analysis, knowledge of technology
Quality Cost Management - QCM	What costs would not appear if the job was performed well first time?	Built system for monitoring quality costs
Balanced Score Card - BSC	What are the results in balancing success factors?	Developed system of indicators
Benchmarking	What can we learn from competition (others)?	Knowledge about others in the same branch or position

Source: authors according to Belak, 2011, 48.

Each of aforementioned models can be used to manage costs. However, these models are not exclusive. It is common in companies to use combined application of different models of cost management. Unlike traditional cost management model involving the concept of measuring and controlling the cost of production of goods and services, modern cost models are adequate and effective tool for company in getting the information to customize the economic and technological development. Modern cost management models for companies in today's business environment represent the main base of business strategy that ensures not only the existence but also the preservation and improvement of competitive position (Cingula, Klačmer, 2003, 23).

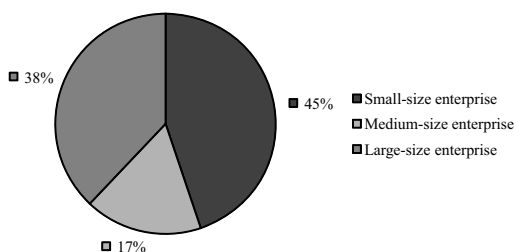
3. Usage of cost management models in Croatian companies

In order to research the cost management models position in Croatian companies the survey about this topic was conducted. 70 Croatian companies were selected from the Register of business subjects in Croatian commercial Chamber with usage of simple random selection procedure. The selected companies were then contacted by e-mail (50 companies), phone (10 companies) or by personal contact (10 companies). The survey was conducted during November 2012. The questionnaire consisted only of 10 questions plus some questions about the company and respondent who filled out the questionnaire. Such small amount of precise, short and non-misleading questions should have a great impact on the response rate. And indeed, from 70 contacted Croatian companies, 29 of them decided to take part in the survey and fill it. This gave a response rate of 41,43% which is remarkable high for a such kind of research.

The usage of cost management models in Croatian companies could differ according to their size. According to the Accounting Act (Accounting Act, 2007) in Croatia companies are recognized regarding their size as small, medium and large companies. The companies are defined on the last day of the fiscal year preceding the fiscal year for which the financial statements are prepared according to the following three criteria: total assets value; the income value; and average number of employees during the financial year. So the small companies are those which do not exceed two of the following criteria: total assets value of HRK 32.5 million, the income of HRK 65 million, average number of 50 employees during the financial year. On the other hand, the medium companies are those which do not exceed two of the following criteria: total assets value of HRK 130 million, the income of HRK 260 million, average number of 250 employees during the financial year. Large companies are those which fulfilled two requirements for medium-sized companies. Also, according to the Accounting Act as large companies are considered banks, savings banks, electronic money

institutions, insurance companies, leasing companies, investment fund management and separate assets without legal personality under their management companies, investment fund management and property investment funds with legal personality, society for a mandatory or voluntary pension funds and separate assets under their management, and pension insurance. In the survey 13 small-, 5 medium- and 11 large-sized companies participated. Their structure is shown in Figure 1.

Figure 1 Structure of companies which have taken part in the survey according their size



Source: authors

The departments which are in charge for cost management can be grouped into the three groups: department of accounting and finance, department of controlling, and management department. Obtained data showed that in the 9 companies from the 29 sample companies (31.03%) for cost management is responsible department of accounting and finance, in the 8 (27.59%) department of controlling, and in the 12 companies (41.38%) management department.

Table 2 Departments in charge for cost management grouped by company size

Company size	Accounting and finance	Controlling	Management
Small	35,71%		64,29%
Medium	75%		25%
Large		90,91%	9,09%

Source: authors

It is interesting to see that in small companies in Croatia, management department is dealing with cost management. The reason for that is that the owner of small company probably is trying to manage cost and they do not have a department or a person in charge for managing costs. Medium companies have an accounting and finance department and because of that analysis and planning of cost goes under that department. Since large companies have all the functions within the company, it is evident that they are highly adapted to demanding and modern conditions of market through controlling department which is in charge of tracking; planning and analysing costs.

One of asked question was how well the company know about cost management models. The most companies, 21 of them, answered that they have good knowledge about cost management models. Excellent knowledge about cost management models stated 6 companies, and poor knowledge about them expressed only one company. Also, one company did not answer on this question. It is assumed that vast majority of Croatian companies, or, to be precise, more than 0.8 of them has good or excellent knowledge about cost management models. The proportion test showed that the null hypothesis can be rejected at significance

level of 5% ($\hat{p}=0.9643$, $\sigma_{\hat{p}}=0.756$, $z\text{-value}=2.173$, $p\text{-value}=0.015$). This means that the stated hypothesis about cost management models knowledge in Croatian companies could be accepted.

Table 3 Knowledge of companies about cost management models grouped by size of the company

Cost management models	Small	Medium	Large
Traditional models	78,58%	25%	27,28%
Modern models	14,28%	50%	63,63%
I do not know	7,14%	25%	9,09%

Source: authors

It is evident from the upper table that small companies know traditional models the best while modern models as they have stated knows only theoretically. This is logical since they are using mostly traditional models for cost management because modern models are very expensive and exhaustive for implementation. Large companies are familiar with modern models and that is because they are using most of the modern cost management models since they have department dealing with active cost management.

In spite of fact that almost all companies are good or excellent familiar with cost management models, only 19 or 65.5% companies in the sample use at least one cost management model. On the other hand, 10 or 34.5% companies do not use any of cost management models. The hypothesis that more than 50% Croatian companies are using at least one cost management model has been stated. It has been concluded that the null hypothesis can be rejected at the significance level of 5% ($\hat{p}=0.6552$, $\sigma_{\hat{p}}=0.093$, $z\text{-value}=1.671$, $p\text{-value}=0.047$). In other words, more than 50% Croatian companies uses at least one cost management model.

The cost management models can be recognized as traditional and modern. From those 19 companies that are using at least one cost management model, traditional cost management models use 7 companies in the sample. On the other side modern cost management models are used by 6 companies in the sample. Both, traditional and modern, cost management models are used by 5 companies. One company did not answer on this question. From the table below it is visible that all the companies that are using cost management models are using more than one model. From modern cost management models the most commonly used are PBC method, then ABC method, TC method and ABB. It is also interesting to see that even 6 companies is using BSC model which is considered to be the most complicated for implementation. The responses are given in Table 4.

Table 4 Cost management models used in Croatian companies

Cost management models	No. Of companies using cost management models
Traditional Product Costing - TPC	12
Process Based Costing -PBC	7
Activity Based Costing - ABC	6
Activity Based Budgeting - ABB	6
Target Costing - TC	6
Life – cycle Costing (LCC)	4
" Kaizen " Costing - KC	0
Value Engineering - VE	4
Quality Cost Management - QCM	2
Balanced Score Card - BSC	6
Benchmarking	3

Source: authors

It is remarkable that 15 companies agreed that the used cost management model fully ensures them enough information for bringing better decisions in order to optimize costs. The rest of the companies, which use cost management models, think that the used management model only partially fulfil their needs for information about costs. In table below it is visible satisfaction with cost management models that are used in small, medium and large companies about cost information provided by used model for decision making regarding cost optimization what is helping in their efficiency and competitiveness.

Table 5 Satisfaction with used cost management models for decision making

Satisfaction of companies	Small	Medium	Large
Yes	57,15%	75%	81,82%
No	14,28%	-	-
Partially	28,57%	25%	18,18%

Source: authors

From Table 5 we can draw conclusion that large companies are very satisfied with implemented cost management models.

It is very important that employees are continuously educated about cost management models in order to bring out their maximum. The same number of companies (7) agreed that they do and do not give enough attention to education in the field of cost management. Also there were 14 partially satisfied companies with their investments in the cost management education. One company did not answer this question. The hypothesis that only 15% Croatian companies gives enough attention to cost management education is stated. At significance level of 5% the null hypothesis cannot be rejected ($\hat{p} = 0.25$, $\sigma_{\hat{p}} = 0.067$, $z - value = 1.482$, $p - value = 0.138$). The test results pointed out that vast majority of Croatian companies do not invest enough in cost management education and because of that they are not able to get maximum benefits from cost management models use.

Table 6 Satisfaction with education in cost management area

Satisfaction of companies	Small	Medium	Large
Yes	7,14%	25%	36,36%
No	35,72%	50%	9,09%
Partially	57,14%	25%	54,54%

Source: authors

The companies were also asked to grade the cost management results importance on the five-point scale where grade "1" is fully not important and grade "5" is very important. The results are shown in Table 7. It can be concluded that the most important result for companies is improved business processes control because 62% companies gave grade 5 to it.

Table 7 The importance of cost management results to companies in the sample

Cost management result	Importance						Total company number
	1	2	3	4	5	Do not know / Not answered	
Reduced business risk	0	2	6	10	7	4	29
Increased added value	0	2	6	2	15	4	29
Decreased operating expenses	0	0	3	12	11	3	29
Reduction of financial expenses	1	3	2	13	6	4	29
Improved business processes control	0	0	2	8	16	3	29
Increased competitiveness	0	3	4	9	9	4	29

Source: authors

Following result by importance is increased added value (60% companies gave grade 5). It has been assumed that more than 50% Croatian companies agrees that each of given cost management result is important (grade 4) or very important (grade 5). For this purpose the Wilcoxon signed rank test about assumed value of median is used where hypothesis were following: $H_0... \eta \leq 3$; $H_1... \eta \leq 3$. The median test results are given in Table 8.

Table 8 The Wilcoxon signed rank test results of cost management results importance to companies

Cost management result	Sample size	Sample size for the test	Wilcoxon statistic	p-value	Estima. median
Reduced business risk	25	19	177.0	0.001	4.0
Increased added value	25	19	185.0	0.000	4.0
Decreased operating expenses	26	23	276.0	0.000	4.5
Reduction of financial expenses	25	23	230.5	0.003	4.0
Improved business processes control	26	24	300.0	0.000	4.5
Increased competitiveness	25	21	211.5	0.000	4.0

Source: authors

The median test results have shown that, at significance level of 5%, for each observed cost management result the null hypothesis can be rejected. On that way it can be concluded that more than 50% Croatian companies recognizes the importance of cost management results.

Table 9 The importance of cost management results grouped to companies' size

Cost management result	Small	Medium	Large
Reduced business risk	15%	5%	5%
Increased added value	15%	10%	5%
Decreased operating expenses	5%	15%	50%
Reduction of financial expenses	15%	10%	20%
Improved business processes control	10%	10%	15%
Increased competitiveness	40%	50%	5%

Source: authors

From Table 9 we can see that small and medium companies believe that they have the highest benefit in cost management models in increasing their competitiveness, while large companies believes that the highest benefit in cost management models can be visible in reducing operating expenses.

Based on this results authors are assuming that the cost management will be more used in Croatian companies in the future and more of them will start to use some of cost management models.

6. Conclusion

Today, the numerous factors in the business environment, such as strategic interest, contemporary organizational and managerial structure of the company, flexible technology, e-business activities, modern management style and organizational culture changes, have affected on cost management practices within the companies and have led to gradually implementation of modern cost models.

Conducted empirical survey, on the selected sample of Croatian companies, has showed that Croatian companies are still primary focused on traditional cost management models even though they cannot meet increased needs of management in the decision making process. From obtained data is obvious that the vast majority of companies use at least one of the cost management models. But still the traditional cost management models are the most used ones even though some companies are using both traditional and modern cost management models. So through conducted survey, authors have confirmed initially set hypothesis that *Croatian companies fail to apply adequate models of cost management and thereby significantly reduce their efficiency and competitiveness*. Nevertheless it is necessary to highlight positive trend that the most of the companies in the sample are familiar with modern cost management models in the theory.

The introduction of modern cost models, such as ABC method, Target Costing model with a wide range of applications, are becoming a priority and incentive to maintain and strengthen the competitive position of the company. Authors think that the reasons for still using traditional cost management model in Croatian companies could be find in insufficient knowledge about modern cost management model and opportunities that they bring as a tool for making efficient and accurate strategic decisions and in the lack of financial resources for implementation of new cost methodology. Moreover, the authors believe that only the interaction of these two cost management models, traditional and modern, can give the objective and reliable picture regarding costs and on that way improve cost management within the Croatian companies. Therefore, future research will be focused on actual implementation of cost management models and their connection with traditional costing systems.

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