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INFRASTRUCTURE AS A COMPETITIVENESS FACTOR IN THE WESTERN BALKAN COUNTRIES

UDC 339.137.2(497-15)

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Abstract. *The concept of a country's competitiveness has increasingly gained in importance recently, although it is still contested in theory. Well developed and interconnected transport and energy infrastructures are the key drivers of economic growth and employment as well as important factors for attracting new investments and improving competitiveness. By using the GCI (WEF) dataset, the paper considers the global competitiveness of the six countries of the Western Balkans (Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Albania and Macedonia) for the period 2006-2014, with particular emphasis on the importance of the second GCI pillar (Infrastructure) for improving competitiveness in these countries. The paper demonstrates a weak trend in infrastructure development of the region and a lack of balance among the countries in terms of the observed indicators. Hence there is a need for comprehensive infrastructure strategies in every individual country observed and also through joint regional approach to this problem.*

Key words: *country's competitiveness, Global Competitiveness Index, infrastructure, the Western Balkans*

INTRODUCTION

In theory there are diametrically opposed views on the relevance of the concept of competitiveness. Because of the number and complexity of factors, as well as the very nature of the competitive processes, the concept of competitiveness is often very difficult to understand, and sometimes it is even confusing (Snieška & Bruneckienė, 2009). This is evidenced by the fact that some economic analysts believe that competitiveness has characteristics of "the natural law of modern capitalist economy" (Kitson et al., 2004),

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while others think that definition of competitiveness refers to productivity which measures the value of goods and services per factor unit, produced in a particular territory (Krugman, 1996 and Ketels, 2003).

We should distinguish between *microeconomic* and *macroeconomic* aspects of competitiveness. At a micro level, competitiveness is the ability of companies to compete, grow and be profitable (Martin, 2006). So, micro-competitiveness refers to the ability of a company to consistently and profitably produce output that meets the requirements of an open market in terms of price, quality, etc. (The World Competitiveness Yearbook, 2000). A company that is more competitive than its rivals will have better chances to gain larger market share. In contrast, firms that are not competitive will be characterized by a drop in market share. Eventually, due to a drop in competitiveness these firms might disappear from the market.

Unlike the competitiveness of enterprises, the concept of a country's competitiveness (*macro-competitiveness*) is a controversial phenomenon theoretically. The competitiveness of a country is defined as the set of institutions, policies and factors that affects the national level of productivity (Marginen, 2006). On the other hand, productivity growth is the level of progress that an economy can reach. Productivity level also determines the rates of return on investments which are the fundamental drivers of economic development. In other words, a more competitive economy will probably grow faster in the future.

There is a consensus that the progress in economic performance of a country does not have to come at the expense of another country (i.e. there are no winners and losers) and that productivity is the central problem of competitiveness. Therefore, understanding, quantification and analysis of the competitiveness factors of a country become an important dimension of the development policy, which seeks to improve the quality of key macroeconomic performances. While it is obvious that theorists essentially associate a country's competitiveness to its economic performance, the fact is that this phenomenon is increasingly considered in relation to the country's position relative to other countries, rather than in relation to its accumulated wealth (Nijkamp, & Siedschlag, 2011).

The paper provides a comparative analysis of the Western Balkans competitiveness with special emphasis on *Infrastructure*[1] as a competitiveness factor. The initial assumption is that ***infrastructure*** development leads to productivity growth and higher living standards (Agbelie, 2014; Cvetanović, Zlatković, Cvetanović, 2012; Filipović and Njegovan, 2012; Erber, 1995; Gainova et al. 2013; Kumar, 2001; Vickerman, 1989). After all, in addition to human capital, physical capital and knowledge, the Porter list of competitiveness factors contained national infrastructure as well (Porter, 1998, 74-81).

In addition to the introduction, conclusion and list of literature consulted, the paper consists of three parts. First of all, the paper describes methodology and explains metrics of a country's competitiveness according to the WEF's GCI framework. Then the paper provides a comparative review of the Western Balkan countries competitiveness. Finally, there is a special reference to the infrastructure component of competitiveness expressed by using selected indicators of the Western Balkans, which are crucial (in our opinion) for research defined in the paper.

[1] The paper includes the Republic of Croatia as the Western Balkan country, although on 1 July 2013 Croatia became a full-fledged member of the European Union.

1. COUNTRY'S COMPETITIVENESS

1.1. The WEF's methodology

There is still no unique methodology for measuring a country's competitiveness. In practice there are several methodological tools for measuring competitiveness. However, only the World Economic Forum explicitly uses the term *competitiveness* in its index. The Global Competitiveness Index is a composite index, which is formed as the weighted average of the twelve pillars' values. Each of these pillars is a composite index by itself, and is formed as the weighted average of three sub-indicator groups whose values are obtained from primary and secondary sources (Figure 1).

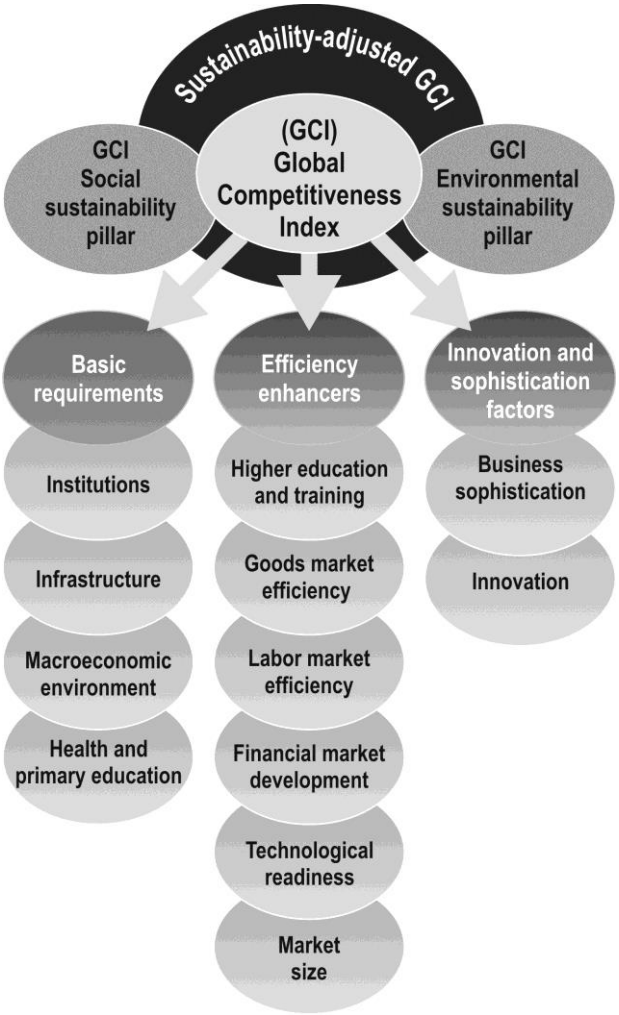

Fig. 1 The GCI structure
Source: modified according to the WEF, 2014, p. 9

Institutions are determined by the legal and administrative framework within which individuals, firms and governments work together to generate wealth. The importance of sound institutions has become an even more obvious factor of competitiveness during the latest economic and financial crisis.

Infrastructure is very important for the efficient functioning of the economy and is an important factor in determining the location of certain economic activities in certain geographic areas. Well-developed infrastructure minimizes the impact of spatial distance, integrating the national market and connecting it at low cost to markets in other countries and regions. In addition, the quality of infrastructure significantly affects the economic growth and reduces income inequality.

Macroeconomic environment is important to the business and therefore to the country's competitiveness. A stable macroeconomic environment *per se* cannot increase the productivity of the nation, but an unstable macroeconomic environment is harmful to the functioning of the economy.

Health and primary education are vital to improving competitiveness. Unhealthy workers will be less productive. Poor health leads to increased costs to the company, because ill workers are often absent or work less efficiently. Therefore, investment in health care is critical in economic and social terms. Primary education increases the efficiency of workers. As a rule, workers with low levels of formal education are able to carry out only simple manual tasks and they find it much more difficult to adapt to more advanced production processes and techniques. In other words, the lack of primary education can become a constraint on the development of the company because it cannot make progress by producing more sophisticated and higher-quality products with existing human resources.

Higher education and training are particularly important for economies that want to develop more complex production processes, in technological terms. A modern global economy requires nurturing of well-educated workers who are able to carry out complex tasks and adapt quickly to the changing environment and the evolving needs of the production.

Goods market efficiency ensures efficient trade of goods, in accordance with the supply and demand conditions. Healthy market competition, both domestic and foreign, is important for the market efficiency and hence for the productivity improvement process.

Labor market efficiency ensures that workers give their best in their jobs. Labor markets must therefore have the flexibility to shift workers quickly from one economic activity to another. Also, labor market must have the flexibility to allow for wage fluctuations without major social disturbances.

Financial market development implies that an efficient financial sector allocates resources to the most productive activities. A thorough and proper risk assessment is the key factor of a sound financial market. Economic development implies the existence of sophisticated financial markets that enable private sector investments.

Technological readiness measures the agility with which an economy adopts existing technologies in order to improve productivity. Whether the technology used has or has not been developed within national borders is irrelevant for a country's ability to improve productivity. It is crucial that companies operating in the country have access to advanced technologies.

Market size affects productivity. Large markets allow companies to exploit the effects of the economies of scale. In the globalization era, international markets to some extent can be a substitute for domestic markets, especially in the case of small countries. Empirical research shows that trade openness is positively associated with economic growth.

Business sophistication generates higher efficiency in the production of goods and services. Business sophistication refers to two intertwined elements: the quality of a country's overall business networks and the quality of individual firms' operations and strategies. These factors are especially important for countries at higher stages of economic development when basic sources of productivity improvements have been exhausted.

Innovation can be the result of new technological and non-technological knowledge. Non-technological innovations are closely related to practical knowledge, skills, and working conditions within the organization. Although significant gains can be obtained by improving institutions, building infrastructure, reducing macroeconomic instability or improving human capital, all these factors eventually lead to diminishing returns. The same is true for the efficiency of the financial, goods and labor markets. In the long run, innovation can improve living standards to a great extent.

1.2. Metrics

The values of the 12 pillars of the Global Competitiveness Index are derived from *primary* and *secondary* sources. Primary data are obtained on the basis of standardized surveys (the Survey) that are conducted every year in the covered countries. The Survey captures the opinions of the highest-level executives in companies that constitute a representative sample. These data are called *soft data*. The number of companies included in the sample varies from country to country and depends primarily on the country's size. The sample consists of small- and medium-sized enterprises and large companies. The WEF's guidelines precisely define each company's share (by its size) in the sample. It is worth noting that each year a half of the sample consists of the companies from the previous year sample, while the other half is selected randomly from the defined sampling frame. Retaining the elements from the previous year sample contributes to greater stability of the Survey results and gives validity to numerous panel analyses. Primary data from the Survey are necessary for calculating those sub-indicators for which there are no secondary, quantitative datasets for all countries included in the WEF's rankings. The Survey covers a wide range of issues related to the business conditions, legal regulations, market climate, political situation, etc. It is evident that only the Survey can provide data for the above-mentioned issues and many other issues that are important for creating a country's international competitiveness profile.

Calculation of sub-indicators of competitiveness (such as the level of taxes, inflation rate, budget deficit, number of telephone lines, number of procedures for starting a business, etc.) uses data from internationally comparable datasets (e.g. datasets of the IMF, the World Bank, the WTO, the UN, etc.). These data are called *hard data*.

All data, whether primary or secondary, are standardized on a 1-to-7 scale (1 – the worst score, 7 – the best score), which is also a range of possible values for all sub-indicators, pillars of competitiveness and even the GCI. Regarding the Survey, there is no need to normalize most of the questions because the Survey uses a balanced 7-point Likert scale. Contribution of the Survey data to the GCI calculation is approximately 70%, while the share of secondary data is approximately 30%.

1.3. Stages of development

The GCI assumes that countries experience *3 stages of development*. In the *first stage*, basic factors of competitiveness (well-functioning public and private institutions, well-developed infrastructure, stable macroeconomic environment and good, healthy workforce that has received at least a basic education) are important for growth and productivity.

Further, countries move into the *second stage* of development, when they develop more efficient production processes and increase product quality. At this stage, competitiveness growth is influenced by higher education and training, efficient goods market, well-functioning labor market, developed financial market, large domestic or foreign markets and the ability to harness the benefits of existing technologies.

Finally, countries move into the *third stage* where the growth of productivity and competitiveness is possible primarily due to innovations. Knowledge-based economy is the dominant model of economy in the 21st century, while the global economy development is becoming innovation-driven. Innovations and knowledge in the broadest sense are increasingly becoming development factors and hence competitiveness factors.

The significance of the pillars within the group for an individual country depends on its development level. A relatively precise and simple criterion is used for grouping countries by their development levels. The criterion starts from the realized level of GDP per capita, denominated in US dollars. There are three basic and two transitional stages of economic development. The weights that are assigned to pillars groups that form the GCI value depend on the stage of the country.

For every development stage the key drivers of competitiveness are pillars from different groups. Hence, in the composite GCI value calculation, the participation rate of basic requirements is 40%, efficiency enhancers 50%, while innovation and sophistication factors participate with 10%. Accordingly, the values of the pillars in the "Efficiency enhancers" group, have proportionately the greatest influence on the total GCI value calculation.

By using the GCI (WEF) dataset, the paper considers the global competitiveness of six countries of the Western Balkans (Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Albania and Macedonia) (Figure 2) with a special reference to the infrastructure component of competitiveness.

Fig. 2 The Western Balkans

Five out of six analyzed countries of the Western Balkans are in the second stage of development, with the exception of Croatia which is in transitional stage between the second and the third stage of economic development (Despotovic, Cvetanović & Nedić, 2014).

2. Comparative Analysis of the Western Balkan Countries Competitiveness

Tables 1 and 2 provide data on the GCI values and rankings of Serbia and the Western Balkan countries for the period 2006-2014.

According to the WEF's Report 2014-2015, Serbia is ranked as 94th out of the total of 144 countries according to GCI value (3.90). Macedonia recorded the highest GCI value (4.26) in 2014-2015, while Albania had the lowest value (3.84). Historically, Serbia achieved the highest GCI value (3.90) on the eve of the first crisis wave in 2008, but in 2009 the GCI value noticeably declined to 3.77. A mild recovery trend followed, and in 2014-2015 it returned to the pre-crisis level.

Table 1 The GCI of the Western Balkan countries, 2006-2014

Country / Edition of report	GCI value					
	Albania	Bosnia and Herzegovina	Croatia	Macedonia, FYR	Montenegro	Serbia
2006-2007	3.56	3.82	4.16	3.81	/	/
2007-2008	3.48	3.55	4.20	3.73	3.91	3.78
2008-2009	3.55	3.56	4.22	3.87	4.11	3.90
2009-2010	3.72	3.53	4.03	3.95	4.16	3.77
2010-2011	3.94	3.70	4.04	4.02	4.36	3.84
2011-2012	4.06	3.83	4.08	4.05	4.27	3.88
2012-2013	3.91	3.93	4.04	4.04	4.14	3.87
2013-2014	3.85	4.02	4.13	4.14	4.20	3.77
2014-2015	3.84	/	4.13	4.26	4.23	3.90

Source: Competitiveness Dataset, WEF (Geiger, 2015).

Table 2 The ranking of the Western Balkan countries according to GCI, 2006-2014

Country / Edition of report	GCI rank						
	Number of country	Albania	Bosnia & Herzegovina	Croatia	Macedonia, FYR	Montenegro	Serbia
2006-2007	122	98	82	56	84		
2007-2008	131	109	106	57	94	82	91
2008-2009	134	108	107	61	89	65	85
2009-2010	133	96	109	72	84	62	93
2010-2011	139	88	102	77	79	49	96
2011-2012	142	78	100	76	79	60	95
2012-2013	144	89	88	81	80	72	95
2013-2014	148	95	87	75	73	67	101
2014-2015	144	97		77	63	67	94

Source: Competitiveness Dataset, WEF (Geiger, 2015).

Figure 3 is based on the data from Table 1 and illustrates the GCI trends for Serbia and the Western Balkans in the period 2006-2014.

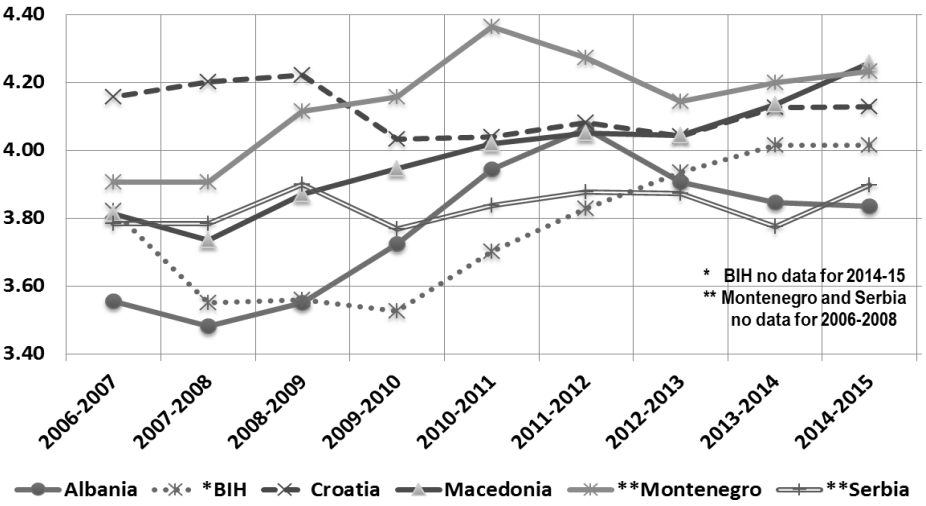

Fig. 3 The GCI trend, 2006-2014
Source: Authors' calculation based on Competitiveness Dataset. WEF 2015

It is notable that in the observed period Croatia and Montenegro show the best scores according to the criterion of competitiveness. Macedonia has the most favorable upward trend. Albania and Bosnia and Herzegovina show excessive oscillation in the index values and consequently in the rankings. As an illustration, you can notice that in 2012 Bosnia and Herzegovina improved its competitiveness by 12 positions within a year. So this country was ranked higher than Serbia on the WEF's list, for the first time since the beginning of the GCI calculating and publishing. In 2009 Albania also improved its global competitiveness by 12 positions, within a year (Table 2). Serbia shows the smallest oscillations in the index value and consequently in the ranking. Regarding competitiveness, after mild increase in the GCI values in 2010 and 2011, the trend has been stagnant since 2012. Figure 3 shows that the highest level of convergence of the GCI values for the selected countries group was reached in 2012-2013.

The following 3D area chart (Figure 4) shows the GCI structure for the observed region of the Western Balkans as a whole, by main pillars of competitiveness for the period 2006-2014.

It can be concluded from the figure that *Macroeconomic environment* and *Technological readiness* show significant divergence in the observed period. Other relatively significant characteristics are: stable and high level of *Health and primary education* pillar; alarmingly low value of *Innovation* pillar (despite a slight improvement); *Infrastructure* pillar showed a significant upward trend in the last decade, on a regional basis.

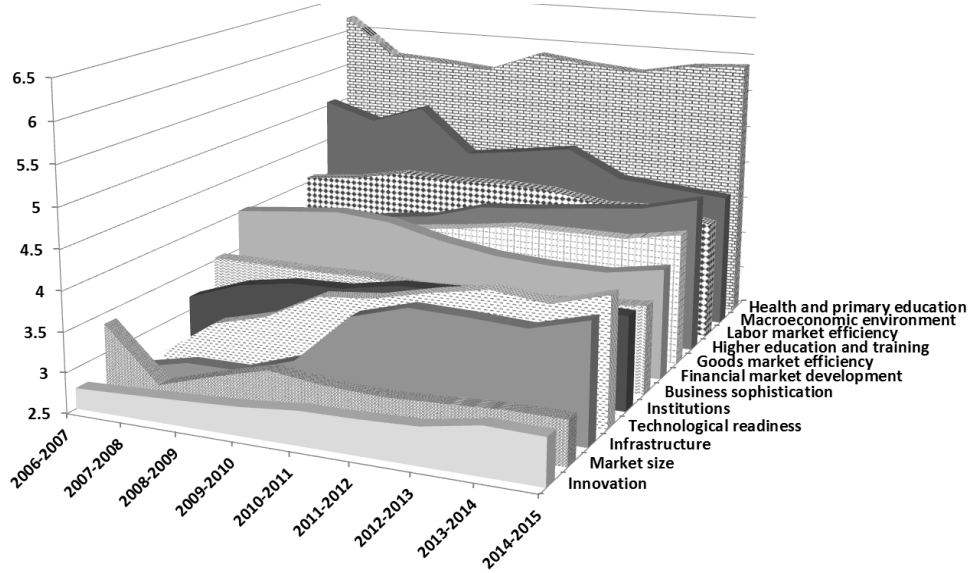

Fig. 4 Time series of the values of the GCI pillars – the Western Balkans
Source: Authors' calculation based on Competitiveness Dataset. WEF 2015

3. INFRASTRUCTURE AS AN ELEMENT OF THE GCI

Transport infrastructure and transport costs significantly affect the competitiveness of individual areas. Among all infrastructure sectors, transport is the most important for increasing a country's competitive ability to attract new investments (Farhadi, 2015; Cvetanović, Zlatković, Cvetanović, 2011).

In this paper, evaluation of the infrastructure development levels in the observed countries is based on the comparative analysis of the values of 6 out of 9 indicators covered by the second GCI pillar – *Infrastructure* (from the sub-indices of the first stage – *factor-driven stage* – which are darkened in Figure 5). These parameters are: 1) Overall infrastructure, 2) Roads infrastructure, 3) Railroad infrastructure, 4) Port infrastructure, 5) Air transport infrastructure and 6) Electricity supply infrastructure.

Well-developed transport and communication networks are important preconditions for less developed communities to have access to crucial economic activities (Gavanas and Pitsiava, 2011). Efficient transport, including high-quality roads, railways, ports and air transport enable entrepreneurs to deliver their goods and services to the market safely and timely and enable workers to commute. The economy also depends on the continuous electricity supply so that companies can operate without disturbances.

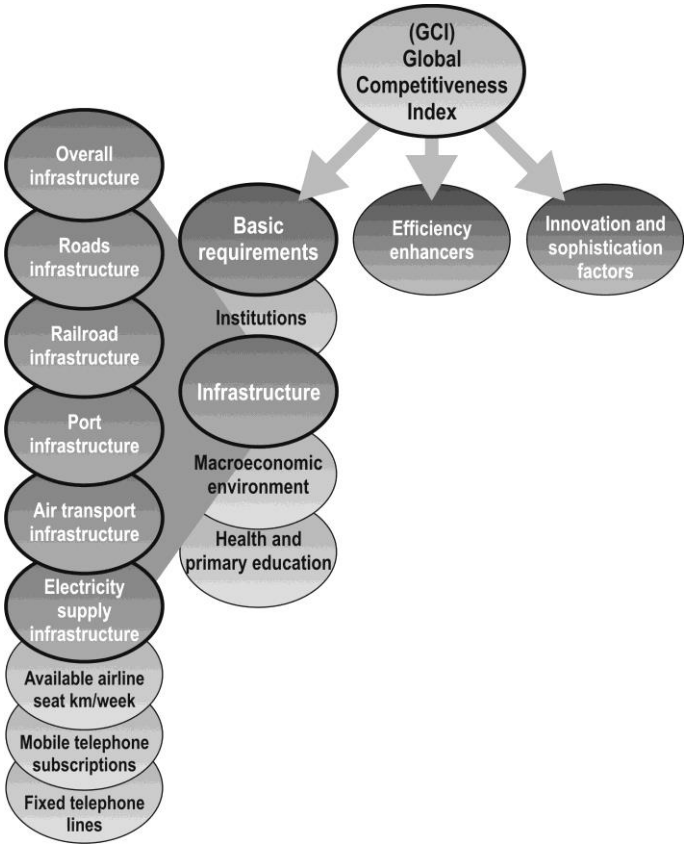

Fig. 5 Observed indicators of the second GCI pillar – Infrastructure
Source: modified according to the WEF, 2014, p. 9 & p. 50

Table 3 provides data on the value of *Infrastructure* for the Western Balkan countries in the period 2006-2014.

Table 3 Infrastructure

Country / Edition of report	GCI 2nd pillar: Infrastructure (value 1-7)					
	Albania	Bosnia and Herzegovina	Croatia	Macedonia, FYR	Montenegro	Serbia
2007-2008	2.05	2.26	3.95	2.90	2.79	2.72
2008-2009	2.22	2.20	3.98	2.90	2.72	2.68
2009-2010	2.84	2.18	4.26	3.05	3.00	2.75
2010-2011	3.46	3.16	4.63	3.45	3.85	3.39
2011-2012	3.87	3.24	4.73	3.66	4.01	3.67
2012-2013	3.48	3.44	4.65	3.65	4.06	3.78
2013-2014	3.33	3.67	4.66	3.63	4.04	3.51
2014-2015	3.52		4.72	3.73	4.10	3.93

Source: Competitiveness Dataset, WEF (Geiger, 2015)

Figure 6 illustrates the *Infrastructure* trend.

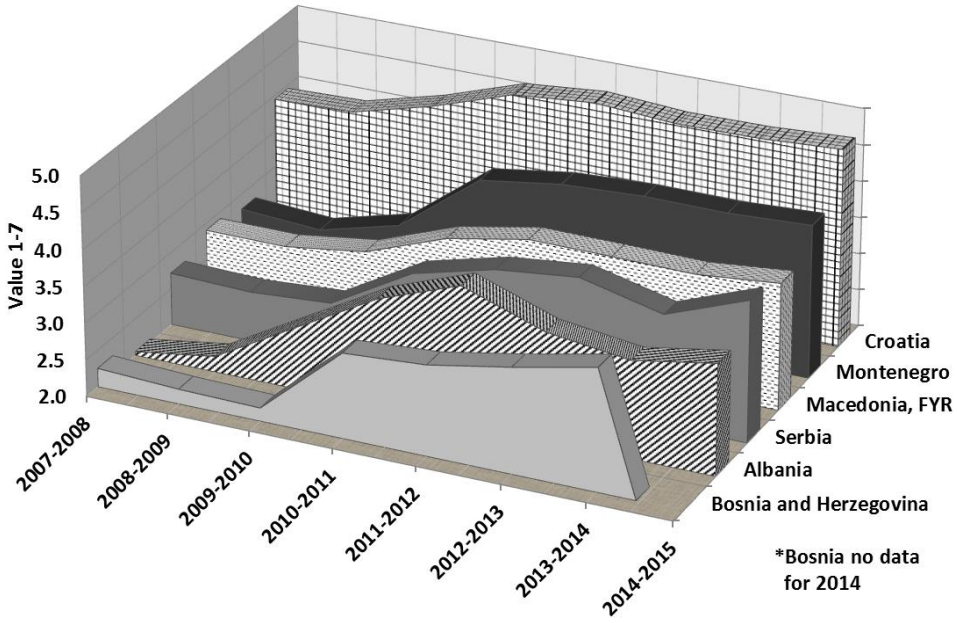

Fig. 6 Trend in Infrastructure
Source: Authors' calculation based on Competitiveness Dataset. WEF 2015

From the analysis of the presented data, it is possible to formulate the following conclusions:

- Firstly, all six countries of the Western Balkans reported significant improvement of Infrastructure indicators in the period 2006-2014. Surely, this is one of few pillars of competitiveness in which the analyzed countries had significant success.
- Secondly, according to the criterion of infrastructure development among the six observed countries, Croatia is significantly ahead of other countries. In 2014 Croatia was ranked 44th out of 144 analyzed countries (the value of the indicator of 4.72).
- Thirdly, Albania had by far the highest intensity of Infrastructure improvement (from 2.05 in 2007-2008 to 3.52 in 2014-2015). Montenegro also made a substantial qualitative progress in this area (from 2.79 in 2007-2008 to 4.10 in 2014-2015).
- Fourthly, Serbia demonstrated a significant increase in the value of Infrastructure indicators in 2014. The realization of projects of road infrastructure in 2012 (construction of local and regional roads as well as finalization of construction and reconstruction of major bridges and overpasses in Belgrade and on Corridor 10) significantly affected the change in estimation of the competitiveness pillar which measures the quality of national infrastructure.

After a summary review of trends in values of the composite pillar – *Infrastructure*, in further research it is important to look at the trends in its individual components. Therefore Figure 7 shows trend in the average values of 6 observed indicators of the second pillar – *Infrastructure*.

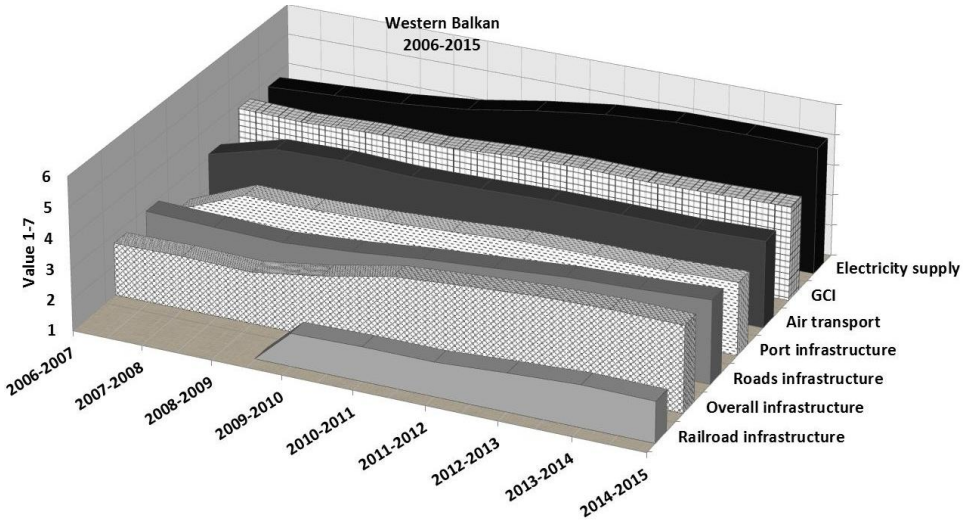

Fig. 7 The observed indicators of Infrastructure
Source: Competitiveness Dataset, WEF (Geiger, 2015)

Based on Figure 7, it is possible to formulate the following conclusions:

- The observed indicators showed significant upward trends until 2011-2012, but since then all indicators have shown stagnant trends.
- Indicator – *Electricity supply infrastructure* – shows the most impressive positive trend and absolute values, and this can be a significant competitive advantage of the region (although we believe it is an echo of former integrative processes, because with the exception of Albania all other countries of the region were parts of the same federal state until the 1990s).
- Indicators – *Overall infrastructure* and *Road infrastructure* – also show noticeable positive trends. The worst situation by far is detected in *Railroad infrastructure*, which shows low values and a stagnant trend as well. This is a major problem in the region because the railway is an important infrastructural prerequisite for economic development of the Western Balkans.

After overview of trends in individual infrastructure indicators for the whole Western Balkan region, what follows is their overview by individual economies in the region for the last available year (Figure 8).

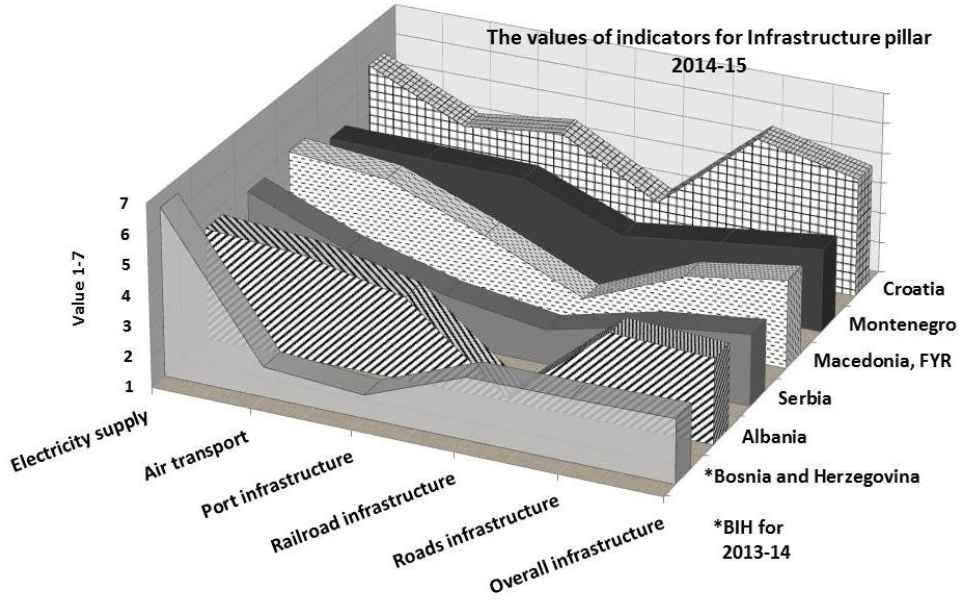

Fig. 8 Indicators of Infrastructure, by individual countries (latest available data)
Source: Authors' calculation based on Competitiveness Dataset. WEF 2015

The results follow the previous discussion and show even greater imbalance for the most impressive indicator of the group – *Electricity supply infrastructure*. The imbalance is the most noticeable in Bosnia and Herzegovina. Other infrastructure indicators in this country are very weak, but on this indicator Bosnia and Herzegovina is by far the best in the group. We can also notice group imbalance for the weakest indicator – *Railroad infrastructure*. Regarding this indicator Bosnia and Herzegovina shows the best scores in the observed region (we mentioned before that in our opinion it was an echo effect of the former federal entity). Generally, Croatia shows the best scores on all other indicators (except the two mentioned above), while Bosnia and Herzegovina and Serbia are at the very bottom.

CONCLUSION

Investments in infrastructure undoubtedly lead to higher productivity, increased economic output and improved national competitiveness. In addition to reduced transport costs and improved access to markets and raw materials, there are also benefits from better regional and global cooperation and improvement of the overall economic and social environment. These benefits represent a significant potential that can help countries to improve their comparative advantage.

Time series analysis of individual infrastructure indicators and composite pillar – *Infrastructure* (one of the 12 pillars of the GCI) showed significant variability at the level of the Western Balkan region and also at the level of individual economies in the

observed group. General conclusion is that development of infrastructure indicators at the regional level is mutually uncoordinated and not as rapid as it should be. Also there is a significant imbalance among these indicators. This reflects the lack of a regional strategy for infrastructure development as a necessary condition for further sustainable improvement of competitiveness of the observed region. For better understanding of infrastructure impact on competitiveness level of the national economy, further research should explore the relationship between infrastructure investment costs and economic growth rate measured (for instance) by GDP per capita (for instance).

General imbalance of the *Infrastructure* pillar as well as imbalance among individual indicators undermine further harmonization processes in the region and represent a huge obstacle to economic cooperation among countries in the region and to economic cooperation between the entire region and the European or global environments.

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INFRASTRUKTURA KAO FAKTOR KONKURENTNOSTI ZEMALJA ZAPADNOG BALKANA

Iako u teoriji još uvek osporavan, koncept konkurentnosti zemlje je kontinuirano dobijao na značaju tokom poslednjih godina. Dobro razvijena i uzajamno povezana saobraćajna i energetska infrastruktura predstavlja ključni pokretač privrednog rasta i zaposlenosti kao i značajan faktor za privlačenje novih investicija i unapređenja konkurentnosti. U radu je koristeći podatke iz baze GCI (WEF), sagledavana globalna konkurentnost šest zemalja Zapadnog Balkana (Hrvatska, BIH, Srbija, Crna Gora, Albanija i Makedonija) u periodu 2006-2014., sa posebnim osvrtom na značaj drugog stuba GCI – Infrastruktura za unapređenje konkurentnosti ovih zemalja. Rad pokazuje nedovoljan trend razvoja infrastrukture regiona i neizbalansiranost među zemljama po posmatranim indikatorima. Time se nameće potreba za sveobuhvatnim infrastrukturnim strategijama kako kod svih posmatranih zemalja pojedinačno tako i kroz zajednički regionalni pristup ovom problemu.

Ključne reči: *konkurentnost zemlje, globalni indeks konkurentnosti, infrastruktura, Zapadni Balkan*

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ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT: A COMPARATIVE ANALYSIS OF DEVELOPED AND DEVELOPING COUNTRIES

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Abstract. *The stimulation of economic development is one of the key tasks for macroeconomic policy makers. In recent decades, entrepreneurship has become an increasingly important generator of economic development. Previous research shows that entrepreneurship is important for economic development, but contribution of entrepreneurship to economic development is diverse in countries with different degrees of development, due to the differences in characteristics of the macroeconomic environment, presence of different entrepreneurial activity forms and so on. This paper examines the impact of different types of entrepreneurship (OEA, NEA; HEA) on economic growth through the comparative analysis of developed and developing countries. The aim of this study is to investigate the differences in economic effects of entrepreneurship based on opportunity and entrepreneurship based on necessity. Furthermore, the article should propose measures for encouragement of economic development to macroeconomic policy makers. The analysis includes descriptive statistics, correlation and regression methods. The analysis was carried out by using SPSS software on a sample of 22 countries in three years. It has been shown that the contribution of entrepreneurship to economic development is higher in developed countries in comparison to developing countries. The reason for that fact is the domination of HEA and OEA entrepreneurship whose importance for GDP growth is higher in relation to the importance of NEA which is predominant in developing countries.*

Key words: *economic growth, entrepreneurship, developed countries, developing countries.*

INTRODUCTION

Economic growth is one of the most extensively examined macroeconomic phenomena. A great number of economists have tried to identify the generators of economic growth. At the beginning of the 20th century, large companies were considered key generators of economic

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growth because they took advantage of the economy of scale, so they were very efficient, and also generated huge profits and employed a large number of workers (Burns, 2011, p. 516). Therefore, in most developed economies, great attention has been paid to the development of large enterprises, while small and medium enterprises and entrepreneurs have been considered as remains of the past which have impeded economic growth (Paunović, 2012).

However, in the 1970s, many large companies were affected by serious economic problems. In conditions of intensified global competition, increase of market fragmentation, technological advances and other changes which increased the dynamism and uncertainty of the market, large companies were faced with many problems. It was determined that large organizational systems were inflexible, and very slow to adapt to new market conditions. On the other hand, SMEs were more successful in coping with new circumstances (Sorin-George Grigore and Marinescu, 2014, p. 236-243). As a result, an increasing number of articles appeared pointing out the importance of SMEs, and politicians,such as Ronald Reagan in the US and Margaret Thatcher in the UK, began to pursue a policy that strongly encouraged the promotion of small business and entrepreneurship.As a consequence, rapid development of this sector began and it drove the economy and took a share in economic activities (Cornelius, Landströmand, Persson, 2006, pp. 375-398).

As a result of this situation, in practice and theory, a large number of works have appeared with the intention of explaining the increasingly important role of entrepreneurs in the economy and great importance of entrepreneurship for economic development. Even though theory emphasizes that the contribution of entrepreneurship to economic growth is extremely large, there is no empirical evidence that these theoretical assumptions can be generalized and considered as generally accepted. Numerous studies indicate that the impact of entrepreneurship on economic growth varies depending on the degree of development of a country. For developed countries, there is an extensive empirical evidence which confirms that entrepreneurship has a statistically significant contribution to economic growth, while this is not the case with developing countries and transition economies, where the evidence shows that entrepreneurship has a negative impact on economic development or that a connection between entrepreneurship and economic development is statistically insignificant (Sabella, Farraj, Burgar, Qaimary, 2014).

Many scientists explain the different impact of entrepreneurship on economic growth in developed and developing countries by characteristics of the macroeconomic environment in developing countries (compared with developed countries), by the presence of gray economy and informal entrepreneurship, etc. (Sabella, Farraj, Bourgbarré, Qaimary, 2014). Also, certain studies suggest that the differences in impact of entrepreneurship on economic growth in developing countries may be caused, to some extent, by a different structure of entrepreneurial activity that is present in the above group of countries (Valliere, Peterson, 2009, p. 459-480; Wong, Ho, Autio, 2005, p. 335-350).

Due to these and other unresolved dilemmas, the impact of entrepreneurship on economic growth in developing countries is still not completely clear and it is the subject of a large number of empirical studies. The subject of the article will also be a study of the impact of entrepreneurship on economic growth through a comparative analysis of developed and developing countries. The aim is to identify the types of entrepreneurial activities that have the greatest contribution to economic growth and to propose measures for encouraging their development.

A review of literature which links entrepreneurship with economic growth will be given first in the paper. In the second part, the starting assumptions and described models for

checking their validity will be presented. The third part is related to the methodology and presenting results. The results will be discussed in the fourth section. The conclusions and recommendations for policy makers will be presented in the last part of the paper.

1. PREVIOUS RESEARCH OF THE LINKS BETWEEN ENTREPRENEURSHIP AND ECONOMIC GROWTH

Most modern economists have moved away from the previously dominant attitude that economic growth is based on a performance of large companies. Nowadays, the prevailing belief is that economic growth relies largely on the activities of small and medium-sized enterprises, as well as on new business ventures and entrepreneurs. In this sense entrepreneurship is increasingly seen as a key mechanism for promotion of economic development which is explained by various arguments. So, some scientists emphasize that entrepreneurship contributes to the increase of economic stability and overall development through creation of new business opportunities, with offer of a variety of products to consumers, by increasing gross domestic product, alleviating poverty and ensuring long term prosperity for the whole society (Stefanović, Ateljević, Ivanović-Đukić, Janković-Milić, 2014). Also, entrepreneurs increase their competitiveness and contribute to the national competitiveness improvement thanks to the frequent introduction of innovation and by copying practices of the most successful business systems (Čučković, Bartlett, 2007). For transition economies, the importance of entrepreneurship is even greater because it increases the level of competitiveness in the market (Megginson, Netter, 2011) and limits the market power of public enterprises (McMillian, Woodruff, 2002), which encourages the development of market economy.

Understanding the importance of entrepreneurship for economic growth has led to an enormous number of papers with different explanations of the role of entrepreneurs in economic development as well as the contribution of entrepreneurship to the improvement of economic performance. All of them can be grouped into the following units (Wheat, Jakopin, Vukcevic, Coric, 2014):

- Papers that assess and measure the contribution of entrepreneurship to economic growth (Tang, Koveos, 2004; Valliere, Peterson, 2009; Wong, Ho, Autio, 2005). These papers include theoretical and empirical analyses of the effects of individual entrepreneurial activity on the living standard (or GDP growth), as well as increasing employment and providing general prosperity of the society in the long term.
- Papers which analyze business and organizational aspects of entrepreneurship, i.e. intrapreneurship impact on competitiveness improvement of individual organizations directly, and national competitiveness improvement indirectly. In these articles, it is explained how different forms of entrepreneurial activities within existing organizations can contribute to achieving their economic goals, increase the market share and increase their competitive advantage in the market (Antonicic, Histrich, 2003; Barringer, Bluedorn, 1999; Birkinshaw, 2003).
- Papers where entrepreneurship is defined as a specific form of behavior and a set of behavioral features which allow individuals to recognize and exploit opportunities from the market. In these papers entrepreneurship is explained as a valuable resource. Its presence in society can be an initiator and the driving force for economic development (Covina, Green, Slevin, 2006).

In this paper, the focus will be on the study of the role and importance of individual entrepreneurship for economic growth. One of the first economists who pointed out entrepreneurship as an important factor of economic growth was Schumpeter (1934). For Schumpeter, an entrepreneur is an agent capable of generating shocks in the economic cycle through the innovation process. Schumpeter formulated the theory of economic development which is based on a process of creative destruction generated by entrepreneurial activity (Urbano Aparicio, 2015). Also, Rodrik (2003) noted the importance of entrepreneurship in encouraging development processes. He believed that growth and development were conditioned by endogenous factors, by entrepreneurial behavior, especially those based on knowledge, because it was able to generate employment and make diversification of national production (Rodrik, 2003).

Theorists of economic development have even tried to incorporate entrepreneurship in growth models. For example, Romer - the founder of the theory of endogenous economic growth which emphasizes the accumulation of knowledge and creation of human capital as driving factors of growth - introduces in his own growth model research and development as a sector which creates new kinds of capital goods (Romer, 1990) and entrepreneurs as individuals capable of developing new goods from activities that lead to changes in the market (in terms of Schumpeter creative destruction), improvement of a production, increasing of a labor productivity and economic growth (Chamberlin, 1993).Wennekers and Thurik (Wennekers, Thurik, 1999) look at entrepreneurship as a specific form of human capital and an additional indirect variable that (it is derived from the "new" theory of economic growth) is a function of economic growth (Suarez-Villa, 2000). Glaeser and colleagues (1999) take that entrepreneurship contributes to economic growth because it causes knowledge overflow. New knowledge may not be immediately widespread. Overflow of knowledge is conditioned by limited geographical nearness and interactions between participants within the local innovation system (Glaeser, Kallal, Sheinkmana, Schleifer, 1999). Audretch and Keilbach add that the contribution of entrepreneurship to economic development allows faster commercialization of new technologies that leads to higher productivity and economic growth (Audretch, Keilbach, 2004).

In addition to theoretical explanations of the importance of entrepreneurship for economic growth, there is a great deal of empirical research which examines the presence of a statistically significant relationship between these phenomena as well as the impact of entrepreneurship on economic growth by using quantitative methods. For example, a survey which analyzed the impact of entrepreneurship on economic growth was carried out in the UK. It was concluded that the reduction of economic activity in the 1960s and 1970s was conditioned by insufficient development of entrepreneurial activity. The institutional framework characterized by high tax rates, public monopolies and protected trade unions were identified as the key factors of decline of entrepreneurial activity and indirectly of economic growth of Great Britain in this period (Wiener, 1981, 131). Minniti and Levesque (2006) talk about the crucial impact of entrepreneurs on growth and development, through application of innovation and imitation by using unused resources (Minniti, Levesque, 2006). On the other hand, there are studies which show that entrepreneurship can have negative effects on economic growth or that the connection between entrepreneurship and economic growth is not present in general. For example, a study by Tang and Koveos (Tang, Koveos, 2004) has shown that there is a negative correlation between entrepreneurship and economic growth. The analysis by Sabella et al. (Sabella, Farraj, Burgar, Qaimary, 2014), conducted in Palestine by using regression analysis, confirms that entrepreneurship has a positive effect on GDPgrowth rate, but this relationship is not statistically significant.

The differences in the results of the mentioned studies are partially explained in the research by Wong, Ho and Autio (2005).On the sample of 43 countries, they concluded that there are significant differences in the effects of entrepreneurship on economic growth in countries with different degrees of development. Specifically, the contribution of entrepreneurship to economic growth in developing countries is much lower compared to developed countries. These differences are mainly caused by a different macroeconomic environment as well as a different structure of entrepreneurial activity. Using regression analysis methods, they proved that the largest contribution to economic growth was made by fast-growing companies which were present in developed countries, while in developing countries there were almost none of those, and therefore the contribution of entrepreneurship to economic growth in developing countries was higher than in developing countries. They also proved dominance of enterprises based on necessity in developing countries, whose contribution to economic growth is almost insignificant. So, they proved that not all forms of entrepreneurship contribute to economic growth, but entrepreneurship based on high expectations and entrepreneurship based on capabilities do (Wong, Ho, Autio, 2005). Similar claims come from the analyses carried out by Acs and colleagues (Acs, Audretsch, Braunerhjelm, Carlsson, 2012), Audretsch (Audretsch, 2007), Audretsch and Keilbach (Audretsch, Keilbach, 2005) and Audretsch and associates (Audretsch, Bonte, Keilbach, 2008), proving that entrepreneurship based on knowledge and innovation contributes to improvement of economic growth and development. Also, Aparicio, Urban and Audretsch (2015) used panel analysis which included 43 countries and concluded that there is a positive connection between entrepreneurship based on opportunities and economic growth. On the other hand, this study showed that entrepreneurial activities based on necessity can only resolve short-term problems while they cannot show a positive long-term effect on economic growth (Aparicio, Urbano, Audretsch, 2015).

So, the connection between entrepreneurship and economic growth has not been proven empirically. Also, since there are a lot of different views and evidence, the impact of various forms of entrepreneurial activity on economic growth is not fully clear. Because of that, this article will include empirical research of the links between different types of entrepreneurship and economic growth through a comparative analysis of developed and developing countries.

2. Model and Hypotheses

The subject of this paper is to examine the effect of different types of entrepreneurial activity on the GDP growth rate as well as to examine the differences in the impact of entrepreneurship on economic performance in developed and developing countries. Our initial assumptions are:

H1: Entrepreneurship contributes to economic growth, and this contribution is higher in developed countries compared to developing countries.

H2: A rapidly growing company and entrepreneurship based on opportunities havethe largest contribution to economic growth, while the contribution of entrepreneurship NEA is the smallest.

In order to check the validity of these hypotheses, a regression model will be defined and the effect of different types of entrepreneurship on the GDP growth rate will be examined through a comparative analysis of developed and developing countries.

A large number of previous empirical studies (Valliere, Peterson, 2009; Wong, Ho, Autio, 2005) use some form of the Cobb-Douglas production function where growth is conditioned by the stock of capital and labor, as well as by the disembodied factor of productivity. According to this, the model has the following form:

$$Y = AK^{\alpha}L^{\beta} \tag{1}$$

where Y is output, K is value of production funds, L is size of the workforce as a measure of labor expenditure, A is efficacy parameter, α and β elasticity coefficients of output in relation to the cost of capital and labor (Cvetanović, 2005, 150).

Apart from these factors which are based on the theory of exogenous growth, economic literature considers factors based on human capital (knowledge, entrepreneurship, etc.), in accordance with the theory of endogenous growth, which is going to be done in this paper. As an element of human capital component, different forms of entrepreneurial activity will be chosen. Classification of entrepreneurial activity will be done on the basis of the research methodology of Global Entrepreneurship Monitor (GEM). GEM identifies two basic types of entrepreneurial activity based on entrepreneurs' motives for setting up a business: the necessity and identified opportunities. Additionally, high expectations entrepreneurship will be added to the mentioned types of entrepreneurship, because a large number of previous researches points out that this form of entrepreneurship has the biggest contribution to economic growth (www.gemconsortium.org):

- High expectations entrepreneurship (HEA) is defined as a set of all start-ups and newly established companies (established in less than 42 months), which are expected to employ at least 20 employees for 5 years. These companies are known as "gazelles" or fast-growing companies and they are characterized by small size, high availability of unused resources and low availability of funding.
- Opportunity-based entrepreneurship (OEA) includes all individuals who perceive business opportunities and start their own business as one of several possible business options. This definition includes a widespread group of entrepreneurs who use opportunities but do not expect high growth, which is the case with HEA entrepreneurs. Opportunity-based entrepreneurs expect much lower growth rate realization because of perceived limitations of the environment, either because of limited goals or motivations.
- Necessity-based entrepreneurship involves individuals who see entrepreneurship as their last anchor and start business due to lack of other business combinations or due to their dissatisfaction with current options.

In the model presented later in this paper we will start from labor and capital as the main factors of economic growth, then we will add entrepreneurship as a form of human capital, which has a supportive role to growth and gives an endogenous dimension to the formulated model. These dimensions will act as independent variables while the GDP growth rate will be a dependent variable.

For the purpose of examining the nature of relationship between GDP growth rates and the above independent variables, hierarchical regression will be used. Multiple regression analysis is an area of multivariate analysis that has the greatest application. Furthermore, multiple regression analysis is a method that is used when a research involves more than one independent variable and dependent variable is expressed in their function. In this context, only the dependent variable is taken as a random value, while independent variables are identified values. Let us make an assumption that k appearances can be identified as independent variables and mark them with X_1, X_2,..., X_k. With the help of the multiple linear

regression model, the dependence between variables is approximated by linear function, so equation for arbitrary dependent variable in the set has the following form:

$$Y_i = \beta_0 + \beta_1 xi_1 + \beta_2 xi_2 + ... + \beta_k xi_k + \varepsilon_i \quad (2)$$

where:

$Yi - i$ – i value of dependent random variable,
$xi_1, xi_2,...,xi_k - i$ – values of independent variables,
$\beta_0, \beta_1, \beta_2,..., \beta_k$ – model parameters (regression coefficients),
ε_i – stochastic term or random error,
k – number of independent variables.

Specifically, the model can be summarized as follows:

$$GDPG = \beta_o + \beta_1 GCF + \beta_2 FDI + \beta_3 LF + \beta_4 OEF + \beta_5 HEA + \beta_6 NEA \quad (3)$$

where the variables are:

GDPG – GDP Growth Rate,
GCF – Gross Capital Formation,
FDI – Foreign Direct Investment,
LF – Labour Force,
OEA – Opportunity Entrepreneurial Activity,
HEA – High-expectation Entrepreneurship and
NEA – Necessity Entrepreneurial Activity.

Hierarchical multiple regression will be used in the analysis, where independent variables will be entered in the equation in a sequence which is chosen by researchers, everything on the theoretical knowledge basis. Variables will be entered gradually and wewill also evaluate the contribution of each independent variable to dependent variable prediction, with effects removal of all previously entered variables at the same time. Once all variables have been introduced, the next step is the assessment of the entire model's ability to predict dependent variable and relative contribution of each block of variables. Basic macroeconomic indicators that are used in the analysis are: growth rate of GDP, gross domestic investment, foreign direct investment and labor, and the World Bank website is the source forall of them, while the source of NEA, OEA, HEAvaluesis GEM (Global Entrepreneurship Monitor). The analysis covers 22 countries in a three-year period, where 14 are developed countries, while 8 belong to the group of developing countries. Countries are divided in to developing countries and developed countries based on the amount of GNI per capita (breakpoint $ 12,000 US).

Missing values for some indicators are estimated on the basis of indicators for the previous year, or based on the value for the given indicator in similar countries in the region where the given country belongs. In this sense, we have conducted the analysis with a set of 66 combinations country-year. For statistical analysis, SPSS statistical software (version 17.0) is used.

Table 1 Countries included in the analysis

Countries	
Developing countries	Serbia
	Romania
	Bosnia and Herzegovina
	Turkey
	Columbia
	Dominican Republic
	Venezuela
	South African Republic
Developed countries	Belgium
	Denmark
	Finland
	France
	Island
	Israel
	Italy
	Japan
	Netherlands
	Norway
	Slovenia
	Spain
	UK
	USA

3. RESULTS AND DISCUSSION

Table 2 shows basic descriptive measures for all observed indicators for both groups of countries and it is possible to make a parallel between them.

Table 2 Descriptive statistics

	Developed countries				Developing countries			
	Min.	Max.	Mean	S. Dev.	Min.	Max.	Mean	S. Dev.
GDPG	-8.27	9.72	0.143	3.9113	-6.80	8.75	2.825	4.4744
GCF	14.97	32.88	22.92	4.2080	14.94	31.26	24.84	4.3419
FDI	-2.4E10	3.4E11	58E9	8.9E10	-2.5E9	2.20E10	6.2E9	6.06E9
LF	186491	1.58E8	2.5E7	4.12E7	1.39E6	24.1E7	1.1E7	8.17E6
OEA	41.00	76.00	59.07	9.0105	20.00	56.00	38.29	8.9708
HEA	13.00	47.00	27.69	8.1972	14.00	61.00	29.37	10.606
NEA	5.00	33.00	13.66	6.8348	14.00	46.00	34.29	7.5381

To compare the observed indicators values, we have used the t-test, and the results are given in Table 3. By testing the significance of differences in the indicator values between these two groups of countries, we have concluded thatthere was a statistically significant difference (the risk of error of 0.05) between all of the indicators, except HEA and GCF (in GCF this difference is significant at the level of 0.1, but it is not proven to be significant at the level of 0.05).

Table 3 Testing differences between means of observed indicators for developed and developing countries

	t	Df	Sig. (2-tailed)
GDPG	-2.543	64	.013
GCF	-1.759	64	.083
FDI	2.850	64	.006
LF	1.620	64	.041
OEA	9.027	64	.000
HEA	-.721	64	.474
NEA	-11.360	64	.000

Based on checking the conditions fulfillment for carrying out the regression analysis, we have concluded that there is nota serious deviation from the basic assumptions.By monitoring multicollinearity between variables, we have found a relatively weak correlation between parts of independent variables. We have removed all doubts about the existence of multicollinearity between variables by implementation of "collinearity diagnostics" for the variables in the SPSS procedure, through the values of tolerance and VIF. Checking other assumptions - normality, linearity, homoscedasticity, independence of residuals and existence of atypical points, has led us to the conclusion that these assumptions have not been disturbed and that it is possible to carry out the desired procedure of hierarchical multiple regression. The only problem which is not resolved ina satisfactory manner is the size of the sample. In fact, there are different attitudes related to the size of the sample that is necessary for the results of multiple regression to be taken as valid. According to one (Stevens, 1996, 72), the recommended sample size in social sciences is 15 units per one independent variable. On the other hand, some authors (Tabachnick, Fidell, 2007, 123) impose rigorous conditions, considering that the sample size must be greater than relations: 50 + 8m (where m is the number of independent variables), whichis not easy to meet. The volume of the data which we have used and which has been objectively imposed, has been below from the minimum listed under both approaches, so in this part we have not been able to meet this assumption completely. However, this has not diminished the validity of our results significantly. Table 4 shows the results of hierarchical regression for the data we have used in the analysis.

Table 4 Hierarchical regressions: dependent variable GDP growth rate

	Developed countries				Developing countries			
	Unstandardized Coefficients		Standardized Coefficients	Sig.	Unstandardized Coefficients		Standardized Coefficients	Sig.
	B	Std. Error	Beta		Std. Error	B	Beta	
(Constant)	-17.135	5.524		.004	-27.869	9.092		.007
GCF	.530	.134	.571	.000	.648	.205	.629	.006
FDI	1.9E-11	.000	.452	.047	1.8E-10	.000	.252	.296
LF	-3.5E-8	.000	-.373	.120	-2.6E-7	.000	-.484	.167
NEA	.009	.074	.021	.003	.203	.109	.408	.078
HEA	.094	.063	.196	.047	.178	.095	.421	.077
OEA	.127	.106	.223	.039	.104	.109	.175	.353

As it is shown in Table 4 (based on the value of standardized beta coefficients), the greatest impact on economic growth in developed countries, expressed by the GDP growth rate, is made by opportunity-based entrepreneurship (b = 0.223), followed by high expectation entrepreneurship (b = 0.196), while the lowest impact is made by necessity-based entrepreneurship (b = 0.021). The link between the mentioned indicators is direct and statistically significant. When it comes to developing countries, the greatest impact on the GDP growth rate is made by high expectations entrepreneurship (b = 0.421), followed by necessity-based entrepreneurship (b = 0.408), and the lowest - opportunity-based entrepreneurship. However, none of these coefficients is statistically significant, so the results can be applied only to a selected group of countries for the reported period and a general conclusion could not be given for all underdeveloped countries.

Furthermore, we can note that in both groups of countries investments have a significant impact on economic growth. In developed countries, the impact of foreign investment and capital that is present in the country is equable, while in developing countries a much greater impact originates from domestic capital in comparison to foreign direct investments. Each of these coefficients is statistically significant in such a way that conclusions can be generalized.

In order to test the effect of the observed phenomena on economic growth, the representativeness of the models has been checked. The obtained results are shown in Table 5.

Table 5 Models representativeness

	Developed countries	Developing countries
R	.648	.786
R Square	.420	.619
Adjusted R Square	.321	.484
Sig.	0.05	0.05

According to Table 5, we have found out the presence of a high degree of quantitative compatibility between the dependent variable and independent variables, while the appropriate measure of explained variability of the dependent variable by changing independent variables is relatively high. Namely, by using this model we have been able to explain 42% of the variability in the movement of GDP by changes of the independent variable (adjusted coefficient of determination takes value of 0.321) in developed countries. We have much better results in developing countries. The model has explained 61.9% of the variability of independent variables by changes in the dependent variable (corrected coefficient of determination is 0.484). The values of these coefficients are statistically significant. That means that entrepreneurship with capital and labor force represents a very important element of economic development.

CONCLUSION

Based on the above, it can be concluded that entrepreneurship represents an increasingly important driving force of economic development, but its contribution to economic development differs significantly in developing countries and developed countries. In developed countries, the contribution of entrepreneurship to economic growth is higher than in developing countries; also, the relationship between entrepreneurship and GDP growth

rate in developed countries is statistically significant, but in developing countries, this is not the case.

Primarily, the structure of entrepreneurial activities affects the differences in the effects of entrepreneurship on economic growth. In developed countries, what is noticed is the dominance of opportunity-based entrepreneurship (OEA) and HEA that (as is proven by research) is the largest contributor to economic growth, while in developing countries, NDP is dominant. Owners of fast-growing companies and entrepreneurs who initiated their work on the basis of identified opportunities on markets in developed countries use a higher level of national knowledge development as well as a high level of freedom from government's influence to generate the output and achieve rapid growth in business. This is not the case in developing countries which are characterized by a limited access to capital, technological innovation, knowledge and other resources, which restrict business growth. Also, the presence of gray economy is noticeable in developing countries, which creates unfair competition and hinders the development of entrepreneurial activity. The problem in developing countries is the fact that many residents are starting entrepreneurial activity due to personal employment and in order to provide themselves with some income. Accordingly, they set up their enterprises even without economic feasibility. Such enterprises usually have slow development and a small contribution to economic growth.

Therefore, based on the practices of developed countries, where statistically significant impact of entrepreneurship on economic growth has been proven, it can be suggested to macroeconomic policy makers in developing countries that the development of entrepreneurship in general should not be seen as a universal solution for the problem of economic development. In other words, we should work to encourage the development of entrepreneurship, although not any entrepreneurial activity, but primarily OEA and HEA entrepreneurship, because they have the greatest contribution to economic growth. We should also work on improving the environment which can stimulate the development of entrepreneurship, development of knowledge in the field of entrepreneurship in order to make people able to recognize market opportunities and develop OEA, prevention of corruption and gray economy, etc.

This paper points out that the future research about the role of entrepreneurship in economic development should take into consideration the differences between types of entrepreneurship and stages of economic development of surveyed countries. Theories that do not take into consideration these differences, as the three perspectives this study was originally based on, may have limited generalization.

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PREDUZETNIŠTVO I PRIVREDNI RAZVOJ: KOMPARATIVNA ANALIZA RAZVIJENIH I ZEMALJA U RAZVOJU

Podsticanje privrednog razvoja predstavlja jedan od ključnih zadataka kreatora makroekonomske politike. Poslednjih decenija sve značajniji pokretač privrednog razvoja postaje preduzetništvo. Prethodna istraživanja pokazuju da je preduzetništvo značajno za privredni razvoj, ali da je doprinos preduzetništva privrednom razvoju drugačiji kod zemalja različitog stepena razvijenosti, usled razlika u karakteristikama makroekonomskog ambijenta, zastupljenosti različitih oblika preduzetničke aktivnosti i sl. U ovom radu je ispitivan uticaj različitih tipova preduzetništva (OEA; NEA; HEA) na privredni rast kroz komparativnu analizu razvijenih i zemalja u razvoju. Cilj rada je bio da se ispita da li postoje razlike u ekonomskim efektima preduzetništva zasnovanog na mogućnostima i preduzetništva zasnovanog na nužnosti i u skladu sa njima kreatorima makroekonomske politike predlože mere čija primena može podstaći privredni razvoj. Za analizu su korišćene metode deskriptivne statistike, korelaciona i regresiona analiza. Analiza je vršena upotrebom SPSS softvera na uzorku od 22 zemlje u trogodišnjem periodu. Dokazano je da je doprinos preduzetništva privrednom razvoju veći u razvijenim zemljama u odnosu na zemlje u razvoju usled dominacije HEA i OEA preduzetništva čiji je značaj za stopu rasta GDP-a veći u odnosu na značaj NEA koje je dominantno u zemljama u razvoju.

Ključne reči: *privredni rast, preduzetništvo, razvijene zemlje, zemlje u razvoju.*

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EXPECTED UTILITY THEORY UNDER EXTREME RISKS

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Abstract. *Expected utility theory provides a framework for modeling choice of a rational individual, whose goal is to maximize expected utility to the preferences towards risk. However, extreme risks, such as, for example, a stock market crash or a natural disaster, significantly affect the function of the probability distribution of outcomes by adding the weight to the tails of the distribution. In such cases, the application of the theory of decision-making is extremely sensitive to assumptions on the probability distribution function. Therefore, this paper will provide a review of models of decision-making in terms of expected utility theory under extreme risk.*

Key words: *Expected utility, extreme risk, decision-making*

INTRODUCTION

The classical economic analysis of investment decision-making in the presence of risky and uncertain outcomes is based on the expected utility theory. This theory offers a framework for modeling a rational individual's choice whose goal is the maximum expected utility with regard to the given preferences towards risks. Assuming that a decision maker is characterized by a constant risk aversion, preferences may be described by the power utility function. On the other hand, investment outcomes modeling in the presence of risks are based on the probability theory, whereas the risk is perceived through the shape and symmetry of the expected outcomes probability distribution from the considered investment alternatives. It is most frequently assumed that the outcomes represent a random process, which can be described by a normal distribution. However, extremely risky situations, such as the stock market crash or natural disasters, have a significant effect on the function of the outcomes probability distribution, emphasizing the tails of distribution. In such cases, the application of the power utility function in estimating the expected utility may imply either no decisions or completely impossible decisions, which leads to the conclusion that the

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application of the decision theory is extremely susceptible to the assumptions regarding the probability distribution functions (Geweke, 2001).

Disregarding the size of the sample, i.e. the information set used for statistical analyses and outcome modeling, an individual cannot on certain occasions make a difference between different expected outcome distributions, which may lead to divergent rational decisions. Yet, if the information on the type of distribution is known beforehand, this fact may cause a different behavior in the conditions of extreme risks which need not be affected by a subsequently formed information set. On the other hand, research has shown that a group of efficient investment alternatives is determined by the shape and symmetry of the expected outcome distribution, which may cause the shift of efficacy boundaries. Therefore, the widely accepted Markowitz's method of optimization (Markowitz, 1952) may be modified in various ways so as to include the anomalies of financial time series – heavy-tailed and asymmetric distribution and more sophisticated measures of extreme risks.

Economic implications of the incompatibility of the expected utility theory and the statistical theory in the decision-making process have become rather evident, regarding the fact that the applied models of optimization do not only determine the decisions of individual and institutional investors, but also of regulatory bodies. Namely, the cost-benefit analysis is dominant, and in some cases obligatory analytical tool for assessing the net economic value of a new regulatory acts and measures on environment protection in the USA. Utility measurement represents an especially sensitive part of this analysis which requires a careful examination of numerous factors that define the social behavior in the conditions of ecological catastrophes (Carey, 2014; Sunstein, 2005). Therefore, some of the most important deficiencies of the expected utility theory under extreme risk will be presented in this paper. The framework of expected utility theory under risk and uncertainty will be presented in the first part of this paper. Determinants of the extreme risks will be analyzed in the second part, while its influence on the expected utility theory will be presented in the third part of the paper. In the fourth part authors will review possible adjustments of the utility function and their implications on the decision-making process.

1. EXPECTED UTILITY CONCEPT UNDER RISK AND UNCERTAINTY

The normative theory of decision-making determines a series of principles on which the behavior of a rational individual is based – that of a decision maker. An individual's desire to lessen or avoid losses, that is to enlarge their wins (either material, emotional or any other) is implied in that individual's goals, while maximizing the personal welfare or benefit is the guiding principle in making a choice among different alternatives (Pavličić, 2014: 13). The rational choice theory is based on the model comprising two components: (1) a group of alternatives which are possible to realize, under different conditions, and (2) individuals' preferences that reflect their goals. In the situations of certainty, decision-makers make choices in a very simple and routine way even when confronted with a large number of alternatives. However, new situations characterized by risky outcomes and uncertainty may cause the change of possible alternatives so that, out of a possible subgroup of alternatives, the alternative corresponding to an individual's preferences is chosen. The fundamental study on the theory of rational choice by von Neumann and Morgenstern (1947) defined the framework and postulates of the rational choice. The

expected utility theory defines the personal utility measurement in risky situations by the utility function, in which the relation of (strict) preference $\geq$ is defined in the final set of alternatives X and has the following characteristics:

- (completeness) for any two alternatives $x, y \in X$ it is true that $x \geq y$ or $y \geq x$ or $x \sim y$, where ~ stands for indifference;
- (transitivity) for any three alternatives $x, y, z \in X$ if $x \geq y$ and $y \geq z$ then $x \geq z$;
- (continuity) for any three alternatives $x, y, z \in X$ so that $x \geq y \geq z$ which means that there exists a certain probability p such that $\exists p \in [0,1] \ni y \sim [p : x;\ 1-p : z]$, which proves that minor changes in preferences will not change the order of preferences till the tipping point;
- (independence) for any three options $x, y, z \in X$ there is a probability $p \in [0,1]$, so that if $x \geq y$ then $px+(1-p)z \geq py+(1-p)z$, i.e. the preferences depend on the possibility of achieving a different outcome.

If $\geq$ relation of the (strict) preference is determined by the set X, the function $U: X \rightarrow R$ for which it is true that:

$$x \geq y \leftrightarrow U(x) \geq U(y) \tag{1}$$

is called the utility function of the preference relation. This function is defined for all values of $x > 0$ and is also valid for $U'(x) > 0$ and $U''(x) < 0$, so that von Neumann and Morgenstern regard the problem of decision-making as the problem of maximizing an individual's expected utility $E(U(x))$ defined as follows:

$$E(U(x)) = \int_{X \in R} U(x) d\mu(x) \tag{2}$$

where x denotes possible outcomes of the alternatives $x: R \rightarrow R^N$, and μ stands for the probability measurement of the considered outcomes which defines the distribution of the outcome probabilities in the real number set[1].

An individual's attitude towards a risk, which is expressed as an absolute risk aversion (Arrow, 1951) in the following way:

$$A(x) = -U''(x)/U'(x) \tag{3}$$

within the expected utility theory, determines the form of the utility function which is presupposed to be an individual's choice.

Assuming that an individual with some initial wealth W considers possible outcomes of a decision reflected in the change of the level of the initial wealth, shown as: $W+\varepsilon_1$ with the probability p and $W + \varepsilon_2$ with the probability $1-p$, then the expected utility $E(U(W + \varepsilon_i))$, i=1,2, may be determined in the following way:

$$E(U(W+\varepsilon_i)) = pU(W+\varepsilon_1) + (1-p)U(W+\varepsilon_2) \tag{4}$$

[1] The mathematical aspect of the decision-making issue and the axiomatic approach to the preference relation is detailed in a paper by Fishburn, P. (1999) Preference structure and their numerical representation. Theoretical Computer Science, 217, 359-383.

In case decisions do not affect the change in wealth, then the expected utility $E(U(W + \varepsilon_i))$ will be equal to the "fair" wealth utility U(W), which may be regarded as the certainty equivalent and which may be determined in the following way:

$$U(W) = U(W + p\varepsilon_1 + (1-p)\varepsilon_2) \tag{5}$$

where $E(\varepsilon_i) = p\varepsilon_1 + (1 + p)\varepsilon_2 = 0$, and the individual with such an attitude towards a risk is considered to be indifferent to risks.

In common cases, when an individual is not prone to risk taking, the utility function curve is concave (Fig. 1 on the left), which means that $U(W) > E(U(W + \varepsilon_i))$ is true, whereas in the opposite case (Fig. 1 on the right), the curve may be convex – when an individual is inclined to taking risks.

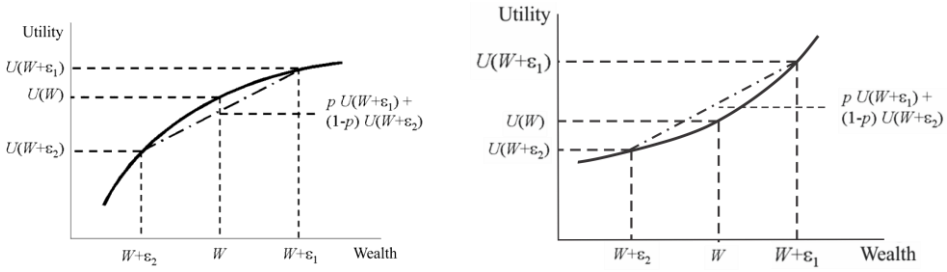

Fig. 1 Utility function: concave (left) and convex (right)

Theoretical and empirical research has shown that the most frequent forms of the investors' utility functions are quadratic function, power function and exponential function (Campbell & Viceira, 2001:19)[2], and they can be determined by the following formulas:

1. Quadratic utility function $U(W) = aW - bW^2$
2. Exponential utility function $U(W) = -\exp(-\alpha W)$
3. Power utility function $U(W) = \dfrac{W^{1-\gamma} - 1}{1-\gamma}$

However, the mathematical foundation of the expected utility depends considerably on the characteristic of independence, which implies the probability linearity. One of the most famous paradoxes which disproves the characteristic of independence in practice is Allais's paradox (Allais & Hagen, 1979). This paradox can be observed in the following experiment: The supposition is that there are three possible lottery wins: the first prize – 500,000,000$, the second prize – 100,000,000$ and the third prize – 0$, and that there are two possible scenarios. The first scenario offers the possibility of choosing one of the two lotteries: lottery A with the following probability of wins A = (0, 1, 0) and lottery B with the following possible outcomes and their probabilities respectively B = (0.1; 0.89; 0.01). The second

[2] A survey of various investors' utility functions and a relation of utility and aversion towards risks is to be found in a paper by Petrović, E., Radović, O., Stanković, J. (2013) The impact of Risk Aversion on Individual Investors Investment Decision-Making Process, Strategic Management, Volume 18 (1): 3-14 and Avdalović, V., Petrović, E., Stanković, J. (2016) Rizik i osiguranje, Ekonomski fakultet, Niš.

scenario presupposes two lotteries, as well, but the probability of their wins are as follows: A' = (0; 0.11; 0.89) and B' = (0.1; 0; 0.90). Starting from the characteristics of the preference function in the expected utility concept, it means that if decision makers prefer A instead of B in the first scenario, then they will prefer A' rather than B' in the second one. However, the largest number of respondents chose lottery A in the first scenario and lottery B' in the second one (Kahneman & Tversky, 1979), which proves the fact that the independence characteristic is "incompatible with the preference for security in the neighborhood of certainty" (Allais, 2008: 4). "Far from certainty" individuals behave rationally, after all, and estimate the expected utility of the outcome in accordance with the expected utility theory (Andreoni & Sprenger, 2010), so that this paradox may be misunderstood.

Besides this well-known criticism, there is a number of new critical papers that are based on the behavioral economy and that emphasize the fact that a strict application of the optimization method of the expected utility may create some intuitively unacceptable conclusions in certain cases (Rabin, 2000). Such anomalies become significant when the expected utility theory is applied to making decisions concerning society as a whole, since they are expressed through the ethical acceptability of decisions on the community level.

2. Determinants of Extreme Risks

Contemporary eco-social systems are exposed to a great number of correlated risks which represent a potential hazard for the survival of the whole global system. Despite the fact that risks could be categorized in different ways, the particularity of extreme risks is reflected in their frequency and intensity. Thus, extreme risks or catastrophes are all risky situations with a low probability of occurrence and enormous and unforeseen consequences (Posner, 2004). Regarding the fact that the quality and amount of available information on the causes and effects of particular risks limits the possibility of risk predictions, the prospects of generally accepted scientific methods to describe and foresee the expected effects of these risks have been challenged. With no consensus on the issue of the loss threshold, which determines whether a risk is extreme or not, all the risks whose consequences surpass some normal experience of any social system are grouped in this category. Macro catastrophes are, for example, considered to be all the events whose consequences include at least one of the following: (1) death of more than 1,000 people or disease/injury of more than 5,000 people; (2) interruption of usual daily activities on a particular territory lasting longer than one week; (3) destruction of property and infrastructure whose damage is more than 10 billion US dollars; (4) direct and indirect loss worth at least 1% GDP (Coburn et al, 2014).

The extreme risk intensity is determined by a system vulnerability and exposure to a particular risk and it affects both the eco-social system as a whole and the economic and financial subsystem. It thus represents dynamic and changeable determinants of extreme risks whose impact on the system's capacity to depreciate a particular risk may change in time and space.

The concept of vulnerability is an analytical tool which determines the level of sensitivity of physical and social systems to damage and weakness, as well as a normative framework for defining the activities aimed at a wealth increase by a risk reduction (Adger, 2006). Vulnerability may be defined as a probability that a system, subsystem or their component parts may suffer a loss due to a risk exposure (Turner et al., 2003). Depending on the field of

research, vulnerability may be defined in various ways; however, it is usually understood as the function of exposure, sensitivity and adaptive capacity, which may be quantifiably presented in the following formula (Metzger, Leemans & Schroter, 2005: 255):

$$V(es,x,s,t) = f(E(es,x,s,t), S(es,x,s,t), AC(es,x,s,t)) \quad (6)$$

in which the symbols denote the following: V – vulnerability, E – exposure, S – sensitivity, AC – adaptive capacity, while *es* stands for the products and services of eco-systems used by sectors or a particular part of the system x in the context of the scenario s in the period of time t.

Since the potential impact (PI) of a risk is the function of exposure (E) and sensitivity (S), as presented in the following equation:

$$PI(es,x,s,t) = f(E(es,x,s,t), S(es,x,s,t)) \quad (7)$$

then, vulnerability (V) may be shown as the function of the potential impact (PI) and adaptive capacity (AC) in the following way:

$$V(es,x,s,t) = f(PI(es,x,s,t), AC(es,x,s,t)) \quad (8)$$

This simplified version of vulnerability displays and reveals the relation between various elements of the concept, but this concept operationalization is quite complex. Namely, when estimating the system vulnerability, three basic characteristics of the concept have to be considered (O'Brien, Sygna & Haugen, 2004: 3-4): (1) since the risks affecting ecosystems and their subsystems are different, it may be stated that vulnerability represents an inherently differential concept; (2) vulnerability being scale-dependent, the vulnerabilities of an individual, state, region, community and social group are all observed differently; (3) vulnerability is a dynamic concept since it may change over time depending on the system structure transformations and its functions. Considering the fact that it is a multidimensional concept, the vulnerability of an ecosystem may be observed from ecological, economic and social aspects. Moreover, current efforts to measure vulnerability tend to be *ex-ante* and are aimed at disaster risk reduction unlike the *ex-post* assessment and management of risk and vulnerability which main objection is recovery after the disaster.

The fact is that a rapid technological and economic advancement in the second half of the 20th century has changed the frequency and intensity of known risks while simultaneously creating new ones. Considering the fact that the characteristics of catastrophes are prone to change in space and time, the extreme risks classification has become a complicated task. Risks of catastrophes may be roughly divided into natural and human-induced hazards (Table 1). Natural hazards may be caused by atmospheric, geological, hydrological, seismological or any other natural dangers, as well as other external dangers out of the ecosystem of the planet Earth. The range of human-induced hazards is wider so that the number of human-induced catastrophes has been significantly greater than the number of natural disasters in the past decades.

The interdependence of the ecosystem elements has conditioned the correlation of the extreme hazards' causes and consequences so that the difference between these categories of risks is not so clear. The scientific studies usually define catastrophic risks, which may endanger the functioning of the system, as natural catastrophes caused by earthquakes, hurricanes, volcanic eruptions, etc. However, a lot of catastrophes that affect the eco-social

Table 1 Types of catastrophic risks to the ecosystem

Natural	Human-induced
▪ Natural catastrophes ▪ (earthquakes, storms, tsunami, floods, volcanic eruptions) ▪ Climatic catastrophes (drought, extremely low or high temperatures) ▪ Ecological catastrophes (rise in the sea level, fires, pollution, atmospheric changes, changes in the ocean ecosystem) ▪ External risks (meteor impact, solar storms) ▪ Epidemics (epidemic of human diseases, epidemic of animal diseases, epidemic of plant diseases)	▪ Financial shocks (price bubble of assets, financial irregularities, bank run, public debt, banking crises, stock market crash) ▪ Trade dispute (strikes, sanctions, nationalization, war rate, cartel pressures) ▪ Geopolitical conflicts (conventional wars, nuclear wars, civil wars, political influences by the external powers) ▪ Political violence (Terrorism, separatism, organized crime, civil unrests, assassinations) ▪ Technological catastrophes (nuclear catastrophes, industrial accidents, infrastructure collapse, technological accidents, Internet threats) ▪ Humanitarian catastrophes (famine, drinking water shortage, refugee crisis, collapse of social programmers system)

Source: Coburn et al. (2014)

system may be ascribed to human activity, such as: famine, resources shortage, wars, climatic changes and epidemics, financial instability and economic crises (Helbing, 2012). It is the governments that play the key role in such situations since they have to establish and develop the system resistance and protection from catastrophic risks, whereas the decisions on prospective measures imply an economic analysis of benefits and costs, as well. Besides the already mentioned particularities of manifestations of these hazards, such decisions are also determined by the risk aversion of decision-makers. The way in which social and political institutions influence the preferences of individuals and the way in which individual preferences are aggregated in a social choice represent the crucial components of the decision-making process which often exceed the framework of the expected utility theory. Therefore, what follows is a survey of the basic flaws of this concept in the presence of extreme risks, as well as the consequences of decision-making.

3. Expected Utility Concept under Extreme Risks

Regarding the intensity of risks, individuals, institutions and creators of macroeconomic politics are very frequently confronted with different options and alternatives in the presence of extreme risks in various spheres of social life (such as finances, insurance, traffic safety measures, health protection politics, measures for avoiding and overcoming the consequences of economic crises, nuclear and climatic catastrophes). The combination of the probability

distribution of possible heavy-tailed outcomes and the power utility function of a decision-maker does not only imply a limitless expected utility but also a limitless expected marginal utility, which would mean that an individual should postpone any kind of consumption at present in order to avoid potential catastrophic damages in the future (Ikefuji et al, 2010). This phenomenon is called "tyranny of catastrophic risk" and occurs when the utility function is not limited from below, i.e. $\lim_{W\to 0} U(W) = -\infty$, which can be shown in a simplified model (Buchholz & Schymura, 2012: 3-6) as follows:

Supposing the investment alternative in question had only two outcomes, the optimistic scenario outcome being $W + \varepsilon_1 = 1$, and the pessimistic scenario outcome varying and, in the worst possible situation, which is the low loss limit, equaled 0, i.e. $1 > W + \varepsilon_2 \geq 0$. The outcome in which $W + \varepsilon_2 = 0$ represents the case of absolute catastrophe, that is a total wealth loss, while the set of outcomes, whose values are in the range between 0 and W+ε_1, are the situations in which a part of wealth is to be lost in case of risks. If the probability of the optimistic scenario realization is denoted as p, then the probability of pessimistic scenarios realization is $1-p$, i.e. in case of $W+\varepsilon_2$ it can be marked as p_2. The probability of the outcome $W+\varepsilon_2$, whose value is either 0 or inclining to 0, is also very small, e.g. $p_2 = 10^{-6}$. The economic intuition would require that these risks be considered when deciding, but with acceptable limits, since a rational investor would not want to lose the more probable earnings for the sake of the protection from the risks extremely unlikely to occur. Otherwise, "the tyranny of catastrophic risks" may completely terminate normal activities. If the same situation is observed on the level of society supposing that a decision-maker negates the possibility of the optimistic scenario realization by giving priority to pessimistic scenario avoidance, society will, due to an increased level of protection from catastrophic risks, miss the chances to enlarge the wealth and well-being of individuals. Since the decision-makers' preferences concerning risks are different and determined by the utility function, it may be assumed that the decision will depend on the utility function characteristics.

Supposing the individual's preferences towards risks might be described by the utility function $U(x_i)$, which is defined for all outcomes as x_i ($x_i = W + \varepsilon_i$), $x_i > 0$ and for which it is true that $U'(x_i) > 0$ and $U''(x_i) < 0$. Observing the set of investment alternatives with the outcomes x_i, $i = 1,2,\ldots, k+1$, and a discreet probability distribution of the outcome x_i, it may be concluded that the expected outcome of the considered alternatives is $P = ((x_1, p_1);\ldots,(x_{k+1}, p_{k+1}))$, while the expected utility, which may be regarded as the certainty equivalent, $m_u(P_x)$ represents a sum of the expected utility of all the outcomes pondered by appropriate probabilities. The expected utility of such an outcome may be presented in the following way:

$$U(m_u(P_x)) = \sum_{i=1}^{k+1} p_i U(x_i) \tag{9}$$

The state $k + 1$ represents the state of an expected catastrophic risk whose probability of occurrence p_{k+1} may vary, but is inclined to zero. In order to focus only on the influence of various levels of probability p_{k+1} on the assessment of investment alternatives, we will suppose that the potential probabilities of the states in which catastrophic damages $\overline{p}_i$, $i = 1,2,\ldots, k$ are constant. If the probability p_{k+1} is known, then the probability of the outcome realization is x_i, $i = 1,2,\ldots, k$, $p_i(p_{k+1}) = (1-p_{k+1})\overline{p}_i$. For any combination of potential probabilities $(\overline{p}_1,\ldots,\overline{p}_k)$

and outcomes $(\bar{x}_1,\ldots,\bar{x}_k)$ in "normal" situations, i.e. the situations in which catastrophic risks are highly unlikely to occur, the expected outcome of the alternative with a potentially catastrophic outcome may be determined in the following way: $P_x(x_{k+1}, p_{k+1}) = ((\bar{x}_1, p_1(p_{k+1});\ldots;(\bar{x}_k, p_k(p_{k+1});(x_{k+1}, p_{k+1})))$. If $p_{k+1}= 0$, such an alternative may be identified with the alternative with an expected catastrophic outcome $P_g = ((\bar{x}_1, \bar{p}_1);\ldots;(\bar{x}_k, \bar{p}_k))$. In general, every project $P = (x_{k+1}, p_{k+1})$ represents a combinations of a catastrophic outcome and an anticipated P_g. Therefore, it can be concluded that "the tyranny of the catastrophic risks" is valid for the given utility function $U(x_i)$ if for any P_g there exists a series of alternatives with potentially catastrophic outcomes $(P_x^{(n)})_{n\in N}$ in which $\lim_{n\to\infty} p_{k+1}^{(n)} = 0$ and $\lim_{n\to\infty} m_u(P_x^{(n)}) = 0$. In other words, it is possible that the expected outcome utility of the considered alternative is inclining to zero even when the probability of the catastrophic risk is inconsiderably small. In that situation, the catastrophic risk, regardless of the probability of its occurrence and expected outcome, largely influences the estimation of the alternative. This phenomenon occurs whenever the utility function $U(x_i)$ is not limited from below, which means that it cannot be claimed that the expected utility theory necessarily underestimates the low probability outcomes, but that it is basically dependent upon the utility function type. The utility function limitation depends on the level of risk aversion, while a sufficient level of risk aversion determines the value of the relative risk aversion coefficient $xA(x) \geq 1$ for every $x > 0$.

On the other hand, if the utility function $U(x_i)$ is limited from below, then each series of alternatives with potentially catastrophic outcomes $(P_x^{(n)})_{n\in N}$, for which $\lim_{n\to\infty} p_{k+1}^{(n)} = 0$ and $\lim_{n\to\infty} m_u(P_x^{(n)}) = 0$, has an expected utility convergent to the expected utility without the catastrophic risk $\sum_{i=1}^{k+1} \bar{p}_i U(\bar{x}_i)$, if the catastrophic damage $x_{k+1}^{(n)}$ is limited from above.

Both cases prove that the expected utility theory cannot be valid in the presence of extreme risks because it will either induce the extreme risks dominance or completely negate their existence. A proper treatment of these hazards should include the fact that the price individuals and society are prepared to pay in order to avoid catastrophic consequences is limited, regardless of the risk impact and consequences irreversibility (Ikefuji et al., 2010). The aforementioned assertions indicate that the expected utility model should be modified so as to avoid all the weaknesses of the model concerning the supposed probability distribution of outcomes and utility function forms.

4. Decision-making under Extreme Risks

The expected utility theory has been criticized and modified by a great number of authors. The supposition that decision-makers are familiar with the probability distribution of the realization of considered alternatives has been particularly discussed as a serious flaw. Regarding the fact that in most cases investors are not given an opportunity to choose from the options with objective probabilities, one of the most influential versions of this theory is, in fact, the theory of the subjective expected utility (Savage, 1972). The concept of decision-making is based on the utility function, but the objective probabilities are replaced by the subjective ones, i.e. the preference relation is characterized by the following: ordering of the options, sure-thing principle, weak comparative probability, non-degeneracy, continuity in low-probability events and uniform monotony (Al-Najjar & De Castro, 2010). Similarly to the previous theory, this theory was not empirically validated. A simple experiment, which

proves that individuals prefer games (lottery) with known (objective) outcome probabilities, implies the ambiguity aversion on the part of a decision-maker, known as Ellsberg's paradox (Ellsberg, 1961; Keynes, 1921). This paradox was discovered while conducting the following experiment: bowl A contains randomly placed 50 red and 50 black balls, and bowl B contains 100 balls, placed at random, as well, but with no information on the exact number of red and black balls in it. The prize goes to anyone who accidentally picks up the ball of the previously specified color. The majority of the experiment participants preferred to pick up from bowl A regardless of the given color, which directly disproves the postulates of the theory of the subjective expected utility. Namely, if a respondent is required to pick up a red ball and they choose to do that from bowl A, it lowers the probability of picking up a red ball from bowl B by ½. On the other hand, following the same logic, it means that the probability of picking up a black ball from bowl B is higher by ½, since the sum of probabilities of both outcomes has to equal 1. Anyway, the experiment results indicate that the ambiguity aversion is a very powerful and robust phenomenon.

Different non-expected utility theories have explained the choice of investors by altering or completely omitting a questionable feature of independence, i.e. the principle of a rational choice certainty. The most famous ones are: generalized expected utility theory (Machina, 1982), weighted expected utility theory (Fishburn, 1983), rank-dependent utility theory (Quiggin, 1982), prospect theory (Kahneman & Tversky, 1979), cumulative prospect theory (Kahneman & Taversky, 1992), regret theory (Loomes & Sugden, 1987), dual utility theory (Yaari, 1987), and many others (Starmer, 2000).

The issue of extreme risks is discussed in the theory of rank-dependent utility, which supposes that individuals rank their options according to the cumulative distribution function, not according to the subjective probabilities. Maintaining all the aforementioned features of the preference relation of the rational investors and being based on the rank of the probable outcomes of the options x_i in the rising order, this theory offers the solution of maximizing for the following targeted investors' functions

$$E(U(x_i)) = \int_0^{\infty} \frac{\partial g(\Phi(x_i))}{\partial x_i} U(x_i) dx_i \tag{10}$$

where $\Phi(x_i)$ denotes the probability that the outcome x_i will be lower than a value p, while the $g(\cdot)$ function of ranking probability of possible outcomes is such that $g(0) = 0$ and $g(1) = 1$.

Contemporary attempts at improving the expected utility theory are basically concerned with the decision-making optimization in the cases of climatic changes. Weitzman's research on extreme climatic changes (Weitzman, 2009) presumes the presence of a lower limit of consumption determined by the parameter of the statistical value of life. He proves that the expected discount rate approaches infinity, but he also states that it is very difficult to determine the value of this parameter. Ikefuji et al. (2010) define sufficient and necessary conditions for the expected utility model in the presence of extreme risks by considering various utility functions. Not setting any limits to the probability distribution, they conclude that the generally accepted power utility function should not be considered in the process of deciding if there exists a non-negligible risk model. The exponential function and Pareto function of utility are more acceptable instead.

Despite possible improvements, the concept of expected utility predicts average reactions to the pondered average risk, where the point of pondering is the risk probability

(Chichilnisky, 2011: 5). The prospect theory explains that individuals overestimate the potential losses in reality, while simultaneously underestimating potential wins in the presence of risks, and this asymmetry cannot be explained by the theoretical wealth function nor by the generally accepted risk aversion function (Kahneman & Tversky, 1979). The decision-maker's behavior, whose choice is conditioned by both risk aversion and possible outcome ranks, is explained by the cumulative prospect theory (Kahneman & Tversky, 1992) and it may be formally shown as the problem of maximizing of the following function

$$E(U(x_i)) = \int_{-\infty}^{0} \frac{\partial g^{-}(\Phi(x_i))}{\partial x_i} U^{-}(x_i)dx_i + \int_{0}^{+\infty} \frac{\partial g^{+}(\Phi(x_i))}{\partial x_i} U^{+}(x_i)dx_i \tag{11}$$

Although this theory offers a certain level of flexibility in modeling the decision-making process in relation to the expected utility theory, the function $g^{-}(\cdot)$, $u^{-}(\cdot)$, $g^{+}(\cdot)$ and $u^{+}(\cdot)$ is extremely difficult to identify.

Being in an extremely risky situation, an individual does not think rationally since the decision-makers are prone to overestimating the probability of extreme outcomes. Research has shown that deciding under the pressure of extreme emotions results in extreme and simplified reactions, such as "fight or run", not in ranking the alternatives on the basis of their probability, as described by the theory of expected utility. Therefore, it may be proved that ranking alternatives according to von Neumann and Morgnestern in the presence of extreme risks is insensitive to the low probability outcomes (Chichilnisky, 2011), i.e. it follows:

$$E(U(x)) \geq E(U(y)) \Leftrightarrow \exists \varepsilon > 0,\ \varepsilon = \varepsilon(x, y) : E(U(x')) \geq E(U(y')) \tag{12}$$

each x' and y' are such that $x' = x$ and $y' = y$, except in case of $A \subset R : \mu(A) < \varepsilon$.

If the ranking of alternatives is focused on the outcomes with a low frequency of repetition, then this kind of ranking is insensitive to the outcomes with a high repetition frequency (Chichilnisky, 2011), i.e. it follows:

$$E(U(x)) \geq E(U(y)) \Leftrightarrow \exists M > 0,\ M = M(x, y) : E(U(x')) \geq E(U(y')) \tag{13}$$

each x' and y' are such that $x' = x$ and $y' = y$, except in case of $A \subset R : \mu(A) > M$.

With the purpose of treating "average" outcomes and the outcomes with an extreme level of probability in the same way, Chichilnisky (1996, 2009, 2011) proposes new axioms of the preference relation, such as: linearity and continuity, sensitivity to low probability outcomes and to frequent outcomes, and she formulates the decision-making problem as the maximizing of the following function:

$$E(U(x_i)) = \lambda \int_{X \in R} U(x_i)d\mu(x_i) + (1-\lambda)\Phi(U(x_i)) \tag{14}$$

for $\lambda \in (0,1)$ and the final additive function Φ, $\Phi: L \rightarrow R$, in which L represents a set of alternatives $L = L_{\infty}(R)$.

The first part of the formula (14) corresponds to the expected utility function, where frequent outcomes are ranked, while the second part of the function is determined by the probability measure which ranks low probability outcomes, i.e. the measure with heavy

tails. Thus, the catastrophic risks are ranked more properly, while the function is sensitive to both low and high frequency outcomes. This approach offers various results in relation to the classical expected utility theory, but all the aforementioned models have not yet been applied in the investment theory and practice (Grechuk & Zabarankin, 2014).

CONCLUSION

The consequences of the financial markets instability, as well as higher vulnerability and exposure of socio-economic systems to catastrophic risks induced by either natural causes or human activity cannot be ignored in the models of decision-making optimization. Although the economics of heavy-tailed distributed risks raises difficult conceptual issues that cause the cost-benefit analysis to appear more subjective, its application should not be evaded. Economic analysis in these circumstances should consider probability distribution of such events, interaction between uncertainty and temporal dimension and model of human behavior. Preferences of decision makers, which integrate all challenges of the analysis, are usually modeled within expected utility framework.

Although the relevance of catastrophic risks cannot be neglected, it is also necessary to consider the fact that the price of their reduction that individuals and/or society are ready to pay is limited. Classical optimization models include mainly average risks, which makes them inadequate in the presence of extreme risks. The concept of the expected utility theory may be thus seriously challenged because of the phenomenon of "the tyranny of catastrophic risks". If a certain utility function is not limited from below, then even a minimum probability of the catastrophic damage may induce a complete dominance of the catastrophic risk. The price of preventing catastrophes being very high, these decisions lead to a complete decline of consumption or investment, at the moment of making a decision in order to prevent a possible absolute loss. An alternative solution within the concept of the expected utility theory is that the utility function be limited from below, which may also have extreme consequences. Namely, extreme risks which are characterized by a low level of probability may be completely dismissed in the process of decision-making and thus inadequately considered, which may be also regarded as unethical in case of decisions related to the whole society. Possible solutions within the expected utility theory are either to introduce proper threshold levels for the extreme risk, or to completely abandon this concept and accept the unexpected utility theory. However, the implementations of alternative concepts in actual situations have not been so frequent due to its complexity.

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TEORIJA OČEKIVANE KORISNOSTI U USLOVIMA EKSTREMNIH RIZIKA

Teorija očekivane korisnosti pruža okvir za modeliranje izbora racionalnog pojedinca čiji je cilj maksimiranje očekivane korisnosti uz date preferencije prema riziku. Međutim, ekstremni rizici, kao što su, na primer, krah berze ili elementarna nepogoda, značajno utiču na funkciju raspodele verovatnoće ishoda dodajući težinu repovima raspodele. U takvim slučajevima, primena teorije odlučivanja zasnovanoj na očekivanoj korisnosti je izuzetno osetljiva na pretpostavke o funkciji raspodele verovatnoće. Stoga će u ovom radu biti dat pregled modela odlučivanja u okviru teorije očekivane korisnosti u uslovima ekstremnih rizika.

Ključne reči: *očekivana korisnost, ekstremni rizik, odlučivanje*

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TIME-DRIVEN ACTIVITY-BASED COSTING AS A TOOL OF BUILDING AN INTEGRATED MANAGEMENT SYSTEM

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Abstract. *The implementation of the defined strategies and achieving operational excellence are inextricably linked and equally important for achieving excellent enterprise performance. Achieving success within both of these vital management processes, strategic and operational, and within enterprise management in general, requires the development and implementation of an integrated approach. In this regard, theory and practice have come up with different approaches. The aim of this paper is to identify opportunities for the use of Time-driven Activity-based Costing (TDABC), for the purpose of linking strategic and operational management. The analysis has shown that TDABC has outstanding performance, to be applied both in the field of strategic and operational management individually, and more importantly, in the domain of their integration.*

Key words: *Strategic and Operational management, Performance Measurement, Cost Accounting, Time-driven Activity-based Costing (TDABC)*

INTRODUCTION

The common position of a large number of theorists and practitioners is that there is a need to create and implement an integrated system of management. Such a system should ensure operational excellence, at the operational level of business processes, and implementation of the defined strategies, at the strategic level. The existence and implementation of a formal system of linking strategic and operational management, which is systematic and coherent, is a crucial prerequisite for successful enterprise management, achieving excellent performance, and creating and sustaining competitive advantage. For the purpose of creating such a management system, different tools have been developed. The ones that are often referred to are Balanced Scorecard (BSC), Dupont Model, Theory of Constraints, Hoshin Kanri Planning, etc. Also, the key role of an adequate performance

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measurement system in the process of building an integrated management system is emphasized. Reviewing the performance measurement system inevitably leads to the question of the role of accounting and its segments, particularly cost accounting, in the processes of implementation of strategic and operational management. With this in mind, the subject of the present research are instruments (tools) for integrating strategic and operational management, with a focus on performance measurement system and TDABC, as a quantitative basis of cost accounting.

The main research objective is the consideration of the possibilities and potentials for the TDABC application, as well as its performance evaluation in the field of integration of strategic and operational management. Bearing in mind the subject of research and the defined goal, the paper will rely on methodological procedures and techniques, inherent in the social sciences, i.e. qualitative methodology, based on the study and a descriptive analysis of the defined research subject. Reference to the relevant literature, based on theoretical analyses and examples from international practice, including a specific case study, should allow the synthesis and drawing general conclusions.

The paper consists of four parts. The issue of the necessity of linking strategic and operational management, and the need for building an integrated management system, is the focus of the first part of the paper. The second part is devoted to the analysis of six-stage framework for the integration of strategic and operational management. The third part discusses the TDABC potentials in the construction of an integrated management system, while the fourth part is devoted to the analysis and presentation of a case study, related to the implementation of TDABC in a specific enterprise.

1. NECESSITY OF INTEGRATION OF STRATEGIC AND OPERATIONAL MANAGEMENT

Literature usually describes quality management by using the expressions “effective” and “efficient”, and it is considered that the enterprise is successful if it does “the right things” in the “right way”. Although they have different meanings, the link between efficiency and effectiveness is unbreakable. Although there are opposing views [2], authors often point out that it is possible to achieve efficiency without effectiveness, while, without efficiency, there can be no effectiveness. This means that the enterprise, as a business system, can be efficient even if it does not do the right things, i.e. if it does not choose the best possible alternative use of capital (if it is not effective). Efficiency is, therefore, seen as the essential (necessary) condition [15]. If the enterprise does not operate in the right way, i.e. does not achieve maximum results with minimum investment (if it is not efficient), there is no room for effectiveness [17, 183]. The reason for this lies in the fact that effectiveness is linked to the process of identifying and defining objectives and creating and implementing strategies, and, in this regard, the long-term directing of the enterprise’s course of action. Effectiveness is predominantly within the competence of top management, and implies a long-term aspect of contemplating and decision-making. One of the basic instruments to achieve effectiveness is strategic planning. On the other hand, efficiency focuses on the mode of realization of business processes, with the aim of maximizing results, while minimizing waste. Efficiency is a measure of operational excellence [16]. It falls within the responsibility of the lower (operational) management, and includes the use of different techniques and tools to achieve operational improvement.

Focus on efficiency, while neglecting effectiveness, leads to ephemeral profitability. In contrast, focus on effectiveness, with disregard for efficiency, leads to unprofitable growth [16]. Therefore, the basic assumption of successful management, i.e. the enterprise's success, is the balance between effectiveness and efficiency, i.e. the coherence and integration of strategic and operational management.

Strategic management includes both decision-making on the future direction of enterprise development, through strategic planning, and implementation of activities aimed at achieving the defined goals, i.e. strategy implementation. Strategic decision-making focuses on the future, with the aim of achieving the desired long-term objectives, so that the consequences of these decisions are far-reaching. On the other hand, operational management has a short-term focus. The main activity of operational management is the organization and connection of all, financial, technical, technological, human, financial, and information resources, for creating products and services of different scope, variety, and demand. Traditionally, the focus of operational management is the technological, organizational, and architectural dimension of an enterprise's business processes and operations [18]. Business processes, understood as fully enclosed, time- and logically separated activities or series of activities, whose execution leads to the realization of the processes themselves, are treated as the main value generators. They directly determine and are responsible for the consumption of resources and overall efficiency/inefficiency and productivity of the enterprise. An integral aspect of business process management is their improvement.

Achieving operational excellence at the level of business processes and implementation of the defined strategies are equally important for achieving excellent performance of enterprises [21]. Not even a visionary and masterfully defined strategy can be realized unless associated with operational excellence and operational management. Conversely, operational excellence can result in lower costs, quality improvement, and lead time reduction, but without integration with strategic vision, it is unlikely that the enterprise will achieve sustainable and long-term success, i.e. achieve and maintain a competitive advantage. Accordingly, high-performance business processes are necessary, but not sufficient.

The existence of a kind of gap between the formulation of ambitious strategic plans and their implementation, i.e. execution at the level of departments, business processes, and their teams, is a common problem which enterprises face. Empirical studies in the last few decades have shown that 60% to 80% of enterprises fail to achieve the goals set in the strategic plan. One of the main reasons for the enterprise's failure in the implementation of the strategy or business process management lies in the lack of the management system, which integrates and harmonizes these two vital segments of the management process. The above-mentioned gap also stems from the unsystematic and uncoordinated use of various instruments of strategic management and operational management. In recent decades, a large number of these instruments have appeared. The domain of strategy implementation includes defining and statements of mission, values, and vision (MVV), competitive, economic, and environmental analysis, i.e. SWOT analysis (strengths, weaknesses, opportunities, threats), strategic map, and Balanced Scorecard (BSC). On the other hand, the area of operational management most commonly refers to the following management instruments: Total Quality Management (TQM), Six Sigma, Kaizen, Lean Management, Business Process Reengineering (BPR), and others. Contemporary costing systems, which basically rely on business activities, are often used to determine the

profitability of outputs (products and services) and customers, as the key indicators of the strategy success. In addition, they are considered to be very effective in identifying waste and implementation of operational improvements. The use value of the above-mentioned instruments of strategic and operational management is high. However, they often do not give the expected results. The reason for this is their fragmentary, incoherent, unsynchronized, and unsystematic implementation, based on ad hoc solutions.

The results of empirical research clearly indicate the need for the creation and implementation of a specific integrated approach to management. Some note that the existence of a formal system of linking the strategic and operational management increases the probability of success of implementation of the strategies created by two to three times [8, 3]. The application of systematic, comprehensive, and integrated approach to ensuring coherence between strategy implementation and achieving business process excellence is the key prerequisite for successful enterprise management, and creating and sustaining competitive advantage.

However, the crucial question is how these different strategic and operational instruments of improvement can act together as a coherent system [8, 7]. How to successfully realize the set long-term goals and created strategies, aimed at building and sustaining competitive advantage, while at the same time bringing continuous improvement of business processes and operational excellence? The answer lies in a synchronized and coherent management system, whose base comprises processes of adequate measuring and reporting on the results achieved. Measurement processes have three basic functions: control, communication, and improvement, thus allowing the creation of links between strategy, its realization, and the process of value creation [14, 211]. Performance measurement and determination of results have their stronghold in the top management of the enterprise, but are equally focused and involve the middle management, up to the top line management (operational management), i.e. the level of business processes of the enterprise.

2. POSSIBLE APPROACHES TO INTEGRATING STRATEGIC AND OPERATIONAL MANAGEMENT

In order to integrate strategic and operational management, different approaches have been developed. Some of them are: BSC [10], Dupont model [11], Theory of Constraints [12] and others. BSC is a very important tool of top management. It has a significant role in the rapid and effective strategy implementation, through the integration of the performance measurement system and management system. In fact, it sets the strategy at the center of the management process, thus, in a certain way, leading the enterprise towards strategic orientation. The Dupont model allows the operational improvement (in the field of operational management) to be adequately valorized, i.e. presented in financial statements, in a way that responds to the needs of strategic management [14, 215]. The main objectives of the theory of constraints are: Increase Throughput, Reduce Inventory, and Reduce Operating Expense. For that reason, there are objections to this theory, as to being too focused on business processes and operational improvements. Some enterprises use Hoshin Kanri Planning for translating high strategic goals into the goals of operating departments. It is an instrument that allows the management to communicate objectives through all hierarchical levels of the organization, i.e. create detailed plans for the future, which require serious planning and resources.

A number of authors speak of a performance measurement system as a key information system that enables effective and efficient management. For this purpose, a performance measurement system needs to integrate all the relevant information, i.e. enable the development of strategic and operational objectives, and provide information for decision making and control [3]. In support of this, and in the context of the measurement process, the issue of the connection between accounting and strategy inevitably arises. Although research on this subject has been carried out for more than half a century, a large number of authors point out that this relationship has not been fully explained and clarified yet. Furthermore, they often emphasize the accounting support to the process of strategy realization, but not to the process of its adoption [7], [1]. The research carried out in 2010 aimed at analyzing the role of different accounting tools in the process of defining, redefining, and implementing the strategy. The authors' global conclusion is that the role of accounting in all these processes is very active and important [20].

In connection with the performance measurement system, the essential question is how to develop an adequate measurement system. The traditional performance measurement system is based on cost accounting information, based on the application of the concept of full costs, and financial accounting information, which is primarily of a historical character. Traditional accounting information is objected to as being unable to support the realization of strategy, business objectives, and continuous improvement. In their work, Kaplan and Norton claim that one should rely on the cost accounting information of new type and information based on new accounting methodologies. They developed an approach for the integration of strategic and operational management, which is based on the strategic and operational planning. Their theoretical framework, which provides an integrated approach to strategy formulation and planning, and to operational management and achieving excellence, comprises six stages, and is shown in Figure 1.

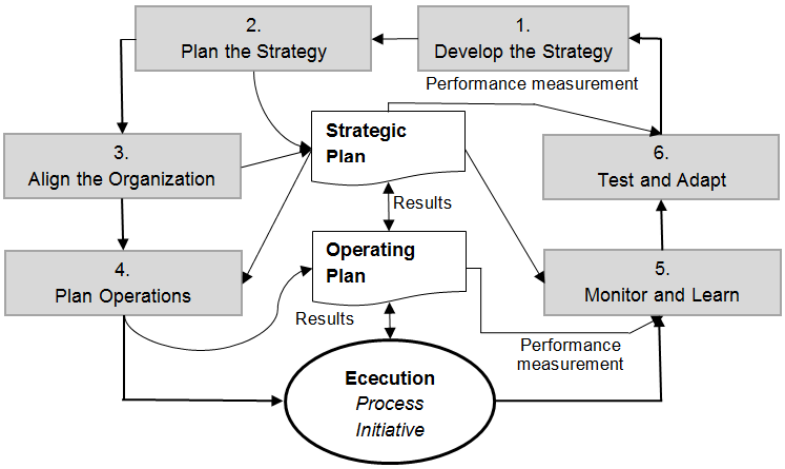

Fig. 1 Stages of integration of strategic and operational planning [8, 7]

The first and crucial phase of the presented framework includes strategy development. Strategy development includes formulating mission, vision, defining values, implementing

strategic analysis (including analysis of macro and microeconomic environment, resources, and other business opportunities, but also an analysis of progress of previously formulated strategies), and strategy formulation. The strategy, by its nature, relies on the vision, mission, and goals of the enterprise. It is considered a key link in the chain of dispositive business and financial decisions and operationalization of tasks, and stands for the defined best course of action for the realization of the objectives of enterprise, and the most important interactive element between the enterprise and its environment.

After strategy formulation, the focus is on its planning. Strategy planning includes defining strategic goals, strategic initiatives (planned action aimed at achieving performance in respect of the goals established in the strategic map), performance measures, and the necessary budget. It can be implemented by introducing the strategic map. The strategic map describes the process of creating value through a series of cause-and-effect links between the defined goals and four different perspectives of BSC. Understanding the strategic goals and strategic directions, their development and measurement of achieved performance levels, control of realization and use of the information obtained for the purposes of effective and efficient management in modern business conditions are becoming critical success factors.

The key activity in the process of strategy planning is budgeting. Budgeting is the process of preparing information for the thoughtful directing of activities of the enterprise, i.e. the process of tracing its path towards the desired goals, directions, and global development strategies [19, 18]. The result of the budgeting process is the budget, i.e. quantitative expression of future of the enterprise, i.e. expected revenues and expenses for a certain period. The budget is the formal expression of planned future actions, and serves as a communication tool by which the defined long-term and strategic goals are, through the delegation of tasks and responsibilities, transformed into specific operational activities. In the context of the integration of strategic planning and operational management, i.e. translating strategy into action, one should distinguish between long-term and short-term budget. The result of the strategic planning is a long-term budget. Long-term budget is the instrument which primarily serves to reconsider financial effects of different strategic options and, as such, is used in the area of decision-making, and very rarely, or almost never, as a means of control. In contrast, short-term (master) budget is the expression of the operating management intentions, and, as such, represents an important instrument in the area of decision-making, but it is primarily a means of control, i.e. a tool to assess the quality of decisions made. The relationship between long-term and short-term budget is such that long-term budgeting raises the quality of short-term budgeting, in a way which prevents orientation of management exclusively towards short-term goals. The implementation of strategic initiatives or portfolio of initiatives, according to Kaplan and Norton, requires the development of a specific budget, also known as STRATEX – Strategic Expenditures. This budget defines the resources for the financing of the implementation of selected strategic courses of action, which provide long-term benefits. In fact, it abandons the traditional approach to budgeting, based on existing organizational business units, and switches to cross-functional and cross-sectoral budgeting.

Strategy planning is followed by the third phase, i.e. alignment and diffusion of the defined strategy at the level of the business units, work teams, and all employees. This is a crucial stage for the success of strategy implementation. Strategy diffusion and alignment in the enterprise can be implemented vertically and horizontally. Vertical diffusion should ensure that each organizational unit contributes to the realization of high strategic goals,

at the same time striving for the successful realization of the goals set at the operational level. Horizontal alignment among organizational parts should allow for the synergy in respect of the exchange and sharing of technology, knowledge, best practices, joint training and education of employees, and others. Implementation of this phase should allow all organizational segments in the enterprise to, through a balanced approach, achieve the optimization at the operational level and contribute to the realization of the strategy of the enterprise as a whole. The fourth stage involves planning at the operational level by using the above-mentioned instruments, namely: quality management, process management, business process reengineering, forecasts, activity-based costing, capacity planning, and dynamic budget development. The fifth phase involves monitoring of the results achieved on the basis of the strategy implementation, as well as improving business processes and defining strategy, based on the obtained information, and learning processes related to identified problems, barriers, and challenges. The sixth phase relates to testing and modification (adaptation) of the strategy, based on internal operational data and data from the environment.

The basis of the above theoretical framework is the establishment of clear and unbreakable link between long-term formulated strategy and almost daily operational activities. The key to success is actually coordination of activities related to improving processes (operational improvements) and strategic priorities. Therefore, the development of operational plans is a key thing. In the process of developing operational plans, two issues are central, namely: what the key business processes are, i.e. which business processes should be improved in order to ensure the implementation of a defined strategy and how to establish a connection between strategy and operational plans and budgets, i.e. how to plan resource capacities.

With regard to the first question, enterprises need to focus on improvements and achieving the desired performance of key business processes, since it is the only path that leads to the implementation of a defined strategy. After identifying key business processes, which will be subject to improvements, operational management needs to define the most important performance indicators for these processes. This ensures employees' focus on business process improvement, as well as appropriate feedback on achievements. The essence of the second question relates to the adjustment and transformation of operational improvement plans and strategic targets into the annual operating plan, with this operational plan including three components: sales forecast, resource capacity plan, and budgets (operating and capital budgets). The first component of the operational plan involves translating the strategic plan of target revenues into sales forecast. The second component of the operational plan requires translating detailed sales forecasts into the assessment of the required resources of the enterprise, i.e. resource capacity needed for a defined forecast period. The instrument (tool) which, according to Kaplan and Norton, ensures the most efficient implementation of the given task is Time-driven Activity-based Costing – TDABC [8].

TDABC plays an important role in providing answers to both of the above-mentioned questions in connection with the preparation of operational plans. It allows the measuring of performance at the level of business processes, and determining the necessary resource capacities for the purpose of creating the annual operating plan.

3. TDABC CONTRIBUTION TO BUILDING AN INTEGRATED MANAGEMENT SYSTEM

TDABC is a contemporary cost accounting system, which was created with the aim of overcoming and eliminating defects of traditional Activity-based Costing (ABC). TDABC introduces several essential innovations into cost calculation; it takes into account the practical capacity, i.e. capacity utilization, and introduces a time variable. TDABC methodology requires only two sets of estimates: the capacity cost rate and the time required to perform each business activity. The capacity cost rate is the quotient of the cost of capacity supplied and practical capacity of resources supplied. The primary function of the capacity cost rate is to allocate cost of resources to cost object by estimating the demand for resource capacity that each cost object requires. Costs are allocated on the basis of the time necessary for the realization of the specific business activities, where the time is determined by using time equations. Hence, organizational and methodological design of TDABC system requires, first, determination of the cost capacity rate, which raises the problem of determining the practical capacity, and second, identification of the time required for the realization of specific business activities, which requires creation of time equations.

Companies that implemented TDABC identified the following as the most common motives of their decision: increase in the degree of capacity utilization and increase in the efficiency of the processes (operational improvements). They point out that the achievement of these effects is possible due to the fact that TDABC provides more detailed and reliable information for the purpose of performance measurement processes, budgeting, and implementation of "what if" analysis. Furthermore, some of the possible positive effects of the use of TDABC can be: creation of profit- and profitability-oriented enterprise, through regular reports on the profitability of each customer or product/service, creating a company oriented towards the realization of the goals and strategies, through connecting TDABC and BSC, improving decision-making processes, and others [9]. TDABC information has significant and different application potential. Different areas of the use of information provided by TDABC are given in Table 1. The systematization of areas of information use has been done from the perspective of strategic and operational management levels.

Table 1 The fields of application of TDABC information [9, 78]

Strategic	Operational
Profitability analysis at different levels	Capacity analysis
Strategic benchmarking	Order optimization
Cost to serve	Cost reduction
KPIs	Inventory reduction
Balanced Scorecard	Internal controls

TDABC can successfully respond to information requirements of management at all levels [5]. Bearing in mind that creating a TDABC system begins at the lowest, operational, levels, it can measure performance at both higher and lower hierarchical levels. While higher levels of management can monitor the level of profitability and capacity utilization at the level of different business segments, departments, and wider, the management at the departmental level monitors the profitability of individual

products, orders, and/or customers, and monitors the level of capacity utilization at the level of departments.

TDABC significantly affects the change of performance measurement and performance management in enterprises [4]. It also provides strong support for translating the strategy into performance measures, and provides adequate performance measures for BSC. The most common performance measures are: customer and product profitability, market share, customer loyalty, efficiency of inventory management, procurement and sales efficiency, and others. In fact, TDABC essentially supports the design and implementation of the BSC.

In the context of the presented six-stage model, TDABC can successfully create a link between sales forecasts, planned efforts toward operational improvements, and the necessary volume and structure of resources to fulfill the plans set. After obtaining information on the volume and mix of resources needed for the future period, it is possible to easily determine the financial implications (financial plan) and operating and capital budgets (Operational and capital budget, as an outstanding management innovation, appeared in General Motors in 1920. Their role was reflected in decentralization of management through the centralization of control. The use of the budget was, in fact, aimed at coordination and control of diversified business units.). This is the third component of the operational plan. Its essence is reflected in the realization of operating expense budget (OPEX) and capital expenditure budget (CAPEX) [8].

The third step, i.e. direct application of TDABC, plays a key role in the process of integration of strategic and operational planning. One of the key benefits of the use of TDABC is its ability to efficiently and rapidly forecast the required resource capacities for the implementation of business processes. To make this possible, first, it is necessary to modify the costing model, to reflect the expected improvement of business processes in the next period, for which the forecast is made. This allows for the connection between activities of quality and business process improvements and budgeting processes, i.e. activities of continuous improvement are built into the budgeting process. After that, it is necessary to fill the model with the data arising from sales and operational plans. The result is information on the volume of each type of resource that should be provided in the future, which is essential for the implementation of the plans. In addition, based on the TDABC model, capacity cost rate is determined. Multiplying the capacity cost rate with the required volume of that resource results in the forecasted (budgeted) costs for the forecasted period. In view of this, TDABC allows predicting, modifying, and managing the future of the enterprise.

The described process shows that TDABC is a powerful management tool that provides a comprehensive and synthesized framework for integrating strategic planning with resource allocation, budget forecasting, and dynamic budgeting. The framework comprises five steps [8]:

- Sales forecasting for shorter time periods (usually quarterly),
- Translating the high-level sales forecasts into a detailed sales and operational plan, whose one of the basic functions is determining the necessary resources for their implementation,
- Inclusion of the sales and operational plan, as well as the projected effectiveness of the process, into the TDABC model, for the purposes of forecasting demands for resources or necessary resource capacities,

- Dynamic budgeting for operating expenses (OPEX) and capital expenditure (CAPEX) (In this regard, operating expenses include costs of labour, maintenance, and equipment, while investment in resource capacities or some strategic initiatives fall within capital expenditure),
- Assessment of financial profitability at various levels (products, customers, sales channels, etc.).

Finally, TDABC is a system of exceptional reporting performance, which allows full insight into the historical and future performance, efficient and effective short-term and long-term decision-making, and assessment of effectiveness of resource, operational, and business process management [6], [9], [22]. Not only that TDABC can be used for each of the individually listed strategic and operational purposes, but the previous analysis has pointed to its outstanding performance in the field of integration of strategic and operational management.

4. CASE STUDY OF TDABC SYSTEM APPLICATION

The relevant literature includes a number of different studies dealing with the application of TDABC. The existing studies point to the examples of TDABC implementation in different fields of economy, namely: financial sector (USA and Canada, 2004), university library (USA, 2007, Belgium, 2009), trade and distribution (USA, 2008, Belgium, 2010), hospital (Great Britain, 2009), hotel (Turkey, 2010), a production company (USA, Belgium, Turkey, 2010), and university restaurant (Belgium, 2012). There is an interesting example of the application of TDABC in the Kemps production enterprise in the United States. The study showed that TDABC gives strong support to the implementation of enterprise strategy, and to operational improvements.

Kemps is one of the famous American producers of dairy products, namely: milk, yogurt, sour cream, cheese, and ice cream. Economic trends during the 1990s caused the reduction in the number of customers, i.e. their consolidation, and the emergence of giants in the field of distribution and wholesale. At the same time, the demands of customers, in terms of product packaging, distribution, storage, and delivery "just in time", became more pronounced. The reduced capacity for product storage on the part of the customers resulted in a further increase in producers' responsibility regarding product storage. In order to respond to the changed business conditions and the growing needs of customers, this enterprise had to develop a complex production process for a wide variety of products, and a well-organized transport system. Furthermore, Kemps is known for installing a very expensive production line for the production of yogurt in a tube, worth 2.5 million dollars.

The complexity of production processes, a wide range of products, and striving for maximum satisfaction of various customer demands at the end of the 1990s made successful management of this enterprise very difficult. It became necessary to change the business philosophy, objectives, and strategy of the enterprise. Orientation to cost reduction, i.e. achievement of cost leadership and brand building, became its primary focus and the only option of survival and further development. However, the implementation of a new business culture and philosophy demanded the complete, accurate, and precise knowledge of costs, revenues, and profitability of products and

customers. The former system of cost accounting, based on standard costs, could not meet the management information needs. Although this system provided excellent data on the costs of materials and operating costs at the departmental level (overhead costs were allocated according to the percentage, compared to direct production costs), it did not reflect the effects of the size of the series, as well as the starting time of the machines (for production series) or their stopping and outages. The unit costs of a product were, for example, the same, regardless of whether the production launch took ten minutes or an hour. This and similar problems gave rise to the need for a new costing system, which could, by providing more reliable and more accurate information, more effectively respond to management information needs.

In early 2001, the company started a pilot project of introducing TDABC. By mid-2001, a full TDABC model was built and implemented, which included all products and all customers, and an analysis of their profitability. The results of TDABC application were impressive. The operational improvement, i.e. process improvement, through reduction of the number of production series, eliminating waste and overtime, had a direct impact on cost reduction. Profitability analysis, based on TDABC information, allowed for the detection of non-profitable products and pointed to the necessary reduction of the production mix. Based on analysis of customer profitability and identification of less profitable and unprofitable customers, the company management brought significant business decisions, which resulted in significant revenue growth of the company. Important implications of these decisions were the improvement of relations with customers and establishing long-term cooperation with mutual benefit [9, 160].

CONCLUSION

For the purposes of integrating strategic and operational management, different concepts, techniques, and tools have been developed. In this paper, the focus is on Kaplan and Norton's six-stage model of building an integrated management system, which places an emphasis on TDABC. This modern system of cost accounting has been engaging attention of scientists and experts in the past twenty years. Theoretical views, confirmed in empirical research focusing on TDABC, support its high performance. The analysis in this paper aimed at answering the question of whether and why TDABC should be used, as a management tool for integrating strategic and operational management. The arguments in favor are as follows:

- It has the potential to measure performance at both higher and lower hierarchical levels, and provides adequate information support to the management at operational and strategic levels,
- It has the ability to efficiently forecast capacity (time-related), required for the implementation of business processes, and therefore, allows for the translation of high-level sales forecasts into detailed sales and operational plans,
- It successfully creates a link between sales forecasts, planned activities, aimed at the implementation of operational improvements, and the necessary volume and structure of resources to fulfill the plans set,
- It enables dynamic budgeting for operating expenses and capital expenditure,
- It provides support to translating strategy into performance measures, and provides effective performance measures for BSC, i.e. affects the change in performance measurement and performance management system in the enterprise.

Final solutions can hardly exist, so that the challenges of time and changes will confirm the high performance of TDABC, or reject it as inadequate. What is quite certain is that the theory and practice in Serbia should follow, with a critical approach, contemporary achievements of developed economies.

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TDABC KAO INSTRUMENT IZGRADNJE INTEGRISANOG SISTEMA UPRAVLJANJA

Realizacija definisanih strategija i postizanje operativne izvrsnosti neraskidivo su povezani i podjednako važni za postizanje vrhunskih performansi preduzeća. Postizanje uspeha u okviru oba ova vitalna upravljačka procesa, strategijskom i operativnom, i upravljanje preduzećem generalno, zahteva izgradnju i primenu integrisanog pristupa, a u vezi sa čim su u teoriji i praksi razvijeni različiti pristupi. Cilj ovog rada je sagledavanje mogućnosti za primenu obračuna troškova po aktivnostima zasnovanog na vremenu (Time Driven Activity Based Costing - TDABC) u funkciji povezivanja strategijskog i operativnog upravljanja. Analiza je pokazala da TDABC poseduje izuzetne performanse za primenu, kako u sferi strategijskog i operativnog upravljanja pojedinačno, tako i još značajnije, u domenu njihovog integrisanja.

Ključne reči: *strategijsko i operativno upravljanje, merenje performansi, računovodstvo troškova, obračun troškova po aktivnostima zasnovan na vremenu (TDABC).*

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THE TRANSFORMATION OF BUSINESS MODELS AND MARKETS IN THE ERA OF INTERNET AND ELECTRONIC BUSINESS

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Abstract. *The focus of this paper is the transformation of the business model of companies that ensues due to the application of information technology and the transition from traditional to electronic business. A growing number of companies today realize that the transformation of their business models and processes is no longer optional, but necessary in order to survive and remain competitive on the markets which are increasingly becoming electronic and whose functioning is increasingly based on the Internet. The subject matter of this research is the transformation of the business model and using the potential of the electronic market, as well as models of electronic markets. Even though the process of transformation from traditional to electronic ways of business is inevitable, it is considered risky and unpredictable, so it is especially significant to explore the managing of the main aspects of changes that occur in the company. The goal of this paper is to analyze the changes in a company that relate to business models, the factors influencing the changes of the business model, with a focus on technology, the potential of electronic markets and online business models for e-commerce. The key issues that the research seeks to solve are the goals, the tasks and the purpose of the changes, as well as the ways of implementing them and the segments that experience change. The paper also points out the management problems and challenges that companies face due to the transition to electronic business, especially regarding management problems related to the changes.*

Key words: *electronic business, company, changes, business model, electronic market*

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INTRODUCTION

Changes in the current business models are considered a key component of managing a business model and are necessary if a company is to survive on the market on the long-term basis and adapt to the changing conditions of business operations. Almost every company adapts the existing business models under the influence of new technologies, with the goal of responding to the needs of consumers. A large number of companies consider that many cases require a radical change in the business model in order to remain competitive on the market. The example confirming the significance of successful business model management is the company Dell. Today, Dell is a leading computer system manufacturer and one of the most dynamic companies in the world of computer business. Their business model of direct sales enabled the company to shorten the value chain, which was better adjusted to the needs of the consumers. Modification or reorganization in creating value—especially a value chain—is one of the central aspects of managing a business model and a significant and essential factor of business success.

The innovations of the business model are another key element of managing a business model, and it is relevant in the context of business model changes. Innovative business models can be identified and successfully implemented using the concept of business model management. Examples of successful innovation in the business model are *Apple's iPod* and the *iTunes* store. By combining a portable, attractively designed media player with digital music, Apple not only achieved a transformation of the entire company, but it also created a completely new market. The innovation of this company is mainly established in the business model area.

The concept of the business model is very significant and is today considered equally relevant both in academic circles and in management practice. Based on the management of the business model, the company can differentiate itself from the competition, and build and secure long-term competitive advantages.

The development of new technologies, such as electronic communications (e-communications), provokes changes in business models, but also in the industrial and market structure. The transformation of the industrial structure involves the digitization of the market mechanism, the digitization and distribution of products. E-communications affect the creation of new market structures and allow the use of e-channels to distribute products and services worldwide. On the other hand, the changes of power and competition in the market are significantly affected by the change of traditional business models. In addition to the internal impact of electronic commerce (e-commerce) to changes in the enterprise and existing business models, external influences are reflected in the possible use of the potential of electronic markets (e-markets) and the introduction of new business models based on the Internet.

E-markets are becoming increasingly significant in modern business operations. When buying a product, from music CDs to cars, consumers can choose from a number of e-markets (Strader, Shaw 2000). According to Strader and Shaw (2000), owing to the Internet and digital technologies, new car shoppers have more options, including access to valuable information, such as what a car really does cost a dealer. Having that in mind, buyers tend to do business online and negotiate better business arrangements. ,,Electronic markets now exist to enable consumers to shop for and buy a new car, insure it and take delivery without ever setting foot in a dealership'' (Calem 1996). Books are another

product that people buy over the Internet. One of the online booksellers is Amazon.com Books. Their website advertises miscellaneous books, and clicking the book title or author provides more detailed information on the particular product.

So, it is obvious that the industry's e-market expansion has a major significance for the structure of the value chain included in supplying end users with products and services, while modification or reorganization in creating the value, particularly the value chain, is one of the key aspects of the business model and management, important for business success.

The paper analyzes the impact of e-business to changes in the company, and then points out the factors of the business model changes with a focus on technology that is one of the main drivers of changes, the potential of e-markets, which are a key feature of electronic commerce (e-commerce), as well as new e-commerce business models based on the Internet.

1. Dimensions and Factors of Changes under the Influence of e-Business

Integrating information technology (IT) and web-standards is a main technological factor in the emergence of electronic business (e-business). DTI (2000) describes e-business as follows: „when a business has fully integrated information and communications technologies (ICTs) into its operations, potentially redesigning its business processes around ICT or completely reinventing its business model... e-business, is understood to be the integration of all these activities with the internal processes of a business through ICT''. The key business processes referred to in the DTI definitions include research and development, marketing, manufacturing and inbound and outbound logistics. The buy-side e-commerce transactions with suppliers and the sell-side e-commerce transactions with customers can also be considered to be key business processes (Chaffey 2009, 13). E-business requires organizations to revise their strategies and goals in order to respond to the market rules of supply and demand. The transition from traditional to e-business caused organizations to redesign and reshape. E-business implies a combination of economic, market and technological forces, which revise the strategies of traditional ways of performing business operations. The business process is based on the power of computers and communication networks, which enables the organization to be competitive and more efficient. New business models are introduced and implemented in various ways. E-business and the Internet caused organizations to use new and combined models, which influenced them to explore and create solutions in the area of change management.

The main aspect of changes in companies is related to the market and the business models, business processes, organizational structure, culture, staff responsibilities, and technological infrastructure changes. A successful change is a result of interaction between these aspects and is defined as the content, process and context, or the What, How and Where. Figure 1 shows the three dimensions of change under the influence of e-business.

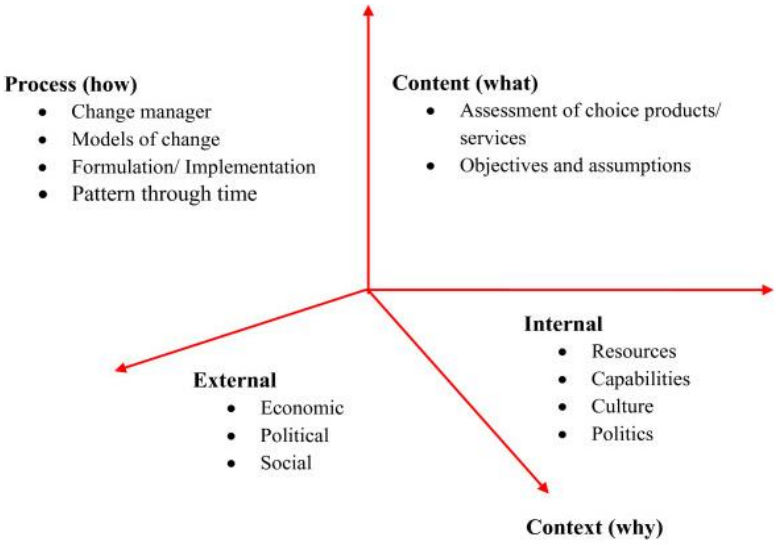

Fig. 1 Three dimensions (aspects) of changes under the influence of e-business
Source: (Pettigrew, Whipp 1993; Rabbani et al. 2011, 3; Alshamlan 2006, 4)

Undergoing changes includes a process of strategic management in order to determine goals, develop policies and allocate resources to execute plans. Some of the change management components are the process of change management, the readiness to evaluate, the communication and its planning, training managers to manage changes, training employees and developing their skills, sponsorships, management resilience, back analysis and, finally, the reward. These components could be considered tools, or guidelines whose goal is to implement efficient change and come closer to the desired project goals. The aspects of the success of e-business include the dedication of the management, project management, as well as the engagement, retention and rewarding.

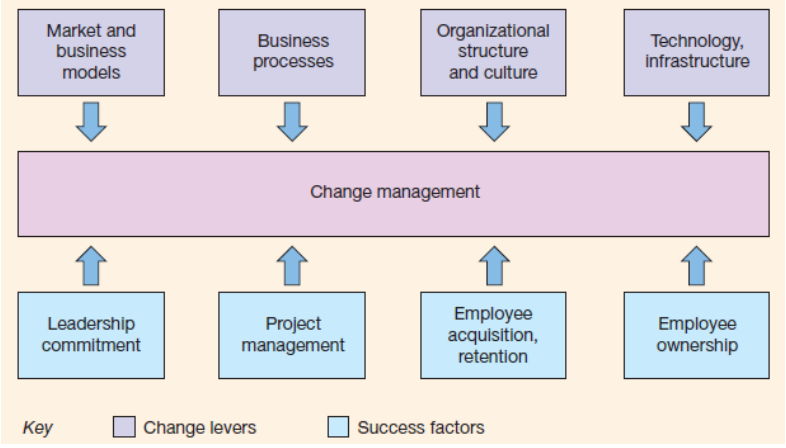

Fig. 2 Key factors for achieving change
Source: (Chaffey 2009, 562)

Figure 2 shows the interaction between the aspect of changes being estimated with the goal of maximizing the benefits of e-business and the aspects of success that need to be implemented in order to achieve these benefits and goals of the organization.

The key aspects of change in the company caused by the implementation of e-business and the application of IT are related to the change in the business model and using the potentials of the e-market; re-engineering the business processes; changes in the organizational structure and culture; and changes in the technological infrastructure.

The subsequent part will explore in more detail the influences of e-business on the changes in the business model of a company and on the e-market models, and using the potential of the e-market.

2. CHANGING THE BUSINESS MODEL

Today, business models have become an integrated concept of management. A successful change in the model is directly reflected on the business success of the company. The business model is a structured management tool that helps a company achieve its goals. This is also confirmed by a research performed by IBM, which dealt with examining the factors of business success. The research found that financially successful companies emphasize consistent and sustainable business model management twice as much as compared to financially less successful companies (Giesen, Berman, Bell, Blitz 2007, 3). Furthermore, the research showed that business models could be especially beneficial to success when a company wants to differentiate its product range, and change or implement innovative ideas (ibid.). An adequate business model will contribute to the increase in the sustainability of a competitive strategy, and, therefore, ascertain long-term business success. Apart from that, a business model is a conceptual and comprehensive management tool with the goal of differentiating a company from the competition in the long run. Through consistent analysis of partial models of the business model, the company can better assess the relevant competitors. If this analysis shows the competitors being weak within particular partial models, the company should pay attention to these models and in this way attract new consumers.

2.1. Defining the concept of the business model

In 1998, Timmers introduced one of the approaches in defining a business model. His considerations are based on the approach of Porter's value chain. According to Timmers (1998), new business models could be created by reconfiguring the value chain. In this way, the traditional value chain could be adjusted to the challenges of modern activities which add value and in this way give the necessary flexibility in a highly competitive environment. The business model is an ,,architecture for product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for various business actors; and a description of the sources of revenue" (Timmers 1998, 3–8).

Timmers (1998) considers that merely defining the business model is insufficient to describe the goals of the company, so he introduces the marketing model, which encompasses both the business model and the marketing strategy. The goal of his approach is designing a framework for the Internet business models.

Weill and Vitale (2001) present a similar definition of the e-business model, i.e., they define it as a description of the roles and connections between the company's consumers, clients, and suppliers which identifies the main product, information, and financial flows, as well as the main benefits for all participants.

Wirtz (2000) presents a different definition—a typology of business models adjusted for e-business—and for the first time presents a description of an integrated business model divided into different partial models. On the one hand, his definition is related to the process of creating goods and services in a company, while, on the other hand, it discusses the connection between the business model and the strategies. Wirtz (2000, 81) defines the business model in the following way: ,,The concept of the business model refers to the depiction of a company's internal production and incentive system." A business model is a simplified and aggregated representation of the resources relevant in a company and the way the internal processes of product creation or service providing transform these resources into market information, products or services. ,,A business model therefore reveals the combination of production factors which should be used to implement the corporate strategy and the functions of the actors involved" (Wirtz 2000, 81).

2.2. Managing the business model change and the factors of change

Considering the fact that we live in a world of growing globalization and networking, the pressure competitors exert on business operations also increases. In order to survive in a highly competitive environment, businesses must adapt to the ever-changing conditions of the environment. The business process is fueled both by internal and external influences. The change can be small or radical. Apart from that, it can influence the parts related to the strategy, the consumers, the market, the value creation, as well as all the partial models simultaneously. The change in the business model might be dangerous, but it can also be an opportunity for doing business. While, on the one hand, a change can cause a decrease of the existing competitive advantage, on the other hand, it can present a possibility for generating new kinds of competitive advantages. There are three important factors which can condition a change in the business model, and they encompass the market, the technology, and the regulations.

Technology is one of the basic drivers of change, having in mind that technological advances force the market players to adjust their business models. Business models should not only consider the evolutionary movements, but also the ,,disruptive technologies''. A good example is digital photography and its destructive effect on classic business models of analog camera and movie manufacturers. Consider a B2B organization. ,,Traditionally it has sold its products through a network of distributors. With the advent of e-commerce it now has the opportunity to bypass distributors and trade directly with customers via a destination web site, and it also has the opportunity to reach customers through new B2B marketplaces" (Chaffey 2009, 52).

The second important driver of business model change is the market and the competition. Changes in power in the market or new competitors can have a substantial effect on a company's business model. An example of this is Amazon, an online sales company, which exerts significant amounts of pressure on traditional bookstores.

Deregulation is also a significant driver of change. State interventions and regulations can affect the competitive environment and the change in basic legal requirements. This means that the business models can lose their entire foundation simultaneously with the creation of the basis for new business models.

The effect of these drivers forced companies to increasingly initiate changes in the business model. These changes include a risk that can significantly disrupt the competitive position of the company. Professional change management is necessary in order to conduct a strategic process and increase the likelihood of a successful change in the business model.

The change process flow is based on the concept of the project flow, which includes the activities of initiation, analysis, concept creation, implementation, and evaluation. The different specifics that exist within the context of the business model should also be taken into account. The phases of the business model change process encompass the initial phase, the conceptual phase, the phase of implementation, and the phase of evaluation.

The initial phase includes: 1) driving change through outer and inner factors due to the mentioned business model change drivers: the market, the technology, and the regulation; 2) analyzing the strengths and weaknesses of the existing business model (the partial model and the structure); 3) gathering ideas and starting points; 4) evaluating inventions for innovational ability.

The conceptual phase includes 1) developing a rough and detailed concept; 2) a detailed description and assessment of the interactions between the partial models within the business model; 3) developing the business structure of a model; 4) initial research and negotiations with potential partners.

The implementation phase includes 1) constructing project plans; 2) comparing the target performance of resources and competencies; 3) initiating changes; 4) managing risks during implementation.

The evaluation phase (the execution phase) includes: 1) the evaluation of success up to the current point, i.e., the change in the perception of buyers; 2) the control of success; 3) initiating component and structure correction (if necessary); 4) the continual control of unwanted changes in order to ensure sustainability.

The volume of the business model change can vary. During the change process, it is possible to focus on a single part of the business model, i.e., a partial model that needs to be changed, or the change of the business model as a whole. The following questions arise within the management practices: What kind of change is the right one and which implications are related to a certain level of change?

There is a distinction between five models of the business model change: the stabilization model, the evolution adaption model, the extension model, the migration model, and the radical innovation model (Wirtz 2011, 248).

The stabilization business model is applied 1) within industries with a low degree of competition and a small level of environment change; 2) when there are different players with a similar market share; 3) when it is not profitable to change the partial model or the structure of the business model. The evolution adaption business model is characterized by 1) a continual development of business models; and 2) an adaptation to market trends. The extension model is distinguished by 1) the expansion of the existing market; and 2) the development of a unique characteristic of the partial model, i.e., the new distributive channel. The migration model is characterized by 1) new ways of interaction between the existing partial models; and 2) differentiation through a unique structure. The radical innovation model includes 1) a radical change in the existing business model; and 2) a new structure and new partial models;

The change in the business model can enable the company to achieve a dominant competitive position on the market. As far as management practices are concerned, the sustainability of the business model is highly significant. If the business model is unique, a differentiation relative to the market can create higher value for the buyers.

Gaining competitive advantage and long-term survival in the market requires not only modification of existing business models, but their more radical changes. Companies introducing e-commerce adapt their business models, accept online business models and use the potential of the e-market. Businesses that follow, understand and adequately respond to changes in the online market, can use digital technology to effectively compete with its competitors. With regard to e-business and e-commerce enabling a variety of online business models, with the e-market key feature of e-commerce, in the following text we will describe representative e-market models, as well as the potentials of use of e-markets.

3. THE CHARACTERISTICS AND MODELS OF ELECTRONIC MARKETS

E-markets represent a place where e-trade is performed, i.e., a network of interactions and connections where information, products, services, and payments are exchanged. They potentially integrate advertising, product ordering, their shipment and payment systems. The e-market (or the electronic market system) is an interorganizational information system that enables sellers and buyers to exchange information on the prices and supply of products. The center of business is a network based on location, where the buyers, sellers, and other partners that find each other and do business electronically are located. An electronic market is a place where all the necessary transactions are performed, which includes the transfer of monetary funds.

In the traditional market, the consumers explore information on prices and available products, their quality and their characteristics. The information is gathered from different sources, like advertisements, going to the stores, etc. At a particular time, the consumers cease further research, realizing there is no further benefit from it. When they perform the analysis of information, consumers decide where to purchase a product. After that, they buy the product and transport it to their homes, or it is delivered through the distributive network. Figure 3 shows the exchange of information and products in a traditional market.

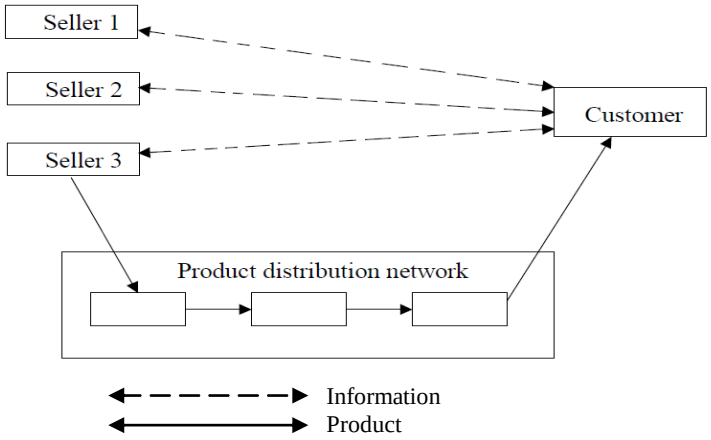

Fig. 3 Traditional market
Source: (Strader, Shaw 2000, 82)

E-markets influence the purchasing process of the consumers. The first phase in transforming the industry structure is the digitalization of the market mechanism. The following figure shows the flow of information and products in an electronic market.

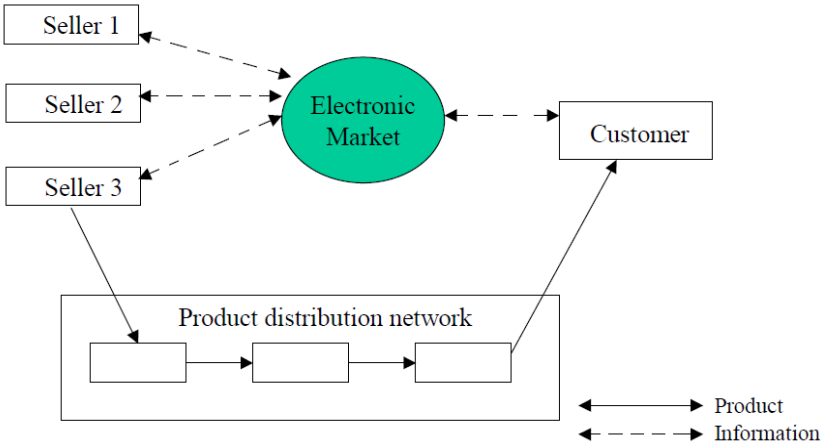

Fig. 4 Electronic market
Source: (Strader, Shaw 2000, 83)

The e-market provides a mechanism to reduce the costs of the consumer's search (the money, time, and effort it would take to gather information on the price, quality and characteristics of the product). The search reduces the possibility of a seller to sell products at prices significantly higher from those of competitors since the buyer is aware of the other prices. The result of doing business on the e-market is buying at lower prices, since the intermediaries, like wholesale companies, are eliminated from the value chain.

The second phase of transforming the industry structure is the digitalization of products and their distribution. Examples of digitalized products include newspapers, books, magazines, music, movies, and computer software. These products include a cost structure with increasing returns and low marginal costs of reproduction.

The e-market and the distributive network enable a wide variety of buyer and seller activities to converge in one place, including marketing, the order process, distribution, payment and even the product development process which includes several separate businesses. This facilitates the performing of activities and contributes to cost reduction. The value chain costs can be additionally decreased through product digitalization. Product digitalization reduces inventory and packing costs. After that, digital products can be distributed electronically to the consumer, which affects the reduction of distribution costs that would be paid to the company in the distributive network. Apart from the savings in costs, the time cycle of filling out orders is also minimized, which affects the increase in customer satisfaction. Digitalized information can be distributed right away while the product shipment usually takes a couple of days or longer. Even though new intermediaries and additional costs may occur in the value chain, the majority of cases show that the potential benefits of the e-market outnumber these costs.

Timmers (1999) identifies eleven different types of business model that can be facilitated by the web: e-shop; e-procurement; e-malls; e-auctions; virtual communities;

collaboration platforms; third-party marketplaces; value-chain integrators; value-chain service providers; information brokerage; trust and other services. There is a large number of classifications of the e-market model, but literature often cites the following models: the electronic store, electronic procurement center, electronic mall, electronic bazaar, electronic auction and electronic brokerage (Stankić 2007, 40–41).

An electronic shop (an e-shop) is a website that advertises products and services that a company provides, and it is gradually starting to be used for advertising and payment purposes. The income of an electronic shop operating 24 hours a day comes from the lower price of doing business, the increase in sale and cheaper advertising (e.g. www.amazon.com)

An electronic procurement center (e-procurement) of a large company or a public institution enables offering and purchasing larger quantities of goods or services. This way provides a wider choice of suppliers, lower purchase prices, higher quality and a cheaper procurement process. The work of these centers can include both electronic negotiation and cooperation on preparing specifications.

An electronic mall (e-mall) is a collection of electronic stores that achieves the standardization of certain transactions (e.g. payment). These centers can be specialized according to certain market segments, where they also offer specific additional services, such as answers to frequently asked questions.

An electronic bazaar (e-bazaar) offers buyers the possibility to communicate and trade while income is made on the basis of memberships and advertisements.

An electronic auction (e-auction) includes an electronic form of offering, which can use a multimedia presentation of the product, and is often extended to also include the negotiation, payment and delivery of the product. Income is made by the auction technology sales, transaction unit charges and advertisements.

Electronic brokerage (e-brokerage) is mediation between the consumer and the supplier, where the intermediary looks for supplier offers based on the demands set by the consumer, and chooses the most suitable offer. Income is achieved on the basis of membership and charges for the work provided.

4. B2B TRADE AND E-MARKETS

Regardless of the communication medium and the business technology, the basic e-business models are the B2C (business to consumer) and the B2B (business to business) models (Milovanović 2015, 280). The B2B model includes trade between companies over the Internet, where both the buyers and the sellers are companies while the B2C model includes every trade activity over the Internet between a company and a buyer for his/her personal use, where they perform direct business transactions.

Because the e-markets based on the Internet are the dominant form of B2B trade, the following text indicates the classification of the e-markets according to different criteria, as well as the features and advantages of the B2B e-market.

The emergence of the e-market was not only conditioned by a rapid technological advance but also the advantages that this way of business gives to both the buyers and the suppliers of certain products. This market functions based on the "many-to-many" principle and represents a large trading community. E-markets can be grouped according to different criteria (e.g. ownership, the participants in trade, the type of product...), and some of the

kinds that exist are e-markets oriented towards buyers, e-markets oriented towards vendors, as well as independent, vertical and horizontal e-markets.

E-markets oriented towards buyers are founded by companies which perform large procurements, i.e., purchases. They open their own e-market on their own server and invite bidders to offer products, which reduces the high cost of finding and comparing vendors. This model is unique to the B2B trade and it does not exist in the B2C model.

E-markets oriented towards vendors are founded by big supplier companies. These markets include the collection of offers, which opens a kind of an auction for buyers. This kind of a market is often formed as a means of defense or the effort to stop buyers from founding their own markets. Small suppliers have a problem with this model and it is not suitable for large and frequent purchases of a single buyer. The problem of opening this kind of market is attracting large buyers.

Independent e-markets (third-party e-markets) are a form of intermediaries and provide a forum for buyers and sellers, which need to find each other in order to realize certain transactions. The problem in the functioning of these kinds of markets is in the possibilities for securing a sufficient number of buyers and sellers. Independent e-markets are significant for big and frequent trade transactions between buyers and sellers. These markets have found their application in the automotive industry, airline industry etc.

The purpose of vertical e-markets is performing trade transactions between buyers and sellers of homogenous products in a single industrial sector (food, health, education) and securing the exchange of direct products between buyers and sellers, which are a part of the company's end products in a certain industrial sector.

Horizontal markets are markets that perform exchange between buyers and sellers from different industrial sectors and which supply products that are not a part of the company's end products. The subject of the exchange in horizontal markets includes, for example, construction material, office supplies, accounting services etc.

According to the spatial span, e-markets can be divided into local, national, regional, and global ones. This division is also conditioned by other factors such as the vernacular, the commercial practice, the applicable local legislation, the convertibility of the currencies used and the Internet coverage.

The basic characteristics of B2B e-markets are conditioned by the line of work, i.e., the industry sector, the buyers and the sellers across the geographical space belong to. The reasons for companies entering the e-market are: 1) high variability in product demand and difficulties in acquiring important information about the products in the traditional market; and 2) a high level of supply fragmentation on the side of supply and demand, and the need to achieve a good price and the reduction of the distribution costs.

Some of the factors that slow down the introduction of e-trade in a certain industrial branch are: 1) the inability to create a neutral production environment; 2) the rivalry between the members in the e-trade chain; 3) the risks in distributing data due to competition; 4) the problem regarding ownership and corporative structure; 5) the problem of integrating back-end technologies.

The functions of an e-market could be grouped into the following four categories: 1) supplying information; 2) connecting the buyer and the seller; 3) the ability to perform online transactions; 4) the ability to support cooperation and include all the basic functions of a traditional market.

Supplying information, i.e., the appropriate content, to buyers and sellers is the basic function of all markets, e-markets included. E-markets provide diverse information, such as product lists, databases with data on the price of the goods, conditions of delivery, taxes and so on. The function of connecting the buyer and seller is achieved through e-markets by means of auctions, online negotiations, requests for offers etc. The ability to perform online transactions, i.e., the ability to perform a business transaction, includes the ability of the e-market to perform billing and credit functions, the exchange of information and accompanying documents online, and online connections with transport organizations and other third-party service providers. The ability to support cooperation and include all the basic functions of a traditional market includes the ability of the market to provide the participants with the exchange of a high volume of information on products and prices by using various social channels like discussion forums, virtual conferences, chat and meeting rooms, magazines, and commercials.

B2B e-markets contribute to lower transaction costs, the elimination of intermediaries, and achieving price transparency. The emergence of these markets led to the disappearance of the need for many standard intermediaries while one of the results of price transparency is the reduction of differences in the price level occurring in the market, since the buyers have more time to compare prices, making better decisions on buying something at a better price.

CONCLUSION

Changes in the current business models are considered an essential component in managing a business model and are necessary if a company is to survive on the market on the long-term basis and adapt to the changing conditions of the environment. A successful change of a business model is directly reflected on the business success of the company.

Technological progress which brings new digital technology and creates new business opportunities through the use of the Internet causes major strategic implications. Certain changes require new ways of doing business while others involve more effectively the implementation of traditional business strategy. The e-business environment requires a radical change in the business model to enable the companies to stay competitive in the market. Reorganization or modifications in creation of values, especially in the value chains, are the most important for the business model management and the key factor for business success. Dell is an example of a company that applies the direct sales business model, cuts the value chain, and applies more effective and responsive model to the demands of consumers. The introduction of digital technology affects the innovations in the business model. An example is Apple, which combining the digital music, design and portable media players, not only transformed the business, but created a new market. Through managing the business model, the company can differentiate itself from the competitors and secure a long-term competitive advantage.

Technology is one of the basic drivers of change and almost every company adjusts its business models under the influence of IT and e-commerce. The development of technology is forcing market players to adapt business models, taking into account not only the evolutionary trends, but also „disruptive technologies“, such as e-communications. E-communication not only influenced the change in business models, but also in industry and market structure. B2B organizations traditionally sell products through a network of

distributors, while the development of new technologies means that the trade is obtained directly with consumers through a website. The market and competition are also an important driver of changes in the business model, as seen in the case of online sales company Amazon, which exerts a huge pressure on the traditional bookstores.

Under the influence of e-communication there is digitalisation of the market mechanism, the product and its distribution, the creation of new market structures and the use of e-channels to distribute products and services. The development of e-commerce and e-trade leads to an increasing significance of e-markets. Using the potential of e-market is important to ensure the company a long-term competitive advantage. Spreading the e-market in the industry has a major impact on the structure of the value chain involved in the supply of final consumer goods and services, while the modification or reorganization in the creation of values, especially the value chain, is one of the key aspects of management and business models, important for business success. The e-market and the distributive network enable a wide variety of buyer and seller activities to converge in one place, including marketing, the order process, distribution, payment, and the product development process.

E-business and e-commerce means new online business models. There are many different models of e-markets. The basic business models of the e-market include the e-shop, the e-procurement center, the e-mall, the e-bazaar, e-auction, and e-brokerage. E-markets based on the Internet are a dominant form of B2B trade. B2B e-markets contribute to lower transaction costs, the elimination of intermediaries, and achieving price transparency.

This research is expected to provide insights from the area of company transformation management and the implementation of e-business. These findings would help heads of companies to successfully manage these transformation processes in order to improve business operations, respond to the demands of the e-market and create greater value for the buyers.

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TRANSFORMACIJA POSLOVNIH MODELA I TRŽIŠTA U ERI INTERNETA I ELEKTRONSKOG POSLOVANJA

U radu je fokus na transformaciji poslovnog modela preduzeća, koja nastaje kao posledica primene informacionih tehnologija i prelaska sa tradicionalnog na elektronsko poslovanje. Sve veći broj preduzeća danas, shvata da transformacija njihovih poslovnih modela i procesa nije više opcija, već nužnost, kako bi opstala i ostala konkurentna na tržištima koja sve više postaju elektronska i čije se funkcionisanje sve više zasniva na internetu. Predmet istraživanja je transformacija poslovnog modela i korišćenje potencijala elektronskog tržišta, kao i modeli elektronskih tržišta. Iako je proces transformacije sa tradicionalnog na elektronsko poslovanje neizbežan, on se smatra rizičnim i nepredvidivim, i od posebnog je značaja da se ispita upravljanje glavnim aspektima promena do kojih dolazi u preduzeću. Cilj rada je analiza promena u preduzeću koji se odnose na poslovne modele, faktora promene poslovnog modela sa naglaskom na tehnologiju, potencijala elektronskih tržišta i onlajn poslovnih modela za elektronsku trgovinu. Ključna pitanja na koja istraživanje traži odgovor su ciljevi, zadaci i svrha promena, kako implementirati promene, i u kojim segmentima dolazi do promene. U radu se ukazuje i na upravljačke probleme i izazove sa kojima se susreću preduzeća usled prelaska na elektronsko poslovanje, a posebno na upravljačke probleme vezane za promene.

Ključne reči: *elektronsko poslovanje, preduzeće, promene, poslovni model, elektronsko tržište*

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INTERACTION OF SOCIAL AND INTELLECTUAL CAPITAL - KEY PRECONDITION FOR CREATION OF NEW KNOWLEDGE AS ORGANIZATIONAL COMPETITIVE ADVANTAGE

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Abstract. *The primary aim of this paper is to present how new knowledge as organizational competitive advantage is created by natural interaction between social and intellectual capital. The paper first gives an overview of the key theoretical interpretations of social and intellectual capital and thereafter analyses how structural, cognitive and relational dimension of social capital, through exchanging and combining with existing intellectual capital, creates new intellectual capital. The key value of new intellectual capital lies in the fact that it belongs to the corpus of group or socially tacit knowledge which is the key precondition for creation of innovative business solutions. Thus, new collective forms of knowledge enable the organization to make and maintain its advantage. Therefore, it can be said that the process of generating intellectual capital through social capital is a value basis for creating new knowledge and organizational competitive advantage.*

Key words: *intellectual capital, social capital, knowledge, innovation, organizational advantage*

INTRODUCTION

For some experts, intellectual capital represents an invisible and unclear dimension, for others it is mainly an issue of measuring and accounting while some regard it as a strategic environment for creation of sustainable value of an organization. Recent researches on intellectual capital point to the need to study this area beyond the framework of reporting on intellectual capital, to focus more on relational or networking dimensions, on social capital which enable the flow of knowledge among different actors and, thus, creation of value and future influence (Edvinsson, 2013). This is one of the reasons why today relational capital, as one of the components of intellectual capital, is

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not considered from the perspective of customer relations only, but from all external actors. This is the reason why International Integrated Reporting Council has proposed a new categorization where relational capital and social capital would be reported separately (Martini, Corvino, Doni, & Rigolini, 2014).

The fact that intellectual capital based on social capital can be a model for successful business operation can be proved by the network-organized company Apple, which is considered to be an example of innovative management of knowledge. For Apple Company, intellectual capital based on social capital is a manner of correctly directing assimilated knowledge in the company with the aim of generating innovative ideas and their development (Edvinsson, 2013).

However, the ability of an organization to create and share knowledge is a product of various factors including special conditions which organizations develop so as to transfer tacit knowledge, organizational principles that individual and functional expertise is organized, coordinated and communicated by and nature of the organization as a social community (Kogut & Zander, 1996). One of the manners for a company to use its developed system of knowledge with the aim of creating organizational advantage is to connect social and intellectual capital, that is, to use the structural, cognitive and relational dimension of social capital for combining and exchange of existing intellectual capital which, thereupon, new and innovative intellectual capital will develop from (Nahapiet & Ghoshal, 1998).

This paper shall examine multidimensional forms of social and intellectual capital and how network resources of an organization enable it to use its social capital for generating intellectual capital which new knowledge and sustainable value for the organization would be developed from. This will, to some extent, also confirm the paradigm of intellectual capital as a future income-generating capacity of the organization, as an investment rather than an expense. Finally it will point to the need of shifting the focus from the theory of company and transactional expenses to the concept of organizational advantage, when considering an organization.

1. SOCIAL CAPITAL

The term social capital first occurred in community studies emphasizing the importance of networks of strong personal connections which have developed over time and which represent the essence of trust, cooperation and collective action in such communities (Jacobs, 1965). The concept started being implemented for researching a broad range of social and economic phenomena from human capital (Coleman, 1988), economic performance of a company (Baker, 1990), geographic regions (Putnam, 1995), to nations (Fukuyama, 1995). The key premise of the social capital concept is that networks are a value resource which enables to its members mutual recognition and long-term obligation which is the result of the feeling of gratitude, respect, friendship or institutionally guaranteed rights belonging to the members of the family, class or school (Bordieu, 1986). Although all authors agree that the relation is important for social activity, the consensus has still not been reached on a precise definition of social capital. Thus, some authors limit the term only to the structure of the relations in the network (Baker, 1990), while others, like Putnam and Bordieu also talk about potential resources that can be approached through the network. Like physical capital, referring to physical assets, or human capital,

referring to ownership of people, social capital, according to Putnam, refers to the relations between individuals-social networks, norms, reciprocity and trust developing from them (Putnam, 2000). In line with this definition is the group of authors dealing with the correlation between intellectual and social capital, seeing social capital as a sum of present and potential resources which are incorporated in the network, available through the network and emerging form the network of relations of individuals or social units (Nahapiet & Ghoshal, 1998).

1.1. Social capital theories

Scientists dealing with social networks mainly consider relations and connections to be the basic data for analyzing the social capital concept. Thus, a network is defined as a set of relations which connect defined groups of individuals or social actors, where each individual is described from the perspective of relations that he/she creates with other individuals in the network and it is called "ego", while the one he/she is connected to is called "alter" (Knoke & Kuklinski, 1982). The conceptualization of social capital has theoretically most often been systematized through the theory of weak ties, structural holes and social resources.

Weak ties theory focuses on the strength of social connections that an individual uses. The ties among individuals are usually strong, emotionally more intensive and frequent and include types of relations like friendships, advisory, business (Granovetter, 1973). The information which any of the group members possesses will probably be shared soon among the group members or exchanged with the information another group member possesses. Ties between groups are usually considered to be weaker; therefore the reach to the information which is outside the group is quite weak. However, Granovetter believes that weak ties are actually a bridge between densely connected social groups and thus provide a source of unique information and resources. Granovetter noticed that it is more likely to reach, for example, sources of vacancies related information through weak ties, than through strong ties. Later researches by Bridges and Villemez (Bridges & Villemez, 1986) confirmed the benefits of weak ties.

The Structural holes theory does not focus on the characteristics of direct ties of "ego" but on the pattern of relations between "alters", which are parts of the network of "ego". Structural hole exists between two alters which are not directly connected. According to the structural holes theory, for ego it is better to be connected to as many alters which are not mutually connected in the network of ego. According to Burt's theory, networks rich in structural holes have three benefits for an individual: unique and timely access to information, bigger negotiating capacity and, thus, control over resources and success, greater visibility and career opportunities which are present in the social system (Burt, 1992). Burt criticized the weak ties theory, emphasizing that the structural holes concept enables a more direct approach in bridging ties. Although empirical researches have confirmed the structural holes theory, they also suggested a range of limitations.

The Social resources theory focuses on the nature of resources incorporated in the social network. Lin and co-authors claim that it is not the weakness of ties that makes advantage, but the fact that those ties will probably lead to the resources that are necessary for ego to fulfill its instrumental aims (Lin, Ensel, & Vaughn, 1981). Alter which has characteristics or controls resources which are useful for fulfilling the aims of ego, can be considered a social resource. Thus, for example, alter, which provides advice

and support related to career development, is a relevant social resource when it comes to the efforts of ego to fulfill his/her career goals.

Although the review of literature reveals some controversies, when it comes to conceptualization of social capital, their integration is possible (Seibert, Kraimer, & Liden, 2001). The key precondition for integration is to recognize analytical difference between structural ownership of networks and the nature of social resources which are incorporated in the network so as to make a difference between their forms and contents. Weak ties theory and structural holes theory focus on the structure of the network, while social resources theory focuses on the content. This makes that these theories do not exclude each other but create the precondition to jointly focus on the process of accumulating social capital and examine which network structure provides greater or smaller access to important social resources, conclude Seibert, Kraimer and Liden.

1.2. Forms of social capital

Gitell and Vidal identified two types of social capital: the one which makes people who already know each other closer and the one that connects people or groups who did not previously know each other (Gittel & Vidal, 1998). Putnam has named these two forms of social capital "bonding" and "bridging" (Putnam R., 2000). He further explains these terms.

Bonding social capital refers to creation of a core within one organization; it embraces and creates strong ties between groups of people sharing common characteristics. Actually it is about an inner need to create exclusive identities and homogeneity of the group, which makes people in the organization devoted to continual acting and often going beyond the limits given by job description.

Bridging social capital refers to connecting with the cores of other organizations; it creates strong ties with other groups and individuals outside its core social network. Organizations which have high level of this type of social capital include people from different social groups. This ability of the organization to reach other influential people and groups which are out of its essential network makes the difference in the sense of an organization's ability to generate greater and stronger support and trust for what it does.

1.3. Dimensions of social capital

The mentioned forms of social capital speak about resources which are rooted in relations, and confirm that social capital has different attributes. However, Putnam in his papers stated that further work would be needed on explaining the dimensions of social capital. Therefore, a group of authors examining the role of social capital in generating intellectual capital, distinguished three dimensions of social capital: structural, relational and cognitive (Nahapiet & Ghoshal, 1998).

Structural dimension refers to the social system and network of relations as a whole which explains general pattern of relations among actors, that is, how and who are relations established with (Burt, 1992). The most important characteristics of this dimension are presence or absence of network ties among actors (Wasserman & Faust, 1994), network configuration which explains the pattern of ties in the sense of measuring through density, connectedness and hierarchy (Tichy, Tushman, & Fombrun, 1979) and relevance which implies that a network created with one purpose can be also used for another (Coleman, 1988).

Relational dimension describes the nature of relations that people have developed over time through their interaction (Granovetter, 1992) like respect and friendship and which influence their behavior. The most important characteristics of this dimension are trust (Fukuyama, 1995), norms and sanctions (Putnam R., 1993), commitments and expectations (Burt, 1992), identity and identification (Hakansson & Snehota, 1995).

Cognitive dimension describes resources by which interpretation and systems of meaning are shared among network members (Cicourel, 1973). The most important characteristics of this dimension are shared knowledge and codification (Cicourel, 1973) and narratives (Orr, 1990).

Although the literature review suggests that social capital has several theories, forms and dimensions, two elements in common can be noticed: some kind of social structure is created and activities of individuals who are a part of the structure are facilitated (Coleman, 1990). This makes social capital a concept which encourages cooperative behaviour and thus creates new forms of associating and innovative organizations (Putnam, 1993) which is of the key importance for understanding institutional dynamics, knowledge innovation and value creation.

2. INTELLECTUAL CAPITAL

The term intellectual capital today is most directly connected with the capacity of an organization to use its non-material resources in the best manner, so as to be competitive and market sustainable. Today organizations operate in a dynamic environment characterized by constant market growth, innovated technology, strong competition, continual development of new products and services. This reality presses organization to become more capable of creating new knowledge which will then be incorporated into its organizational operation and enable innovation of new technologies, products and services.

2.1. Interpretation of intellectual capital

One of the best known classifications of intellectual capital, which was later modified by various contexts, was given by Sveiby and he systematized it in three fields: human capital, structural or organizational capital and relational capital (Sveiby, 1997). Unlike human and structural capital, relational capital is completely oriented to external boundaries of the organization. However, a common component of all three categories is *knowledge* which is based within the organization through skills and knowledge of employees, but also the knowledge which is with clients, suppliers, cooperants from various sectors, and which is far more difficult to develop and codify than the knowledge rooted in human and structural capital of the organization (Bontis, 1999). Authors researching the role of social capital in generating intellectual capital, interpret intellectual capital in the context of knowledge and ability to gain knowledge in social collective such as organizations, intellectual community or internship. These authors think that intellectual capital is an important resource and a capacity to act on the basis of knowledge and ability to gain new knowledge (Nahapiet & Ghoshal, 1998).

2.2. Dimensions of intellectual capital

Literature which interprets *intellectual capital in the context of knowledge* recognizes practical, theoretical and experiential knowledge or procedural knowledge which refers to well-practiced skills and routines as well as declarative knowledge referring to development of facts and proposals (Nahapiet & Ghoshal, 1998). The most quoted and the most influential is the classification given by Polanyi when interpreting knowledge as tacit and explicit, where the former refers to "know-how" and the latter to "know-what" (Polanyi, 1967). Thus it is suggested that knowledge is both an object and an action which enables improvement.

Anyhow, the extent to which it is possible to use knowledge depends on how much social or organizational knowledge differs from the knowledge of individuals, members of the community. For generating intellectual capital the perspective of social and contextual incorporated form of knowledge and learning is valuably more important than the simple aggregation of knowledge as a group of individuals (Nahapiet & Ghoshal, 1998). These two dimensions precisely, explicit/tacit and individual/social make the matrix form of the four elements of organizational intellectual capital: individual-explicit, individual-tacit, social-explicit and social-tacit (Spender, 1996).

Individual-explicit refers to conscious knowledge in the form of facts, concepts and frameworks which are stored and taken from the memory of an individual; *individual-tacit* refers to automatic knowledge which refers to theoretical and practical knowledge of people like artistic, sports or technical skills. Availability of people with this kind of explicit knowledge and tacit skills is an important element of organizational intellectual capital and they can be a key factor of organizational success (Cooke & Yanow, 1993).

The other two elements of organizational intellectual capital, *social-explicit* and *social-tacit*, belong to the corpus of shared knowledge and represent the most advanced form of knowledge which is why today companies have big investments in the development of knowledge and intellect distribution leverage (Quinn, Anderson, & Finkelstain, 1996), because collective knowledge is considered to be the most important strategic type of organizational knowledge and a factor of its competitive advantage.

2.3. Creation of intellectual capital

Since social, i.e. collective knowledge is the key element of intellectual capital, literature recognizes two key mechanisms for its creation: combining and knowledge exchange (Moran & Ghoshal, 1996).

Creation of social knowledge by *combining of knowledge* is based on two approaches. The first one suggests that the base of combining are incremental change, based on continual and gradual adaptation (Schumpeter, 1934), and development based on existing knowledge as a dominant form of progression (Kuhn, 1970). The second one suggests that it is about a more radical change like an innovation (Schumpeter, 1934), double circle of learning (Argyris & Schon, 1978) and a paradigm change and revolution (Kuhn, 1970). Although of different nature, these two approaches do not exclude each other, because they both refer to creating new combinations, incrementally or radically, or by combining previously unlinkable elements, or to the creation of new modes of combining elements that were previously associated.

The creation of social knowledge by *exchange* is essential when resources are in hands of different parties, having in mind that the creation of intellectual capital rests on

the process of combining knowledge and experiences of various actors. Social interactions, joint team activities and collaboration are important mechanisms of development and obtaining knowledge (Zucker, Darby, Brewer, & Peng, 1996).

However, in order to create social knowledge by processes of exchange or combining there are several conditions which should be met: access to collective forms of social knowledge, shared value of exchange and combination, motivation to participate in exchange and combination and capacity to combine and exchange (Nahapiet & Ghoshal, 1998). Sharp development of internet technology imposes that in 2015 it is expected that more than 5 billion brains will be networked by cables, per every 1000 new cable connections there will be 80 new network working positions (Edvinsson, 2013). This means that it is possible to expect that the *access* to creation of collective knowledge will be sudden rather than planned. Nahapiet and Ghosal suggest that parties involved in the process of exchange and combining, have to see interaction, exchange and combining as a *value*, even when it is not clear what the outcome will be and how it will happen. Further, those that participate in the process of knowledge exchange and combining have to be *motivated* enough by feeling that their engagement in knowledge exchange and combining is worthwhile. On the contrary, a lack of motivation can prevent exchange of good practices within the company (Szulanski, 1996). Finally, the *capacity* of combining information or experiences, due to the capacity to recognize the value of new knowledge, to assimilate and use it, is a key factor of organizational learning and innovating (Cohen & Levinthal, 1990).

3. New Knowledge as an Outcome of Social and Intellectual Capital Interaction

Having in mind the social nature of intellectual capital, the previously explained theories and dimensions of social capital offer useful perspectives for understanding the creation of new intellectual capital, i.e. new knowledge. It is the structural, cognitive and relational dimensional forms of social capital that facilitate the development of new intellectual capital by influencing the conditions necessary for knowledge exchange and combining to happen (Nahapiet & Ghoshal, 1998).

3.1. Influence of structural dimension of social capital on knowledge creation

The structural dimension of social capital influences the development of new intellectual capital, i.e. new knowledge through network ties, network configuration and a suitable organization (Nahapiet & Ghoshal, 1998).

Network ties influence the access of different parties to knowledge exchange and combining as well as to recognizing the value of such an exchange. Network ties create the possibility for one to obtain information before the people who have no network contacts, which is of great importance for commercially oriented research and development for which promptness might be an important success factor. Although collecting information, according to Coleman, represents an expense, social networks, which are sometimes often established for other reasons, provide information channels which decrease the amount of time and investments necessary for collecting information (Nahapiet & Ghoshal, 1998).

Network configuration i.e. its density, connectedness and hierarchy provide flexibility which is necessary for access to and exchange of information among network members (Ibarra, 1992). It is especially important that the network has several contact points which

information will flow through as they obtain more diverse information at a lower rate than in the case of dense networks (Burt, 1992). This aspect of diversity is very important because the creation of new intellectual capital is possible only when various kinds of knowledge merge from various sources and disciplines. On the other hand, weak ties certainly make the research easier, but they can also endanger the transfer of knowledge, especially if it is codified, when exchanging parties have different previous knowledge or when information is not sufficiently clear (Nahapiet & Ghoshal, 1998).

Finally, *suitable organization* based on social capital which is created in one context, including ties, norms and trust can often be used in other context also. Literature tells that the transfer of trust from family and religious surrounding is possible for some business situations (Fukuyama, 1995), that it is possible to incorporate the development of personal connections into business exchanges (Coleman, 1990), that it is possible to integrate social capital of an individual into an organization (Burt, 1992). This means that an organization created with one aim can be a source of valuable resources for other aims (Putnam R., 1993).

3.2. Influence of cognitive dimension of social capital on knowledge creation

Social capital scientists have recognized that innovations happen by combining different knowledges and experiences through communication (Sagawa & Jospin, 2009). To that end, it may be said that the cognitive dimension of social capital influences the development of new intellectual capital, i.e. new knowledge through shared language, vocabulary and narrative (Nahapiet & Ghoshal, 1998).

Shared language influences the conditions of combining and exchange in the way that it represents a means that people use to discuss and exchange information. So, the more different the language and codification, the further people are from accessing information. The language also influences the perception of people (Pondy & Mitroff, 1979). By codes sensory data are organized into perception categories which give the framework for observing and understanding the environment and conceptual benefit of exchange and combining (Nahapiet & Ghoshal, 1998). Therefore experts recognize specific communication codes of groups as a value resource of an organization (Kogut & Zander, 1996).

In addition to language and codes, social anthropology literature also claims that *collective narratives* like myths, stories, and metaphors are also powerful communication means of communities for creation, exchange and protection of various meanings, which is today recognized as narrative cognitive form as opposed to paradigm form which bases knowledge creation process on rational analyses and argumentation (Nahapiet & Ghoshal, 1998). Narrative cognitive form makes the exchange of practices and tacit experience easier (Orr, 1990) which enables discovering and development of enhanced practice.

3.3. Influence of relational dimension of social capital on knowledge creation

The relational dimension of social capital influences the development of new intellectual capital, i.e. new knowledge through network trust, norms, commitments and identification (Nahapiet & Ghoshal, 1998).

The researches by Gambetta, Putnam and Fukuyama show that in cases where relations are based on high level of *trust*, people are more willing to get involved in social exchanges generally and cooperants interactions specifically. Trust is based on the belief in good intentions, wish for exchange, competence, capability, reliability and openness (Ouchi, 1981). Trust is closely connected with cooperation because collective trust can be a strong form

which group members can rely on when solving certain problems related to cooperation and coordination (Kramer & Goldman, 1995). Trust is a precondition, indication, product and benefit of social capital as well as a direct road to other benefits (Cohen & Prusak, 2001), including reciprocity as an inevitable precondition for exchange and combining of knowledge.

Norms exist when socially defined rights of controlling activities belong not to the actor but to others (Coleman, 1990). It is a kind of consensus within the social system, expectations which are binding and which can, if based on the principles of openness, team work and tolerance, create strong and convergent groups liable to the development of intellectual capital (Janis, 1982). Culture and social norms help in creating social capital (Briggs, 2004), and then as its relational dimension motivate and ease access to different parties in combining and exchange of knowledge.

Commitments and expectations influence individuals and groups to undertake certain activities in the future, which may reflect on motivation to exchange and combine knowledge. Personal, professional and formal commitments which develop among various individuals and organizations as units of a social system bring with themselves expectations about overtaking future commitments, which makes the approach of knowledge exchange and combining easier (Nahapiet & Ghoshal, 1998).

Identification is a process where individuals see themselves as other group members, which might be the consequence of group membership or of group functioning on the principle of representativeness (Nahapiet & Ghoshal, 1998). Group identification does not only influence the growth of recognized chances of exchange, but it can also strengthen current frequency of cooperation (Lewicki & Bunker, 1996) which creates the chance for greater motivation and recognizing values of knowledge exchange and combining.

4. Organizational Competitive Advantage as an Effect of New Knowledge

Social and intellectual capital today represent the base of the theory of organizational advantage which has occurred as a need to replace the theory of the business and transactional expenses which were based on marketing failure and decrease of transactional expenses. Special abilities of an organization to create and transfer new knowledge are recognized as the key element causing organizational competitive advantage while the organization's natural tendency to develop social capital and generate intellectual capital as something that shall explain the whole process.

Nahapiet and Ghoshal claim that time, interaction, interrelation and the quality of being closed represent the essences of the natural tendency of an organization to develop its social and intellectual capital (Nahapiet & Ghoshal, 1998). Literature also recognizes the importance of the said essences. To that end, *time* is considered as an important factor because all other forms of social capital depend on stability and continuity of the social structure. For example, both Coleman and Putnam claim that it is necessary that trust, norms, stability and durability of cooperation, as social capital elements, are being developed over time because durability and stability of social relations lead further to clear and visible mutual commitments (Misztal, 1996). *Interrelation* which later also implies coordination is recognized as the key attribute of business organization (Barnard, 1938) and a stimulus for development of many organizational forms of capitals. Because exchanges, or what Putnam calls reciprocity, which result in positive outcome for the overall social system rather than for an individual within the system, enlarge cycle of

exchanges among members which increase social identification and encourage cooperation norms and undertaking risks. *Interactions* are natural characteristic of social relations but they can be extinguished if they are not maintained. Unlike other forms of capital, social capital grows the more it is used, because essentially the worth of networks can only grow with the creation of new connections (Sobel, 2002). Social communities naturally have their space for conversation, action and interaction so as to develop own language system which they will create new intellectual capital by. Formal organizations connect their members in order to do their primary task, overlook activities, coordinate activities especially when it is necessary to have mutual adjustment to changes or innovation. *Closure* is a characteristic of strong communities that have identities which clearly distinguish their members from non-members (Bordieu, 1986). Trust, identity, norms are consequences of the network being closed as well as the development of a unique language system supported by the isolation of community (Boland & Tenkasi, 1995). Unlike the market which is an open system basing its usefulness on the freedom given to individuals, formal organizations impose closing of system by clear legal, financial and social boundaries (Kogut & Zander, 1996).

Pursuant to the above said, it can be concluded that social and intellectual capitals have their natural connection through the ability of social capital to influence the conditions which are necessary for exchanging, combining and generating new knowledge. Also, intellectual capital generated once continues being generated through the need for new social interactions which will again enable exchange and combining and generation of new knowledge. This cyclic feedback of social and intellectual capital can be considered as a kind of organizational advantage leverage.

Although from one capital, social capital, a new one, intellectual capital, is created, essentially these two processes happen in parallel with reciprocal quality. The fact of both kinds of capital being founded in social activities and relations, makes their evolution very connected (Nahapiet & Ghoshal, 1998). Their natural interaction seen in collective forms of knowledge is of strategic importance for an organization, because they represent shared tacit knowledge which is considered to be one of the characteristics of organizational competitive advantage. While these collective forms of knowledge enable organizations to build and keep their advantage, complex relations between social and intellectual capital enable organizations to build and keep their value. This is the reason why the process of intellectual capital generation through social capital should be considered a value basis for organizational competitive advantage.

CONCLUSION

The analysis of the relevant literature has showed that the issue of the role of social capital in generating organization intellectual capital, in the form of new knowledge, belongs to the corpus of multidisciplinary researches, because its aspects can include social sciences like sociology, politics, economics, organizational psychology, organization development, organizational management as well as natural sciences like social physics.

The paper has showed that the value chain of social capital theory is acute and that it enables the organization to fight the surrounding challenges, especially the lack of innovative knowledge. Natural relatedness of social capital to intellectual capital and vice versa is the consequence of, above all, intellectual capital being rooted in social relations and structures of these relations. It further influences a value basis of organizational

advantage, due to the following reasons: a) interaction of social and intellectual capital enables that social capital decreases transactional expenses economizing on informational and coordination expenses; b) interaction of social and intellectual capital enables the creation of resources which are long-lasting, which cannot be traded with, or cannot be repeated like tacit social knowledge, mutual connection or social complexity. This leads to the conclusion that differences between organizations can be presented through the differences in capacities to create and use their social and intellectual capital. Because of that, today the efforts of organizations and companies are more directed to investing in and enhancing strong personal and team relations, trust, norms and ties beyond own boundaries.

The paper has also revealed that in the natural mutual relatedness of social and intellectual capital there is an abundance of new, unused possibilities which can be very important for future income-generating capacity of an organization. Having in mind that the analysis of literature revealed that social capital enables the creation of intellectual capital, what can be anticipated is their mutual potential for nourishing, sharing and using intellectual resources on: a) personal level, which will reveal what an individual does not know, and how to compensate for that lack; b) organizational level, which will build trust and level collective capacity which will further enable enlargement of intellectual capital i.e., creation of group and institutional knowledge; c) social level, through social networks which can identify, recruit and nourish talents and improve the quality of life; d) global level, by shifting from capitalism 3.0 of Milton Friedman to capitalism 4.0 which will be based on new values and relations resting on the fusion of intellectual and social capital with the aim of finding talents as new connectors of alliances of intellectual capital that will multiply the effects of intellectual capital as opposed to human capital which is necessary to balance relational and structural capital (Edvinsson, 2013).

On the other hand, the paper also draws attention to the fact that, unlike with intellectual capital, there is no unique interpretation of social capital; therefore, in researches it is necessary to tailor the approach to social capital from the perspective of one or more parallel theoretically based definitions, dimensions, forms and elements. Moreover, it is necessary to take into consideration some of the key problems which render the topic of social capital controversial, like questions whether social capital is group or individual capital, whether the group should be closed or dense, whether social capital should be seen as a structure defined by its function, whether it can be seen as a quantitative concept like financial, human or physical capital.

Finally, since the paper referred to the literature on the role of social capital in generating intellectual capital as a process that leads towards new knowledge and ultimately organizational competitive advantage, new needs were discovered which could be subjects of similar researches in the future. First, it would be very useful to also examine negative or restrictive influences of social capital in generating intellectual capital, which can be consequences of its natural elements like norms, closure, restrictive approach to various sources of ideas and information. Second, since it is necessary to invest in social capital, especially in its relational dimension, it would be useful to establish what benefits can really be expected based on the invested means and whether they are worth investing at all. Third, it would be useful to examine the relations between social capital dimensions as well as their mutual influence on creation and using intellectual capital so as to more thoroughly understand organizational advantage. Finally, given that structures of social capital are of closed character and often conditioned by the type of grouping which can be of geographic, religious, class or other nature, future researches of social capital and its

correlation with intellectual capital should be directed to the specific entity that activities happen about and which social and intellectual capitals create around. This specifically means that it would be useful to conduct these researches on clearly defined types of organizations with limited resources because it is logical to expect that key elements, which are preconditions for generating and using intellectual capital, like norms, closure, trust, reciprocity etc. are not necessarily the same in nonprofit and public organizations or organizations operating in business sector.

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INTERAKCIJA SOCIJALNOG I INTELEKTUALNOG KAPITALA - KLJUČNI PREDUSLOV ZA STVARANJE NOVOG ZNANJA I ORGANIZACIONE KONKURENTSKE PREDNOSTI

Osnovni cilj rada je da prikaže na koji način se prirodnom interakcjiom socijalnog i intelektualnog kapitala stvara novo znanje i organizaciona konkurentska prednost. Rad prvo daje prikaz ključnih teoretskih tumačenja socijalnog i intelektualnog kapitala a potom analizira kako strukturna, kognitivna i relaciona dimenzija socijalnog kapitala kroz razmenu i kombinovanje sa postojećim intelektualnim kapitalom stvara novi intelektualni kapital. Osnovna vrednost novog intelektualni kapitala se ogleda u činjenici da on pripada korpusu grupnog ili socijalno tacitnog znanja koje je ključan preduslov za stvaranje inovativnih poslovnih rešenja. Tako, ove nove kolektivne forme znanja omogućavaju organizacijama da izgrade i zadrže svoju prednost. Zato se i može reći da je proces generisanja intelektualnog kapitala posredstvom socijalnog kapitala vrednosna osnova za stvaranje novog znanja i organizacione konkurentske prednosti.

Ključne reči: *intelektualni kapital, socijalni kapital, znanje,inoviranje, organizaciona prednost*

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STAKEHOLDER COOPERATION IN MONTENEGRIN TOURISM DESTINATIONS – CURRENT STATE AND CONSTRAINTS

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Abstract. *For the sustainable development of tourism destinations, there is a need for a coordinated effort between all interest groups (tourism stakeholders from the public, private and civil sectors) through systematically developed and implemented management plans at all levels, especially at the local destination level, where tourism activities take place, tourists interact with service providers and with communities, and where tourism's positive and negative impacts are most felt. The paper deals with the problem of managing a tourism destination from the perspective of harmonizing stakeholders' interests. It explores destination management in the Montenegrin tourism destinations, namely the level of stakeholders' cooperation at the local destination level. An empirical research was carried out on the sample of 19 local tourist organizations in Montenegro. The findings and implications of the research are given in the paper. Based on the stakeholder theory, the research tries to verify that the level of destination management development depends on the level of stakeholder's cooperation. The results revealed that cooperation between the many and varied tourism stakeholders in the Montenegrin tourism destinations is not yet sufficiently developed, as they face a number of issues such as the lack of planning documents, insufficiently developed communication channels and variety of often opposing interests. Nevertheless, there are indications based on the recently conducted research reported in this paper, that there is a strong positive correlation between the level of stakeholder's cooperation and the state of destination tourism planning, marketing activities, monitoring and continuous education.*

Key words: *tourism destination, tourism destination management, stakeholder cooperation*.

INTRODUCTION

In recent years, the problem of managing a tourism destination has attracted the attention of many scientists (Sautter and Leisen, 1999; Buhalis, 2000; Presenza, Sheehan and Ritchie, 2005; Sainaghi, 2006). One thing that is common for their work is pointing

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out the complexity of a tourism destination as a management unit that is mostly associated with the relationship between different groups of stakeholders in the destination and because of the need for stakeholders to be encouraged to cooperate instead of compete, as well as to unite resources in order to create a system of integral management, directing and delivering of an offer. The complexity of managing tourism development at a tourism destination is due to the fact that many organizations, such as, for example, food vendors, shops and petrol stations, do not understand their role in the process, they are not recognized as part of the tourism industry, even though they have great benefits from tourism development, and are often not sufficiently interested in participating in planning of tourism development. Apart from that, a highly fragmented structure of products and services in tourism is faced with customers who perceive the whole set of offers as a unique product or experience. Therefore, cooperation between stakeholders is being set as one of the key functions in establishing efficient management of tourism destination development, that is, achieving the desired vision of development. This cooperation is especially necessary for accomplishing the tasks for improving a product, improving infrastructure, human resources and marketing. Another fact can be added to the mentioned, that the very concept of sustainable development is unattainable without cooperation and agreement of stakeholders on a number of issues related to the consideration of long-term tourism destination development.

Additionally, management complexity can be confirmed by the fact that alignment of interests between different groups of stakeholders is difficult as these interests can be conflicting, as well as the fact that visions of development often vary. Each stakeholder group has its own attitudes regarding tourism destination development, therefore it is necessary to coordinate interchange of opinions among them and involve them at an early stage of tourism development planning process through various consultative meetings. In the process of coordination among stakeholders, we should bear in mind very different objectives that certain stakeholder groups define in tourism development planning. Some authors (Liu, 2003; Bramwell and Sharman, 1999) point out that the key element for ensuring the sustainable development of tourism is overcoming subordination among stakeholders (tourists, local communities, public and private tourism sector, local, regional and national governance structures), which can be accomplished through coordinating and balancing their interests and establishing strategic development plans that would respect these interests. Complexity of the different stakeholder groups interests and attitudes harmonization process demands the existence of the leader organization that coordinates activities aimed at tourism destination development. Therefore, one of the tasks for the leader organization for tourism destination management is recognizing interests of all stakeholders involved in tourism destination development, and creating a policy that would allow all stakeholders to recognize frameworks for implementing their individual goals.

In countries with developed tourism, the attempts to find optimal forms of tourism destination management are made. Public organizations for tourism destination management (as part of the state structures), which have been at the top of the hierarchy in the tourism development controlling process for a long time, are slowly accepting the need to disperse tourism destination management among the various partners, creating a stakeholder network that facilitates the establishment of functional relations between stakeholders, while balancing their interests. This process should take place much more quickly in countries in transition, because in these countries tourism, whose significance was not recognized previously, can represent a driving force of overall development. However, it is questionable to what extent

stakeholders have experience in networking and constructive partnerships, especially at the institutional level. Therefore, management of stakeholders is one of the important aspects in understanding the process of tourism destination management.

1. STAKEHOLDER THEORY

In management literature, the stakeholder theory appears in 1984. Freeman's book "*Strategic Management: A Stakeholder Approach*" defines a stakeholder as ,,any group or individual who has influence or is influenced by the organization's objectives" (Byrd, 2007, p. 7). Byrd notes that in 1995. Donaldson and Preston redefined this stating that "in order for a group or individual to be a stakeholder, it should have a legitimate interest in the organization" (Byrd, 2007, p. 7).

The emergence of the stakeholder theory in tourism literature is strongly associated with the new concept of sustainable tourism. Many authors state that achieving sustainability requires involvement of different groups of stakeholders that should firstly be identified, as it is essential to determine who should be involved in tourism development and what their roles in it are (Bramwell and Sharman, 1999). Since stakeholder groups are very different, in the stakeholder management theory, diverse and different types appear. The basic classification is into primary and secondary, depending on the extent to which and how they affect the business of an organization or how much benefit or cost they create. Primary stakeholders are groups ,,without whose participation organizations cannot survive", and secondary ,,those who are not involved in the transaction and are not essential to its existence, but they are influenced by it" (Sheehan and Ritchie 2005, p. 714).

Numerous authors have dealt with reviewing the stakeholder theory, that is, the need for cooperation between various groups who "create" and develop tourism at a tourism destination. Perspectives of considerations were different, and some of the most often mentioned issues, so far, are:

- problems of planning at a tourism destination and stakeholder involvement (Yuksel, Bramwell and Yuksel, 1999; Sautter and Leisen, 1999; Bramwell and Sharman, 1999)
- the question of desirability of joint marketing (Robson and Robson, 1996) or the issue of joint activities in the field of promotion (Blain, Levy and Ritchie, 2005)
- consideration of the stakeholder theory in achieving sustainable development of a tourism destination (Timur and Getz, 2002).

The most challenging part of stakeholder integration in tourism destination management is their involvement in planning, and afterwards in plans' implementation. Sautter and Leisen (1999, p. 315) support tourism planners use of Stakeholder theory and suggest that the first step in implementing stakeholder management is to have a full appreciation of all the persons or groups who have interests in the planning process, delivery and outcomes of the tourism service. Including Sautter and Leisen (1999), there is now an increasing number of researches and professionals that are advocating the inclusion of stakeholders in the planning process. When it comes to the participation of stakeholders in tourism planning, Bramwell and Sharman (Bramwell and Sharman, 1999, p. 411) have identified three key issues: the representativeness of representatives of all relevant stakeholder groups (the extent to which the range of stakeholders participating is representative of all relevant stakeholders), the intensity of cooperation and the degree of consensus reached between them.

The importance of planning, and especially the definition of a common vision of tourism, has been recognized by scientists and experts. However, although scientists emphasized the importance of creating a common vision for tourism planning (Ritchie and Crouch, 2000), tools and conditions that are needed to improve the sharing of visions between stakeholders have not yet been identified. Because of that, many destinations, because of the lack of a sense of "corporate identity", have difficulty in realizing common goals and visions.

2. STAKEHOLDER COOPERATION

The need for creating a network of stakeholders in order to accomplish successful tourism development is not of the newest date and it was pointed out in detail by Murphy in 1985 and 1988 (Murphy, 1985; Murphy, 1988. Quoted in: Potts and Harrill, 1998). As we have already mentioned, when we talk about organizations within industry, the stakeholder approach was represented by Freeman and many other authors. The benefits of creating a network of stakeholders are numerous, and here we would like to point out some of them that are of special importance for tourism:

- formulating common policy of tourism development and strategy for achieving set goals of development
- creating plan documents as instruments for strategy implementation, especially planning the creation of common integrated tourism product
- common promotion of a tourism product
- knowledge interchange, esspecialy in the area of market research
- organizing seminars for training employees in the tourism sector
- overcoming issues that are the results of competition and creating a relationship of complementarity.

Practical realization of cooperation between stakeholders often displays many problems, which are the result of the differences in understanding of their relative power in the decision making process. This is particulary present in countries that are experiencing transition, where the main role in creating the policy of social and economical development are played by political structures, which represent the point of view that their „elite“ position possesses full justification in the fact that they are elected representatives of people, that by being elecetd they gained legitimacy to make key decisions on directions of development. This standpoint of political structures is not distinctive only for countries in transition, although it is more obvious, but is still present in many developed countries and is displayed through the illusion of collaborative planning. This means that many decisions in the public sector are previously prepared, consultations with other stakeholders are conducted only formally, without real readiness for cooperation in the already conceptualized documents (Hall, 1994).

The process of cooperation between stakeholders is not simple and often faces many obstacles, among which are the following:

- formally accepting the policy of openness in the process of collaboration certain stakeholders do not want to honestly share information with other stakeholders, believing that it could jeopardize their position, especially if they used to have elite position for a longer period of time in creating directions of tourism destination development,

- in meetings that are organized during the process of collaboration, certain lobby groups could be represented in a great number and, using their criticism, they could disable other stakeholders, whose participation is also legitimus, to explain their suggestions,
- key stakeholders sometimes believe that representatives of the public are not competent enough, or disinterested, to decide on tourism development directions, therefore they do not support their participation in the collaboration process,
- a disbalance in the decision making process is often stimulated by a strong hierarchical structure of stakeholders in a destination, which is a result of dividing a level of their influence on tourism development and attitudes of elite stakeholders that were determined in advance, with little readiness to change these attitudes,
- the lack of sufficient knowledge on the importance of conservation of natural and cultural resources for sustainable development of tourism by certain stakeholders and their primary interest in economic benefits of tourism, can lead to decisions that will have a negative impact on the natural and cultural environment,
- engaging an expert team outside of the destination that is not familiar enough with the specifics of the tourism destination, especially the attitudes of local residents, and forms the first version of the document on directions of development of the tourism destination without sufficient consultation, can affect other stakeholders not to take part in the creation of the final version of the document.

The process of cooperation characterized by inclusiveness, transparency, sharing of knowledge, willingness to build consensus, continuous process of monitoring the success of implementation of selected strategies and performing corrections has a good chance of leading to faster development of tourism at the destination level, with benefits for many stakeholders. Doing so, things that must be taken into account are the interests of local community, and the need to preserve natural and cultural assets.

The success of managing the development of a tourism destination today is primarily measured through the harmonious development of a destination in the economic, social, cultural and other respects, the awareness of local population about the importance of tourism, all of which, while respecting traditional values of tourism destinations and local communities. This can be achieved only by adjusting activities and partnership with all subjects in the tourism destination, especially key stakeholders from all three sectors: public, private and civil society.

The public sector represents the public interest and also undertakes activities that benefit all stakeholders. It does not create profit, but spends the funds raised through taxes and fees in order to implement policies and projects that benefit the entire society. The public sector affects the development of tourism in a destination in different ways, and thus it affects development sustainability as, for example, through legislation and regulation, fiscal policy, spatial planning, building control, environmental infrastructure, active involvement in the development of tourism, prescribed standards, control over the number of tourists by highlighting specific areas of special importance, etc. Also, the public sector function within the tourism industry is to increase tourist satisfaction, enhance economic and business success, protect existing assets and preserve community integration.

The private sector includes all providers of products and services in a destination. Middleton (Middleton and Hawkins, 1998, p. 107) points out that some participants in tourism destinations do not recognize that they are part of a "team", but also that the private sector has

an advantage over the public sector when it comes to sustainable development, because it has practical, concrete commercial knowledge, it is familiar with the customers and the market as well as with the inherent management skills. However, the private sector is often criticized because it is more focused on short-term creation of profit rather than on the long-term sustainability, it exploits environment rather than preserve it, it is often influenced by major international companies (tour operators, hotel chains) that are also not interested in the destination but more in creating profits, for not doing enough to raise awareness of tourists of the need for sustainability, that is, not doing enough to educate tourists about the need to preserve a destination and finally that they use "sustainable tourism" to get publicity or a possible reduction of certain costs.

When it comes to managing sustainable development of tourism, the role of local people should be particularly emphasized. Since the eighties, the comprehension of the fact that local community is not just a passive recipient of tourists has been growing. According to Jamal and Getz (1995), local population, the public and private sector share the resources of the local community. Therefore, the community should be involved in tourism destination management, particularly in planning, because development can not be imposed "from outside", but should be accepted by those who live and work in the area. For the successful implementation of the plan documents, it is necessary to have the support of the local community and it is therefore necessary to have local involvement of the key destination stakeholders (Tosun, 2000, p. 616). This process can face many problems: the difficulties of population understanding the complex process of planning and decision making, the problem of ensuring balanced representation of different viewpoints, the lack of interest in some segments of the population, increasing costs, extending the process of adopting the strategy, etc. Residents of a tourism destinations are the key participant in tourism development, because of their attitude towards tourists and attitudes towards tourism they significantly affect the satisfaction of tourists by interacting with them.

3. RESEARCH OF STAKEHOLDER COOPERATION AT TOURISM DESTINATIONS IN MONTENEGRO

Most of the discussions on the subject of tourism destination management are mostly theoretical or they come down to the experience of certain destinations, therefore it is difficult to generalize the results. There is very little empirical evidence that would support the claim that the effective cooperation leads to better planning and implementation of tourism development. Therefore, the aim of this paper is to examine, based on the results of the research, the actual level of stakeholder cooperation in Montenegro tourism destinations, as well as the effects of this cooperation on the management process of tourism development.

3.1. Defining the research sample

In order to test the hypothesis that the stakeholder cooperation is a basic prerequisite for efficient management of tourism destination, a survey was conducted on the state of governance and stakeholders' cooperation in tourism destinations in Montenegro. The research on the state of development of tourism destinations is carried out on a population consisting of directors of tourist organizations in Montenegro, as it was considered that the tourist organizations have the most comprehensive insight into the management of tourism destinations and the degree of cooperation of all stakeholders of tourism

development at the destination level, as well as insight into factors that limit this cooperation. The system of tourist organizations in Montenegro consists of a total of 19 tourist organizations. We collected a total of 17 questionnaires, representing a rate of return of 89.5%, which makes the sample representative.

The research on the perceived stakeholder cooperation was conducted on a set of 19 destinations where tourist organizations are present. Respondents in destinations were representatives/directors of tourist organizations, marketing directors at a company/hotel, the mayor or a secretary of the municipality, a director of a travel agency and local residents. 130 questionnaires in total were sent out and 110 questionnaires were collected, representing a return rate of 84.62%. The research, therefore, covered the chosen representatives of the following groups of stakeholders: tourist organizations and municipalities as representatives for the public sector, hoteliers and travel agencies as well as the private sector representatives, and local residents.

3.2. Research methods

The research instrument was a structured questionnaire used to ask respondents to indicate on a numerical scale of five values to grade the state of stakeholder cooperation in tourism destination according to management instruments. Destination management instruments were tourism development planning (development plan, marketing plan and promotion plan), promotion and distribution, measuring the performance (tourist traffic, guest satisfaction, competitive analysis, benchmarking analysis), education for the purpose of destination management. The quality of cooperation was evaluated according to the areas of cooperation, which include cooperation in the process of planning, product development, promotion and distribution, performance monitoring, as well as cooperation in the adoption of new knowledge through education.

The final goal of the research was to determine the relationship between stakeholder cooperation and application of instruments for managing the development of destinations. To test the correlation of cooperation between destination stakeholders (independent variable) and management tools (dependent variable), the Spearman rank correlation coefficient was used. The research results were processed by the program for data analysis SPSS (Statistical Package for the Social Sciences). The statistical method used for data processing was correlation analysis. The objective correlation analysis was to determine the strength and direction of the correlation between stakeholder cooperation and tourism destination management instruments. In order to test differences in stakeholders' cooperation between different regions, the Kruskal-Wallis test was used, which is a non-parametric analysis of mean rank. We tested the normality of distribution of variables using the Shapiro-Wilk test, which showed that the variables have a normal distribution (p value less than 0.05). Significance level (p) for all statistical tests was 0.05, so the value of p is less than 0.05 which was considered to be an indicator of statistical significance.

3.3. Research results

Stakeholder cooperation is considered to be a basic prerequisite for efficient management of a tourism destination and its sustainable development (Carey and Gountas, 1997; Swarbrooke, 1999; Bramwell and Sharman, 1999; Bramwell and Lane, 2000; Buhalis, 2000; Dredge, 2006). Research has shown that it is insufficiently developed in tourism destinations

in Montenegro. In fact, respondents generally rated the state of stakeholder cooperation in tourism destination development with the average grade of 3.06. Furthermore, the quality of cooperation was evaluated by fields of cooperation, that is, management instruments on a numerical five values scale (1 – bad, 5 – excellent).

Table 1 Mean grade values of stakeholder cooperation state

	N	Arithmetic mean	Standard deviation
Overall condition of cooperation	110	3.06	0.937
Field of cooperation			
Planning	110	2.88	1.182
Product development	110	3.12	0.963
Promotion and distribution	110	3.59	1.088
Measuring the performance	110	3.18	0.856
Education	110	3.41	1.148

Source: Authors' calculation

The mean value of all the grades is in the range of 2.88 to 3.59. Cooperation in the field of promotion and distribution is the best rated (mean grade 3.59), while the worst-rated field of cooperation is planning (mean grade 2.88). Relatively low rating of cooperation in the field of performance monitoring (Table 1) indicates that there is little exchange of information between participants in the destination management that would allow better monitoring the effects of activities undertaken at a tourism destination.

Table 2 Constraints rank for better stakeholder cooperation

Constraints	Number of respondents	Median	Upper quartile	Mod
Lack of planning documents	110	3	4	1
Under-developed channels of communication	110	3	4	2
Various interests	110	2	3	3
Absence of formal forms of cooperation	110	4	5	4
Absence of a „leader“ / coordinator of activities	110	3	5	5

Source: Authors' calculation

The cooperation between tourism stakeholders can be improved by understanding the factors/constraints that are crucial for a successful stakeholder cooperation. Therefore, the main limitations for better cooperation were pointed out by relevance (Table 2). Respondents ranked the listed constraints from 1 to 5 (1 – most important, 5 – least important). The results show that respondents see causes of poor cooperation primarily in the lack of planning documents for tourism development (mod 1), under-developed channels of communication (mod 2), then, various interests (mod 3), the absence of formal forms of cooperation (mod 4) and finally, as the least important, the absence of a „leader“ or coordinator of activities (mod 5).

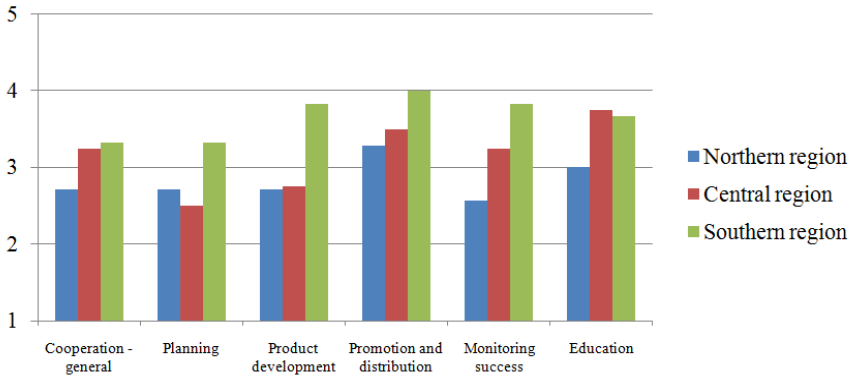

Fig. 1 Mean grades of stakeholder cooperation state by regions

Analyzed by region (Figure 1), the state of cooperation is similary rated as on the general level, with a somewhat better rate in the Coastal region (mean grade 3.33) and slightly lower in the North region (average grade 2.71). Observed through certain fields of cooperation, in the area of acquiring new knowledge (Figure 1), it was the best rated in Central region (average grade 3.75), while in the Coastal region cooperation in all other areas was rated slightly better than in the other regions (Figure 1). When it comes to major constraints for better cooperation, the situation on the regional level is similar to the general picture.

The Kruskal-Wallis test was used to study the statistical significance of the differences in cooperation between tourism destination stakeholders by regions.

Table 3 Difference in stakeholders' cooperation in tourism destinations by region (Kruskal-Wallis test)

Cooperation	K-W	p
Overall cooperation	2.009	0.366
Fields of cooperation		
Planning	1.197	0.550
Product development	4.970	0.083
Promotion and distribution	1.334	0.513
Measuring the performance	6.578	0.037
Education	1.125	0.570

Source: Authors' calculation

The Kruskal-Wallis test (Table 3) showed that there was no statistically significant difference between the regions in stakeholders' cooperation when the state of cooperation between tourism destination stakeholders is generally ranked ($p = 0.366$). Also, focusing on the fields of cooperation, that is, planning ($p = 0.550$), product development ($p = 0.083$), promotion ($p = 0.513$) and adoption of new knowledge ($p = 0.570$), there was no statistically significant difference between the regions. Only when it comes to cooperation in the field of measuring the performance, the Kruskal-Wallis test showed statistically

significant difference between regions (p = 0.037). The greatest difference between regions was noted in this area.

In order to determine whether the level of development of tourism destination management instruments depends on the level of cooperation between stakeholders, with the data obtained by the research, further statistical analysis was conducted. Using the Spearman coefficient of correlation (r_s), it was tested whether there is a statistically significant correlation between the rated stakeholder cooperation and evaluated development of tourism destination management instruments.

Table 4 Correlation between stakeholder cooperation and management instruments

Management instruments	r_s	p
Planning	0.534	0.027
Promotion	0.555	0.021
Education	0.598	0.011
Measuring the performance	0.484	0.049

Source: Authors' calculation

As it is evident from Table 4, there was a statistically significant correlation between stakeholder cooperation with all tourism destination management instruments, starting from education (training), where this correlation is the most clearly expressed, through promotion, strategic planning, up to performance monitoring.

3.4. Interpretation of results

Cooperation between stakeholders is considered to be a basic prerequisite for efficient management of a tourism destination and its sustainable development. Research has shown that it is insufficiently developed in tourism destinations in Montenegro. In fact, the respondents generally rated the state of stakeholders' cooperation in the area of tourism development in tourism destination with an average grade of 3.06. Observed by management instruments, the best rated is cooperation in the field of promotion and distribution (mean grade of 3.59), which is confirmed by other studies on this subject that indicated that cooperation is developed the most in the field of tourism destination marketing (WTO, 2000, p. 12), while the worst-rated cooperation is in the field of planning (mean grade 2.88).

A relatively low rating of cooperation in the field of measuring performance (mean grade 3.18) indicates that there is little exchange of information between participants in torism destination management that would allow better monitoring of the effects made by activities undertaken at a tourism destination. Also, cooperation in the product development field (mean grade of 3.12) was evaluated as insufficiently developed, which means that many creators of a partial tourism product are still not aware of the fact that achievement of the general objectives set for the integrated tourist product, as well as the final toourists' choice of products at a touristm destination, depend on their active partnership. The lack of cooperation between key development entities hinders the creation of a comprehensive destination value chain, and thus creates important preconditions for offering a wide range of quality experience, which negatively affects the market competitiveness of the integrated tourist product, and therefore the tourism destination as well.

Cooperation between tourism destination stakeholders in the field of planning was the lowest rated (mean grade 2.88). Stakeholders' cooperation is in theory recognized as a key factor for the implementation of plans (Bramwell and Sharman, 1999; Sautter and Leisen, 1999; Yuksel, Bramwell and Yuksel, 1999; Timur and Getz, 2008). For the activities related to preparation of tourism development in a tourism destination is essential the stakeholder approach, which will allow a synergy effect through cooperation between the public and private sector in development and implementation of plans, which is also a key for the success of plans' implementation. The basic principle in managing the development of tourism at the destination level should be for all stakeholders that are influenced by decisions about directions of development of tourism to have influence and to be involved in the decision-making process (Gray, 1985. Quoted in Raffay, 2007, p. 84), due to the principles of social fairness, and because of their potential synergy effects in the implementation of adopted tourism development strategies. Tourism destination plans are, largely, related to the stakeholders who are "outside" of the tourist organization that makes plans. Therefore, a plan of tourism destination might seem to some tourism destination stakeholders as if it is comming from the "outside". In such a situation they may feel excluded from the planning process and consider that the plan was, in some way, imposed on them. The solution for this issue is usually in a participatory planning process that includes all stakeholders which decisions about the directions of tourism development have an impact on, which improves acceptance of the plan and increases chances for proper implementation.

However, poor cooperation between stakeholders is not highly ranked in the group that listed limitations for plans implementation in Montenegrin tourism destinations because it is in the "shadow" of financial and human resources limitations, but it is visible in the area of tourism development implementation. This is expected, given that realization of this type of plans requires cooperation of all tourism destination stakeholders, and not only of those directly linked to the development of tourism, and on the other hand, requires a comprehensive and long-term consideration of the whole problem of the future development of tourism. Poor cooperation between stakeholders is also noted when it comes to implementation of a marketing plan, though it was expected, it is not highly rated. When it comes to the promotional activities plan, no tourist organization indicated poor cooperation as a constraint for the implementation, which is also not surprising given that it is a more of an operational activitiy and a sort of activity where it is easier to organize and conduct cooperation between stakeholders. Also, cooperation on promotion activities is very concrete and "tangible" (eg. joint appearances at fairs, joint organization of study tours for journalists etc.), benefits of this cooperation are clear and visible in the short term, which has a positive and stimulating effect on cooperation (Boranić, Tomljenović and Čorak, 2011, p. 26).

The research results show that respondents see the causes of poor cooperation primarily in the lack of planning documents for tourism development, underdeveloped communication channels, then a variety of interests, the absence of formal forms of cooperation and, ultimately, the absence of a leader or coordinator of activities. The problem that has been recognized in the channels of communication and the diversity of interests confirms the findings of the literature review in which various authors warn about the same problems and constraints faced by developed tourism destinations, as well as the question of how to ensure better connectivity, communication and trust between the different groups of stakeholders in tourism destinations. One of the tasks for leading tourism destination

management organization is to recognize interests of all stakeholders involved in tourism development on destination level and through creating tourism development policy, in determining goals of tourism development that will enable all stakeholders to recognize a framework for the realization of their own individual goals.

Testing the differences between the three regions in Montenegro showed that there was no statistically significant difference between the regions in rating stakeholder cooperation in general and by fields of cooperation, except in the area of measuring performance. Generally, it can be said that cooperation between tourism destination stakeholders in Montenegro does not vary by region.

The results also showed that there is a positive and statistically significant correlation between stakeholder cooperation and management instruments, which confirms that efficiency of tourism destination management depends on the level of stakeholder cooperation at a tourism destination. This confirms the findings of literature review in which various authors suggest that successful tourism destination management requires cooperation among stakeholders.

CONCLUSION

The results of this empirical research have confirmed that for more rational, socially responsible and commercially acceptable destination development, the stakeholder approach to sustainable destination management is necessary. This approach should include involvement of different public, private and civil stakeholders as their cooperation is a precondition for efficient management of sustainable tourism development. The stakeholder approach to sustainable destination management is particularly suitable because of the multisectoral character of tourism. It is therefore an imperative to develop cooperation between the public and private sector, whereby a destination management organization should have a coordinating role among stakeholders from both sectors.

Although the tourist organizations system represents a good basis for the tourism development, local tourist organizations in Montenegro, along with the existing structure and jurisdictions, given their long-standing commitment to the promotion and organization of events, are not yet ready to assume the role of leading organizations in destination management. A great number of tourist organizations have poor financial and human resources and consequently, low functional activity. Therefore, for more rational, socially responsible and commercially acceptable directing destination development it is necessary to improve the organization of managing the development of tourist destinations in Montenegro. It is necessary to capacitate the existing system of tourist organizations for effective destination management through a partnership between the public and private sector, based on the destination management organization model. Otherwise, a tourist destination in Montenegro will be faced with the problem of quality and sustainable tourism development and building its image.

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STEJKHOLDERSKA SARADNJA U CRNOGORSKIM TURISTIČKIM DESTINACIJAMA – STANJE I OGRANIČENJA

Za održivi razvoj turističkih destinacija potreban je koordiniran napor svih destinacijskih stejkholdera (turističkih aktera iz javnog, privatnog i civilnog sektora), sistematski razvoj i implementiranje planova upravljanja na svim nivoima, posebno na nivou turističke destinacije gde se odvijaju turističke aktivnosti, gde su turisti u interakciji sa pružaocima usluga i sa zajednicom, i gde se najviše osećaju pozitivni i negativni uticaji turizma. Rad se bavi pitanjem upravljanja turističkom destinacijom čija složenost proizilazi iz velikog broja destinacijskih stejkholdera čije je interese potrebno uskladiti. Sprovedeno je empirijsko istraživanje kako bi se utvrdilo stanje upravljanja, a posebno nivo stejkholderske saradnje u crnogorskim turističkim destinacijama. Zaključci i implikacije istraživanja su dati u radu. Na osnovu teorije stejkholdera istraživanjem se testira da li nivo saradnje između destinacijskih stejkholdera utiče na efikasnost upravljanja turističkom destinacijom. Rezultati su pokazali da saradnja između brojnih i raznovrsnih grupa stejkholdera u crnogorskim turističkim destinacijama još uvek nije dovoljno razvijena, jer se suočava sa brojnim ograničenjima od kojih se najviše ističu nedostatak planskih dokumenata, nedovoljno razvijeni kanali komunikacije i različiti ili čak suprotstavljeni interesi stejkholdera. Ipak, rezultati istraživanja predstavljeni u ovom radu ukazuju da postoji jaka pozitivna korelacija između nivoa stejkholderske saradnje i stanja upravljanja razvojem turističkih destinacija.

Ključne reči: *turistička destinacija, destinacijski menadžment, stejkholderska saradnja*.

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MEASURING CORRUPTION – KEY ISSUES, DATA SOURCES AND THE MOST COMMONLY USED INDICATORS*

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Abstract. *Corruption is a complex social phenomenon with multiple negative effects on the socio-economic efficiency. Therefore, it is a subject of research in various social disciplines. In economic analysis, special attention is directed towards corruption measurement. Despite numerous attempts, this issue has not been completely resolved. Since corruption is a phenomenon that cannot be directly observed, its measurement is based on indirect signals and subjective perceptions. Key problems in measuring corruption relate to the lack of objective data, estimation errors and the problems of establishing a clear link between the measurement results and effective anti-corruption policies. The aim of this paper is to highlight the basic methodological problems and limitations in measuring corruption and provide a theoretical overview of the existing research in this field.*

Key words: *corruption, measuring of corruption, perceptions, composite indicators.*

1. INTRODUCTION

Corruption is a complex social phenomenon that occurs in all countries, developed and developing, both in the public and private sector. It threatens the rule of law, undermines the principles underlying the market economy and endangers the stability of state institutions. The extent of corruption and its socio-economic effects have caused corruption to become the object of study of many scientific disciplines, with the purpose to reach precise conceptualizations of corruption, as well as determining potential ways of its measurement. Corruption is one of those concepts that are difficult to define precisely because its manifestations depend on the social context in which corruption occurs. The definition of

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corruption ranges from the broad terms of misuse of public power and moral decay to strict legal definitions of corruption as an act of bribery involving a public servant and a transfer of tangible resources. It has been studied as a problem of political, economic, cultural and moral underdevelopment. Corruption is behavior that deviates from the formal rules of conduct governing the actions of someone in a position of public authority because of private-regarding motives such as wealth, power or status (Khan, 1996). Corruption is a transaction between private and public sector actors through which collective goods are illegitimately converted into private-regarding payoffs (Heidenheimer et al., 1989). It is the sale by government officials of government property for personal gain (Shleifer and Vishny, 1993). Corruption that can be generally defined as the use of public power for individual interest is a complex and multifaceted concept (Aidt, 2003). This phenomenon has been seen either as a structural problem of politics or economics, or as a cultural and individual moral problem (Andving, et al., 2000). Corruption is an act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game (Jain, 2001). Corruption is an extremely complex social behavior. Many methods could be employed in analyzing corruption. Even though there is no universal definition of corruption, the general opinion is that it affects the society negatively.

The level of corruption in every country is determined by a combination of motives and opportunities for corruption. The motives are primarily determined by social norms that regulate individual behavior, while capabilities depend on the efficiency of the state in creating and implementing rules. In addition to conceptual imprecision, one of the core problems in studying the phenomenon of corruption is related to its measurement.

Considering that corruption cannot be directly observed or empirically investigated, measuring corruption is based on indirect observations and signals, which may indicate the countries or sectors of the economy where corruption is present (Heller, 2009). Measuring corruption is closely related to one of its implicit characteristics - secrecy. Bearing in mind that corruption is an illegal activity; the participants in these transactions have an incentive to keep them undiscovered. It is this feature of corruption that leads to serious doubts about the possibility of its measurement. How to measure something that is hidden?[1] Also, there is the question of whether the measurement refers to the spread of corruption (frequency) or its intensity, measured by the total number of cases of corruption?[2]

Key challenges in measuring corruption refer to the lack of objective data, measurement (estimation) errors and the problems of establishing a link between the results of measurement and effective anti-corruption policies. The aim of this paper is to highlight the basic methodological problems and limitations in measuring corruption, as well as to justify the use of certain indicators of corruption.

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[1] *"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of Science, whatever the matter may be."* (William Thompson, 1883)

[2] While not disputing the need to separate these two categories, Lambsdorff (2006) believes that there is a strong correlation between them.

2. On the Importance of Measuring Corruption

Beside the existing difficulties in defining corruption, the problems related to its measurement have, for a relatively long time, impeded the comparative analysis of corruption, testing the hypotheses and building a solid and comprehensive theory.

Measuring corruption is important for several reasons. It helps to establish the extent of the problem, determine whether there are clear patterns in the development of corruption, identify the factors of corruption, and decide upon the necessary measures, or in which direction to focus our efforts in fighting against corruption. Without knowing the types of corruption and areas where the problem is most prevalent, we cannot have adequate guidelines for the design of anti-corruption measures. Measuring the level of corruption and its monitoring over time provides a basis for assessing the success of anti-corruption strategies. For this purpose, it is necessary to compare the types and levels of corruption before and after the implementation of measures.

Different approaches in the analysis entail different definitions of corruption. Therefore, the measurement of corruption is an extremely complex and complicated process. Huberts et al. (Huberts et al., 2006: 265) summarized the complexity of this issue in one sentence: "We all agree that corruption is an important and complex phenomenon, and also agree that we cannot agree as to its content." The main reasons for the mentioned difficulties in measuring corruption stem from disagreements regarding the definition of corruption, the hidden nature of corruption and differences regarding which kind of data can serve as reliable indicators of corruption.

Any attempt to measure corruption across countries requires data that were collected on the basis of a unique definition or understanding of corruption. Since corruption is a complex phenomenon which includes various activities, the question is whether a single indicator may cover different dimensions of corruption. It should be noted that significant progress has been achieved regarding the definition of corruption, as well as designing the questions in the questionnaires, in order to achieve full coverage of this complex social phenomenon.

Measuring corruption is also aggravated by the fact that corrupt practices often remain anonymous. In addition, in the case of corruption there often is no direct damage and the cost of these actions are dispersed to all members of the community. Corrupt practices are carried out in secret, without any witnesses, and if there are no witnesses, nothing can be reported, highlights Gorta (Gorta, 2006: 204). In countries where corruption is endemic, the officials responsible for controlling corruption are themselves corrupt, which makes reporting corruption a risky endeavor.

Measuring corruption is further complicated by the fact that corruption is adapting to changed circumstances and takes on less visible forms. By focusing on the measurement of one dimension, we can easily miss changes in other dimensions of corruption.

In the measurement of corruption, some authors prefer the use of "objective" indicators, such as information about the existence of anti-corruption laws or budget transparency, which do not measure corruption directly, but the opportunities for corruption (Kaufmann, Kraay, Mastruzzi, 2006a). Such studies are available for a relatively small number of countries and do not provide an adequate basis for a broader comparative analysis. Others rely on "subjective" indicators, such as the perception of citizens and experts about the extent of corruption. It is very difficult to acquire objective indicators of the level of corruption. Subjective indicators, which are based on the perception of the relevant actors,

are often criticized as unreliable and unclear. However, subjective perceptions are often the only available data we have about corruption, especially in terms of the high level of institutional distrust, when citizens believe that the key institutions of the system, such as the courts and the police, are corrupt and therefore do not report acts of corruption.

3. DATA SOURCES FOR MEASURING CORRUPTION

Numerous international institutions (World Economic Forum, Business International, and Transparency International) have developed various mechanisms for measuring corruption, the results of which are used to study the impact of corruption on the quality of governance or economic growth and investment (Kaufmann, Kraay, Zoido-Lobatón, 1999a; Mauro, 1995). The main problem of empirical research involving corruption is reflected in the lack of objective data. The most common sources of data are subjective estimates of the prevalence of corruption, mostly based on expert assessments, and surveys of the business community.

According to the experts of the World Bank (Kaufmann, Kraay, Mastruzzi, 2006c) there are three ways in which corruption can be measured:

1) Collecting information from relevant stakeholders,
2) Monitoring and controlling the use of funds for financing projects by the World Bank.
3) Monitoring the institutional characteristics of certain countries.

There is a difference between "objective" and "subjective" sources of information on corruption. The differences lie in the fact that subjective sources include questions based on the subjective attitudes of the respondents, such as: "In your opinion, is the Government corrupt?" Contrary to that, "objective" sources contain real facts, based on which precise answers can be obtained (Bradburn, 1983).

Objective sources of information on corruption or any other phenomenon are those that leave no room for any kind of subjective assessments. The largest number of indicators of economic activity is based on objective data: gross domestic product, the savings rate, total investment, the surplus or deficit of the balance of payments. Objective indicators are highly reliable because they are based on a unified methodology of data collection. This allows their comparability between countries and over time. One of the preconditions for the existence of such indicators is that the activities they measure are in accordance with the law. In this case, participants in such activities have no incentive to conceal them.

The situation is different in the case of activities that violate the law. Corruption is a hidden activity and its participants have no incentive to make it public. Therefore, the measurement of corruption is largely based on a detailed analysis of subjective indicators of this phenomenon. The key question is what subjective assessments of corruption in a society are based on: perception or experience?

Subjective indicators can, therefore, be based either on perception or experience. Since the surveys are the main source of data for creating subjective indicators, there is a whole range of problems related to the implementation of such surveys, whether in terms of public opinion (households) or the business community surveys. An alternative way of measuring corruption is expert assessment, which can be centralized or decentralized (by country). Expert assessments, by definition, represent the perception of corruption, but it is assumed to be a perception of competent respondents. These assessments are based on the responses of experts on issues of corruption in particular countries.

Similar to previous findings regarding the data sources underlying the indicators of corruption, Berg (2001)[3] also classifies the indicators of corruption in two groups: objective and subjective measures. Objective measures are based on credible information. They include current statistics on the number of suspects, arrested and prosecuted in corruptive actions.

At first glance, it appears that the reliability of indicators based on personal experience in corrupt activities is higher compared to the indicators obtained on the basis of perception. However, the collection of data on personal experiences of corruption is accompanied by the following problems:

The first problem lies in the fact that respondents may have never been in situations where corruption might have occurred. In this case, the negative responses misrepresent the assessment of the level or the prevalence of corruption and lead to biased conclusions. This problem is sometimes solved by creating a representative sample, choosing respondents for whom it is assumed that they could have attended the situations where corruption can occur. Therefore, the respondents are more often representatives of the business community, while household surveys are used to a lesser extent.

Another issue with the use of personal experience of respondents for creating indicators of corruption stems from the fact that respondents are often not inclined to talk about their experiences of corruption, because it implies recognition of participation in illegal activities. For these reasons, in the creation of corruption indicators, respondents' perceptions are an indispensable input.

Furthermore, the question of the relationship between perception and experience arises. The perception of a particular phenomenon can be seen as a result of a process within which an individual processes and evaluates information acquired on the basis of direct or indirect experience. Consequently, individuals' views on corruption are the outcome of a complex assessment process, which depends primarily on the available information. The specificity of perception is reflected in the following: the more pronounced the perceptions of corruption, the greater the probability that corruption persists and develops in practice.

If the corruption indicators rely too heavily on perceptions and not enough on experience, there is a risk of inadequate perception. The reason for this is that the perception of corruption can be affected by various factors. Biased estimates of corruption perceptions in surveys can occur, for example, due to changes in the public opinion or political changes. The increase of optimism in society, for example, leads to perceived lower level of corruption, while the election campaign in which political parties accuse each other of corruption can cause citizens to perceive higher levels of corruption than the actual one.[4]

It is obvious that there are a number of factors that affect the perception of corruption and lead to inaccurate and biased indicators. However, notwithstanding these problems, surveys represent a valuable source of data on corruption, not only about its prevalence and intensity, but also on its causes, mechanisms and consequences for participants. For this reason, the methodological problems should not be the cause for rejecting surveys as a method of obtaining data on corruption.

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[3] It should be kept in mind that certain data can reflect some other phenomena, such as the efficiency of the police or judiciary, and not necessarily corruption. Also, official statistics may be subject to potential manipulations by political structures.

[4] According to Knack (2006), economic growth and prosperity can lead to underestimation of corruption by the citizens, while the recession may lead to its overestimation, which produces biased indicators of corruption.

Most commonly used data on corruption, based on the survey as a means of collecting data, are collected by an international organization for fighting corruption, Transparency International. The results of the research conducted in the period from 2012 to 2013, on a sample of 107 countries, show that in the last 12 months, during contact with public services, every fourth respondent (27%) paid a bribe. Figure 1 shows the percentage of respondents who reported paying bribes in the past 12 months, across different regions:

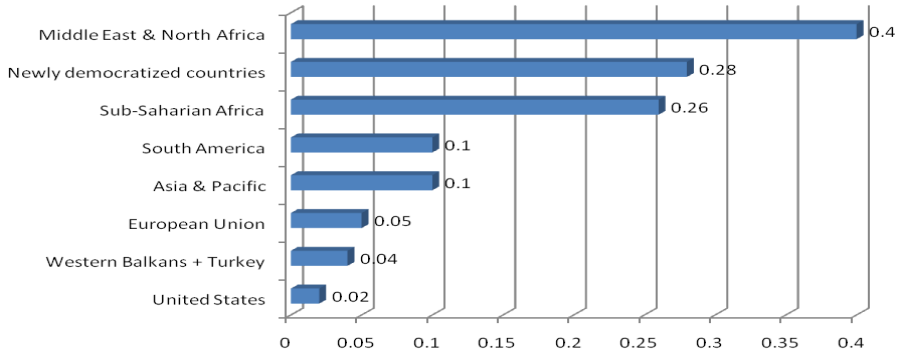

Fig. 1 Bribery across regions (in %).
Source: www.transparency.org

As expected, the largest number of cases of paying bribes was recorded in the underdeveloped countries (Middle East and North Africa), as well as the new democracies. Figure 2 shows the prevalence of bribery in particular public services.

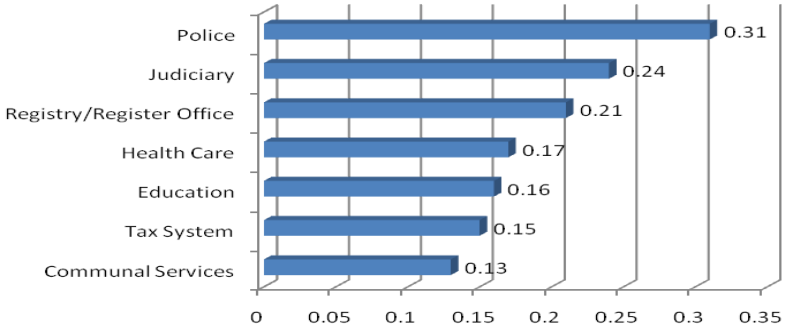

Fig. 2 Paying bribes for particular public services (in %).
Source: www.transparency.org

In most countries, the police (31%) and the judiciary (24%) are considered the most corrupt public services. Most respondents worldwide believe that their governments are inefficient in fighting corruption and that on this point the situation is constantly deteriorating. This assertion is supported by the fact that 12% of respondents believe that their government is efficient in fighting corruption, while 88% of respondents believes the opposite.

Figure 3 shows the respondents' perceptions of corruption of individual institutions. In most countries, political parties as the main bearers of political activity in modern states, are highlighted as the most corrupt organizations (1 = "not corrupted", 5 = "highly corrupted").

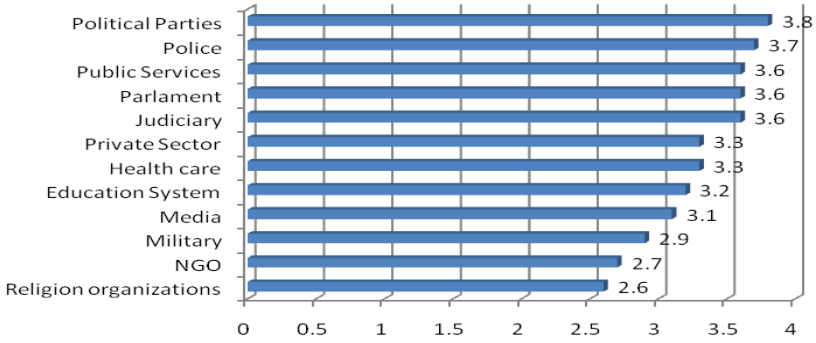

Fig. 3 Perceptions of corruption in institutions.
Source: www.transparency.org

More than half of respondents (54%) believe that their countries are managed by individuals acting in their own interest and not in the interest of the society. Figure 4 shows the responses to the question: How many public officials act in their own interest?

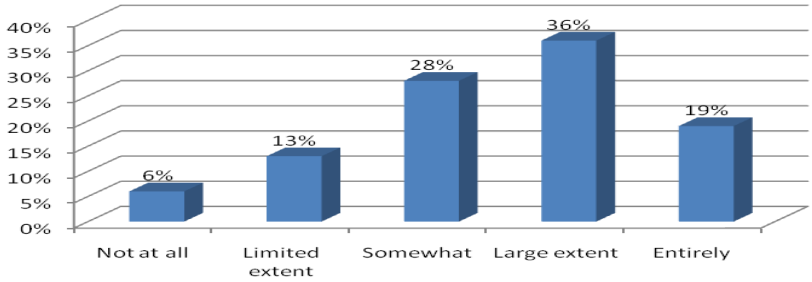

Fig. 4 To what extent is this country's government run by a few big interests looking out for themselves? (in %).
Source: www.transparency.org

A large number of respondents express willingness to fight corruption, and as the reason for not reporting corruption the respondents report the following: 15% of them do not know where to report acts of corruption, 35% are afraid of possible retaliation, 45% believe it is pointless to report corruption, while 5% cite other reasons.

The data presented above represent an example of subjective data sources for measuring corruption. The indicators based on subjective sources are, on the one hand, useful for raising awareness about corruption and performing scientific analysis, but do not provide clear information about the extent of corruption and areas where it most often occurs. Despite these shortcomings, research of corruption in contemporary literature is largely based on the perceptions and experiences of the respondents.

4. THE MOST COMMONLY USED INDICATORS OF CORRUPTION

Based on different techniques for data collection, two types of corruption indicators developed and evolved during time: original and composite indicators. Original indicators are created on the basis of household surveys and experts' opinions.

Table 1 Mostly used corruption indicators

Indicator	Source	Coverage
World Bank Investment Climate Assessment	Firm level survey	79 world countries
World Economic Forum – Competitiveness Report	Firm level survey	80 world countries
IMD (Institute for Management Development)	Firm level survey	49 world countries
EBRD and World Bank BEEPS	Firm level survey	24 transition countries
Gallup International on behalf of Transparency International	Firm level survey	21 transition countries
PricewaterhouseCoopers Opacity Index	Firm level survey and expert opinions	34 world countries
International Crime Victim Survey	Household survey	
World Values Surveys	Household survey	
Global Corruption Barometer (Transparency International)	Household survey	62 world countries
Economist Intelligence Unit (EIU)	Expert opinions	115 world countries
Freedom House – Nations in Transit	Expert opinions	27 transition countries
International Country Risk Guide (ICRG)	Expert opinions	140 world countries
World Market Research Centre (WMRC)	Expert opinions	122 world countries
World Bank Country Performance and Institutional Assessment (CPIA)	Expert opinions	83 countries members of IDA
Columbia University State Capacity Survey	Expert opinions	121 world countries

Indicators of corruption, most commonly used in empirical research, are composite (derived) indicators of corruption. These are indicators that are created by combining several original indicators. There are several reasons for measuring corruption using composite indicators (indexes) (Knack, 2006):

1) First, there is a problem of coverage concerning the original indicators of corruption. While some indicators relate to forms of corruption faced by business people, others include forms of corruption faced by households.
2) Second, the reason for creating composite indicators of corruption is related to reducing margins of errors in assessing corruption. The former practice of measuring corruption showed that the use of original indicators has been accompanied by a number of methodological problems. These problems lead to measurement errors, which caused corruption indicators to become biased. By combining several original indicators of corruption, their individual biases can be mutually neutralized. A

prerequisite for that is that the measurement errors of individual original indicators are mutually independent (the measurement errors are random).[5] If the measurement errors are correlated and depend on the same variables, the composite indicator will be biased.

3) Third, the use of composite indicators of corruption is necessary in terms of the growing number of countries that are the subject of research, which increases the sample in empirical research.

Derived indicators are also called "*second-generation*" indicators (Johnston, 2001), "*composite indicators*" (Arndt and Oman, 2006) or "*aggregate indicators*" (Kaufmann, Kraay, Zoido-Lobatón, 1999a). As Johnston notes, this generation of indicators has been developed mainly due to criticism of the previous, original indicators. Berg (2001) explains that, in general, a good indicator must meet the following requirements:

1) *Trustworthiness*, which implies that the indicator must be objective and reflect a general rather than personal opinion of one or a few individuals;
2) *Validity*, ie. indicator must measure the phenomena that affect the well-being of the society;
3) *Accuracy*. If the index is prone to large measurement errors, it is bound to be less useful. In surveys, the typical way of improving accuracy is to increase the number of respondents;
4) *Precision*, which is reflected in the fact that each participant understands the questions and that questions do not depend on personal standards.

Composite indicators have several advantages over the original indicators. Kaufmann and Kraay (2007) identified four key advantages of composite indicators:

1) Providing a broad coverage at the country level.
2) Providing a useful summary of a number of different individual indicators.
3) Reducing the measurement error in the results caused by specificities of individual indicators.
4) Enabling the calculation of explicit margin of errors.

There are a number of composite indicators used to measure corruption, although some of them are rarely used, due to their complexity. Some of them are:

- Country ratings (including levels of corruption) within Business International Corporation report; Mauro (1995) was one of the first researchers who used data from BI for studying corruption.
- Political Risk Services publishes International Country Risk Guide (ICRG) which includes corruption index. Tanzi and Davoodi (1997) have described and used this index.
- Transparency International measures the level of corruption in different countries. Lambsdorff (1998) describes the methodology for creating this index.
- Political and Economic Risk Consultancy in Hong Kong publishes reports about corruption for 10-12 Asian countries since 1993. Lancaster and Montinola (1997) provide brief explanation of this corruption indicator.
- World Economic Forum has published the World Competitiveness Report since 1989.

[5] If the measurement errors are random, with the increasing number of measurements, the mean value of the error tends to zero.

5. CORRUPTION PERCEPTION INDEX (CPI) AS A CORRUPTION INDICATOR

The most widely used indicator of corruption is the Corruption Perceptions Index (CPI), published by the international NGO Transparency International. A list of countries is created on the basis of this indicator that reflects the extent of corruption. It is a composite index, based on a number of independent surveys (18-20 different surveys carried out by independent institutions), which makes this index a more objective measure of corruption, compared to the measures obtained from individual sources. More specifically, the original sources are used as input data for the complex process of weighting results, resulting with relatively reliable comparisons between countries.

Table 2 Data sources used for creating CPI index in 2014

1. African Development Bank Governance Ratings 2013
2. Bertelsmann Foundation Sustainable Governance Indicators 2014
3. Bertelsmann Foundation Transformation Index 2014
4. Economist Intelligence Unit Country Risk Ratings 2014
5. Freedom House Nations in Transit 2013
6. Global Insight Country Risk Ratings 2014
7. IMD World Competitiveness Yearbook 2014
8. Political and Economic Risk Consultancy Asian Intelligence 2014
9. Political Risk Services International Country Risk Guide 2014
10. World Bank - Country Policy and Institutional Assessment 2013
11. World Economic Forum Executive Opinion Survey (EOS) 2014
12. World Justice Project Rule of Law Index 2014

The composite index is calculated as the arithmetic mean of the results of all the surveys in a country.[6] In other words, it is a simple mean of all standardized results. The number of data sources and the number of countries covered changes every year.

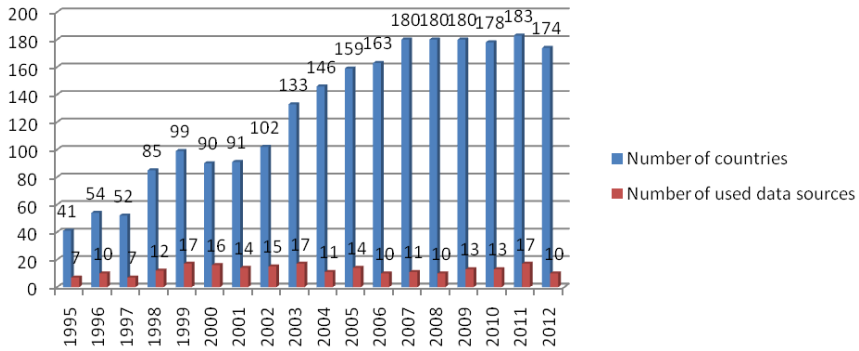

Fig. 5 The number of countries and the number of data sources for measuring corruption used in the CPI index.
Source: http://www.transparency.org/

[6] Serbia (ie. FRY) was first included in the surveys in 2000 (a total of 90 countries) when it occupied the last place in Europe (as the most corrupt state, with the CPI = 1.3).

For a country to be included in measuring corruption with the CPI, it is necessary to carry out at least three surveys by at least three different institutions. Also, the data must not be older than three years. CPI is one of the best measures of corruption because it uses a wide range of sources (Wilhelm, 2002).

Since all the original indicators have their own system of assigning values, these values are firstly normalized in order to reach the scale at which a country without corruption, that is the least corrupt country is assigned the value of 10, while the most corrupt country is assigned the value of 0.[7] A composite indicator represents the arithmetic mean of all normalized values of the original indicators of corruption.[8] In addition to evaluating the mean (arithmetic average) of indicators for each country, CPI methodology provides a confidence interval, i.e. the interval in which, with a probability of 90%, the actual value of the composite indicator is placed.[9] Although the ranking of the countries is performed on the basis of mean indicator values, it is recommended to take into account the confidence interval. The countries whose confidence intervals at least partially overlap receive the same rank. Despite the changes in the procedures for creating CPI, the final value of this indicator for a country is a simple average of standardized results.

6. Criticism of Composite Indicators of Corruption

Given that the purpose of composite indicators is to precisely quantify the level phenomena which they refer to, they are often the subject of criticism, as well as constant attempts of improvement, in order to overcome deficiencies in measurement. Most commonly emphasized disadvantages of composite indicators are: the creation of these indicators on the basis of perception data, imprecision and lack of objectivity in the interpretation of their values. Kaufmann and Kraay (2007) have identified two substantial drawbacks of composite indicators:

1) Difficulties in interpretation of the summarized statistical results and changes in methodology and data sources.

2) The absence of a clear link between reforms implemented in specific areas and changes in indicator values and rankings for a particular country.

One of the criticisms of composite indices concerns the data sources upon which they are computed, i.e. the fact that respondents are not able to compare the situation in their country with other countries. Under the influence of various factors (culture, ethical standards, etc.), respondents in different countries tend to assess different grades to similar levels of corruption. Also, due to the frequent changes in methodology and data sources, there is a problem of creating time series and comparability of data over time.

Critics of CPI as an indicator of corruption are mostly based on the changing number of countries involved in the ranking every year, which makes the ranking, i.e. the position of the country less important than the index value. In other words, the number of countries covered by these measurements changes each year, which may affect the rank of individual countries even if there has been no change in the level of corruption in that country

[7] In 2012, the methodology has changed so that the countries are ranked on a scale of 0-100.

[8] A detailed description of the methodology used to form the CPI can be found in: Lambsdorff (2006b).

[9] Assuming positive correlation between original indicators of corruption, a larger dispersion of the values causes the higher standard error and therefore the wider confidence interval.

(compared to others). Similarly, the data is relevant for three years, which means that the data become obsolete after the expiry of that period. In such circumstances, the assessment of corruption due to inertia remains the same, regardless of possible changes in the level of corruption, which reduces the reliability of the CPI.

Some of frequently mentioned disadvantages of composite indexes are: unclear specification of geographical areas covered by measurement, the absence of a clear link between corruption indicators and indicators of socio-economic development and ignoring differences between different types of corruption (administrative and political, petty and grand corruption).

Thompson and Shah (2005) point out that there are many limitations in measuring corruption, due to various methodologies, reliability of data sources and problems in defining corruption. According to them, large standard errors of composite indices bring into question creation of any kind of meaningful rankings and comparability between countries and over time. They also point that it is unclear what CPI is measuring and averaging.

The CPI cannot always predict where the corruption will occur. Even in countries with high values of CPI (low levels of corruption), the firms may have problems with corruption. For example, the multinational company Siemens had an experience with corruption in the Ministry of Defense of Norway in connection with the delivery of equipment in 2001. The appearance of corruption in the public institution of the country with a low level of corruption was completely unexpected. Also, one of the major problems with creating the index is reflected in the fact that the questionnaires used for data collection on corruption are mostly focused on those who take bribes, rather than those who pay bribes (Andersson and Heywood, 2009). Paying bribes can be a form of proactive behavior of economic actors aimed at securing business contracts. Generally speaking, the arguments against the use of the CPI as a measure of corruption are:

- Indicator value is determined only on the basis of perceptions about taking, but not giving bribes.
- Difficulty in comparing countries and data sources.
- Non- representativeness of the sample.
- Imprecise and sometimes ignorant sources.
- The narrow definition of corruption.

The CPI index is based on perceptions of the respondents that are believed to be directly confronted with corruption, rather than on empirical indicators (such as the number of completed investigations or trials).

In criticizing the CPI, it is specifically noted that its diagnostic value is additionally reduced by emphasizing the role of experts as a source for getting information. CPI reflects views of the experts and business people on trust in institutions, rather than the views of citizens (households). However, there are opinions that experts have limited insight into the prevalence of petty corruption, unlike ordinary people. Therefore, it is pointed out that the experts' perception of corruption differs from the views of citizens and households.

Despite numerous criticisms, the results of research conducted by Transparency International in 2008 speak in favor of the CPI as a reliable measure of corruption, since there is a strong correlation between citizens' experiences with corruption and the experts' perception of corruption.

Figure 7 shows the correlation between the results obtained by the research based on the experiences of citizens with corruption in 2008, published in the Global Corruption

Barometer report, and the results obtained on the basis of expert opinions published in the TI Corruption Perception Index report for 2008:

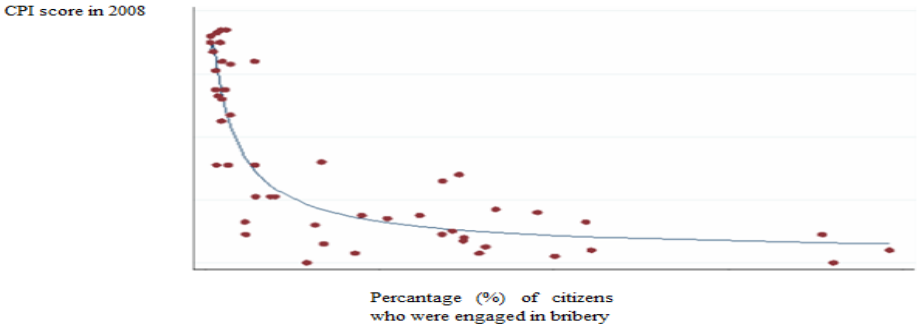

Fig. 7 Correlation between data on corruption experience and data on experts' perception of corruption.
Source: http://www.transparency.org/

This study has confirmed that, in countries where business people, analysts and experts perceived a high level of corruption, a large percentage of the population had direct experience with corruption, too (bribery in the aim of providing public services). This confirms that the expert assessments are in accordance with citizens' experiences in terms of corruption, indicating the reliability of the CPI as a measure of corruption. Therefore, the CPI is still the best known and most widely used index for measuring corruption around the world. The biggest success of Transparency International is raising public awareness of the issue of corruption. In this sense, it is suggested that flaws in measuring influential social phenomena, such as corruption, cannot be compared to the benefits of informing the public about the necessity of solving this problem.

CONCLUSION

Despite the specified arguments against relying solely on the composite indices in measuring social phenomena, there is still a tendency within contemporary social research, to sublimate various sources of data about corruption into a single indicator that would allow comparison of the level of corruption between countries and over time. The criticism aimed at these indicators is a part of continued efforts for improving the process of measuring corruption. The intrinsic value of the CPI is reflected in the fact that it indicates the countries where reforms are necessary, even though it cannot accurately inform policy-makers about specific forms or areas where corruption occurs.

Specificity of measuring corruption, as a complex social phenomenon, is reflected in the need to collect various data from multiple sources. Measuring corruption includes not only the level (intensity) of corruption in general, but also a precise quantification of the levels of particular types of corruption, the analysis of the mechanisms of corruption, as well as determining direct and indirect costs of corruption. In this sense, creating a unique

indicator of corruption must be accompanied by efforts aimed at exploring different forms, types and mechanisms of corruption.

The priority regarding improvements in measuring corruption should be standardization of indicators in time, in terms of coverage, questionnaires and samples used in the surveys, in order to create conditions for the analysis of time series and gain insight on changes of corruption over time, as well as the key factors of these changes. This would enable the creation of the anti-corruption strategies based on the results of empirical research to a much greater extent than is currently the case, given that the indicators of corruption are mainly criticized because of inaccurate assessments of corruption, which are then difficult to transform into effective anti-corruption strategies.

In addition, it is necessary to proceed with further development of questionnaires for different types of respondents: households, business people (experts) and for public servants. Communication between researchers in different countries is desirable and should lead to the standardization of questionnaires, which will enable the comparability of data.

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MERENJE KORUPCIJE – KLJUČNI PROBLEMI, IZVORI PODATAKA I NAJČEŠĆE KORIŠĆENI INDIKATORI

Korupcija predstavlja složenu društvenu pojavu sa višestrukim negativnim efektima na društveno-ekonomsku efikasnost. Iz tog razloga, korupcija je predmet istraživanja različitih društvenih nauka. U okviru ekonomske nauke, posebna pažnja usmerena je na merenje korupcije. Uprkos brojnim pokušajima, ovo pitanje nije još uvek u potpunosti razjašnjeno. Pošto korupciju nije moguće direktno meriti, merenje ove pojave zasniva se na indirektnim observacijama i subjektivnim percepcijama. Ključni problemi u merenju korupcije odnose se na nedostatak objektivnih podataka, greške u merenjima i teškoće u uspostavljanju jasne veze između rezultata merenja i efektivnih politika borbe protiv korupcije. Cilj ovog rada je da ukaže na osnovne metodološke probleme i ograničenja u merenju korupcije, kao i da pruži jedinstven teorijski pregled dosadašnjih istraživanja iz ove oblasti.

Ključne reči: *korupcija, merenje korupcije, percepcije, kompozitni indikatori.*

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