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KNOWLEDGE ECONOMY AND COMPETITIVENESS OF BOSNIA AND HERZEGOVINA IN A GLOBAL ECONOMY

ЕКОНОМИЈА ЗНАЊА И КОНКУРЕНТНОСТ БОСНЕ И ХЕРЦЕГОВИНЕ У ГЛОБАЛНОЈ ЕКОНОМИЈИ

Summary: *This paper studies the knowledge economy and competitiveness of countries and their mutual influences. The development of information and communication technologies and the growth of the global economy have created a competition that boasts features of the knowledge economy. A key resource and competitiveness base in the modern economy is knowledge, which is the foundation of social progress. Knowledge economy requires changes in the process of creating value and sources of competitive advantage. How knowledge is used effectively for economic development and level of development of countries in this regard is measured by an index of the knowledge economy. This paper presents many of the world reports and parameters that reflect the position of Bosnia and Herzegovina and its competitors in the global economy, which permeates every pore of society.*

Key words: *knowledge, competitiveness, knowledge economy, the knowledge economy index, global economy*

JEL Classification: *O10, O3, D83*

Резиме: *Овај рад проучава економију знања и конкурентности држава, као и њихове међусобне утицаје. Развој информационо-комуникационе технологије и раст глобалне конкуренције створили су економију коју красе особине економије знања. Кључни ресурс и основа конкурентности у савременој економији јесте знање, а које је уједно и темељ друштвеног прогреса. Економија знања изискује промјене у процесу креирања вриједности и изворима конкурентске предности. Колико се знање ефикасно користи за економски развој и ниво развијености државе у том погледу, мјери се индексом економије знања. Рад приказује многе свјетске извештаје и параметре који одсликавају позицију Босне и Херцеговине и њених конкурената у глобалној економији, која прожима све поре друштва.*

Кључне ријечи: *знање, конкурентност, економија знања, индекс економије знања, глобална економија*

ЈЕЛ класификација: *O10, O3, D83*

1. INTRODUCTION

Knowledge economy and information society are more distant future which we strive for. It is a reality that has been realized for decades in most developed countries. Science and knowledge are becoming the main resources of a modern economy. Pope John Paul II in his Hundredth Year report from 1991 said: „Whereas at one time the decisive factor of production was the land, and later capital — understood as a total complex of the instruments of production — today the decisive factor is increasingly man himself, that is, his knowledge.”¹ (Ioannes Paulus, 1991).

Next to natural resources, labor force and capital, information based on knowledge has become new and more important factor of production in the new economy. Thus, the information and knowledge have become the basis of contemporary competition among

¹ Centesimus annus. Encyclical Letter on the Hundredth Year of Rerum Novarum.

http://www.vatican.va/holy_father/john_paul_ii/encyclicals/documents/hf_jp-ii_enc_01051991_centesimus-annus_en.html (accessed 01.12.2011.)

organizations, and even of competition among states. Knowledge and information are basic and most important competitive advantage in the knowledge economy. In their manifesto of a new business era Swedish economists Riderstrale and Nordstorm point out that in modern companies between 70-80% of the work requires the intellect. The basic means of production is a small, gray, and weighs about 1.3 kilogram. This shell is the brain. (Riderstrale, 2004)

Thanks to information and communication technology, information and knowledge are available not only for „*privileged*” countries, but also for developing countries. These countries, as well as those in transition do not have to move the same way as developed, to solve the same problems of development in the same way. Knowledge economy offers them to skip the most painful phase of a brutal capitalist development and to reach more quickly the developed countries by application of technology and innovation. Nicholas Negroponte of the Massachusetts Institute of Technology says: „*We are moving from a world of atoms into one of bits. We are moving from brawn to brain; from hired hads to hired heads. Competition is about kilobytes, not kilograms.*” (Negroponte, 2002).

The heart of technical progress as economic growth factor is the so-called „*Development of new knowledge*” or even wider „*knowledge industry*” or a generic system of technical progress. Key components of this system are: scientific research of invention, innovation and diffusion. (Đerić, 1997). The intellectual capital of individuals is the foundation of knowledge-based economy. They invest in the economy their dedication, creativity, talent and inventiveness, and all of this affects scope and pulse of the economic growth. (Đerić, 2008)

Today, the „*knowledge-based economy*” or „*knowledge economy*” and „*knowledge society*” have become very popular and recognizable terms worldwide. A number of studies that indicate their significance have been implemented not only in theory, but also in the most economically relevant international organizations. There is hardly any economically developed country of today's world that has no special policy or strategy for boosting the knowledge economy. In a society whose economy is based on knowledge as the main reliance and comparative advantage, a key factor of production becomes a group or complex of intangible factors (such as information, knowledge, skills, work culture) that produce greater economic efficiency and gain greater market value.

2. THE KNOWLEDGE ECONOMY AND KNOWLEDGE IN CONTEMPORARY SOCIETY

Modern economy increasingly takes on the characteristics of the knowledge economy based on manufacturing, distribution and use of knowledge. It is the consequence of a very rapid development of information technology in the last two decades, increased speed of creation of scientific and technological knowledge, and increasing global competition. Knowledge enables individuals and communities coping with reality. To know something means to be aware of the basic traits, characteristics, relations, phenomena, objects, events. Knowledge is the awareness of the cause, functioning and predicting events.

Today, a well-versed employee has a critical role in economy. Knowledge is an essential tool for wealth creation. Today, the physical assets of the company are not its only value. Its value is based on knowledge, skills and intellectual property - all based on people. Those who govern must recognize the talents and provide a way to direct the human capital for innovation and develop products and services that create value.

Human capital is the cumulative knowledge, skills, values, excellent personal relationships and other resources available to a particular society. This knowledge includes the ability to constantly supplement through learning, training and so on. There is knowledge that is systemized, documented, easily repeated and widely spread. Examples of such knowledge are technology projects and drawings, software, patents, and others.

There is a tacit knowledge that exists in the minds of employees, in their education and experience. Tacit knowledge is used and transferred only with the participation and consent of the individual. So there are two basic forms of knowledge. The first is explicit, objective, formal, open and this knowledge is in the form of skills, information, scientific knowledge, manuals, etc.. Explicit knowledge can be easily transmitted, accepted, remembered and changed. Another form is called implicit, tacit that exists in the minds of people, but is not usually presented in explicit form and therefore it is often not easy to switch to explicit shape. This kind of knowledge usually comes in the form of skills or competencies, and is developed through long human experience or training. This knowledge often disappears from the organization with people who possess it, so it is very important to get it passed and it is crucial for the creation of new knowledge in the organization.

Material objects have some properties that are significantly different from the characteristics of knowledge, so it remains with the seller even after it was bought by a customer and can be sold to other customers. The value of knowledge is not known until it is sold and used, and the value of silent knowledge is not often known until it goes out of business with people who possess it. Knowledge can become obsolete, and the duration of knowledge is very difficult to determine and depends on the type of knowledge. It is difficult to protect it, although great assets are invested in its creation. Knowledge is difficult to measure, and it is difficult to determine how the investment in the creation of knowledge would affect the volume of knowledge and how the new knowledge would affect the economy. Innovation processes are associated with high risk, so the risk of earnings from exploration and development is around three times greater than the risk of earnings associated with the use of physical equipment.

Attracting, developing and maintaining human capital are necessary but not sufficient conditions for the success of the organization. Cooperation, exchange of information and knowledge management are critical. Social capital is a network of relationships that individuals have within the whole organization and relationships with suppliers, customers or partners. The role of technology is to strengthen human capital. Of course, with all these elements in mind, it is necessary to have a strategy that makes the company competitive and successful.

Traditional economic theory and practice are based on the material basis of the land, equipment and money. Emphasis is focused on the efficient allocation of labor and capital. Today, more than 50% of gross domestic product (GDP) in developed economies is based on knowledge, that is on intellectual property and expertise of people. The U.S. provides an example of the role and importance of knowledge and human capital. Services in the U.S. make up 76.6% of GDP.² The basis of services (software, healthcare, communications, education, etc.) are intellectual and informational processes that create most of the value for the companies. The research and development, design process, creating a product, logistics, marketing and technological innovation account for the largest contribution to the creation of the production values. Innovations, which essentially depend on the knowledge and create the new knowledge themselves, become more important than production efficiency and lead to the creation of new markets. Today as much as 70% of revenue in the computer industry comes from products that did not exist two years ago, and intangible factors that depend on the knowledge and skills of workers make up about 85% of the high-tech products such as chips or CDs. An interesting fact is that today's annual gross domestic products of the U.S. economy, expressed in tons, is approximately equal to that of a century ago, while its actual value is about 23.5 times higher!³ The difference is the added value associated with intangible

² The Central Intelligence Agency <https://www.cia.gov/library/publications/the-world-factbook/fields/2012.html> (accessed 01/12/2011.)

³ United States Government Spending compiled by Christopher Chantrell http://www.usgovernmentspending.com/spending_chart_1910_2010USk_13s1li011mcn_US_Real_Gross_Domestic_Product_History (accessed 01/12/2011)

components that are increasingly being included in products and services.

At the time of machines, products and equipment were of central interest. Today, in the information age, knowledge is the focus and value is created from the knowledge, skills, intellectual property and capabilities. It is all contained in the people. We can freely say that the economy today is actually the knowledge economy. Wealth is created through effective management of knowledge. Investing in a company means a gathering of talents, abilities, skills and ideas as intellectual capital, and not the physical and financial resources. An example of these assertions is *Microsoft* which does not own any software factory. The value of *Microsoft* is growing because of the ability to set the software standard for personal computers. Another example is the company *Merck*⁴ whose CEO, Dr. P. Roy Vagelos, says: „A low-value product can be made by anyone anywhere. When you have knowledge no one else has access to - that's dynamite. Dynamite, indeed. We guard our research even more carefully than our financial assets”⁵.

When we talk about knowledge-based economy we need to distinguish two concepts: the knowledge economy and knowledge-based economy. Knowledge economy is more oriented towards the management and production of knowledge, while knowledge-based economy is oriented toward the use of knowledge and technology to create economic benefits and jobs. As we see, the main difference is how we interpret knowledge. In the knowledge economy it is the product, while in the knowledge-based economy it is the factor of production. Both concepts are highly interdisciplinary and include economists, computer scientists, engineers, mathematicians, chemists, physicists, and psychologists and sociologists. It can be argued that both concepts are interrelated to one another and that one precedes another and the one is derived from another.

The key thing is how we look at knowledge and education, how we look at the “human capital”. They can be viewed as a product of business (intellectual products, educational tools and services that can be sold with a great return on investment), or as a resource in the production process. One definition is that knowledge economy is the concept that supports the creation of knowledge by employees in the organization and encourages them to transfer and better use their knowledge that is consistent with the objectives of the organization they work for.

There are many factors that influence the development of knowledge economy, and this also affects the change in business rules. Some of these factors are:

- globalization
- information technology (computer networks, new media, the density of knowledge),
- institutional changes in the labor market and changes in the behavior of firms.

As a result, today we have the e-commerce that allows us to develop a commodity, we can order, sell, and in many cases even deliver the goods in electronic form. J P Morgan predicts that in 2011 global revenue from e-commerce will amount to USD 680 billion.⁶

⁴ Merck is a global pharmaceutical company that employs about 33,000 workers in 61 countries with a total income of about EUR 7.7 billion. Pharmaceuticals business sector comprises innovative medicines and health care products. Chemical business sector offers specialty products for the electronics, printing, protection, cosmetics, pharmaceuticals and biotechnology.

⁵ Fortune Magazine http://money.cnn.com/magazines/fortune/fortune_archive/1991/06/03/75096/index.htm (accessed 01/12/2011)

⁶E-Commerce Alliance of Singapore <http://ecommerce.org.sg/2010/01/global-e-commerce-revenue-will-reach-680b-by-2011-slower-growth-than-online-ads-though/> (accessed 01/12/2011)

3. THE COMPETITIVENESS OF THE COUNTRIES

Famous scientists and all governments in the world have studied the problems of international competitiveness, but there is no single fundamental understanding of the term. The competitiveness of the state is primarily the competitiveness of the industrial production of goods and services for acquiring advantage in domestic and international markets. In today's increasingly open and integrated world economy, competitiveness is central to economic considerations from both developed and developing countries. According to the OECD⁷ definition, competitiveness is a measure of the country's ability to produce in free and equal market conditions goods and services that pass the test of international markets, with the long-term increase in real income of population.⁸

As the global competition intensifies, the competitiveness of the state becomes a major preoccupation of governments and companies in each state. Some viewed the country's competitiveness as a result of the wealth of state resources. Others argue that competitiveness is driven by cheap and numerous labor force or that it is a macroeconomic phenomenon shaped by the exchange rate, interest rates or the government's budgetary policy. However, Japan is pressing ahead with limited natural resources, Germany is successful in spite of high wages and lack of labor force, and South Korea, despite the government's budget deficit. Of course, none of these factors fully explains the competitive position of industry within a particular country.

According to the theory of competitiveness, national wealth is not inherited but created by a strategic choice. While in the past development of the country was based on comparative advantages, like cheap labor and natural resources, today the basis for economic development are advanced conditions based on knowledge and well-developed infrastructure, high technology and innovation. It does not matter who produces the products, but how they are produced. (Porter, 1992)

The presence or absence of certain attributes in the individual countries affects the development of the industry, and not only the ability of individual companies to create a competence core and competitive advantage. Determinate national advantages are: factor of conditions, demand conditions, related and supporting industries and strategy, structure and rivalry of companies. (Porter, 1992)

Analyzing the dynamics of competition in international markets, Bradley (Bradley, 2002) distinguishes three competitive situations:

- newly industrialized countries focus on low labor costs, government support and standard mature technology;
- successfully industrialized countries rely on the complex process of production to improve quality and reduce costs;
- high-tech industries are usually located in developed countries which focus on research and development to achieve product improvement.

Innovation involves the use of new knowledge, with the aim of the changes in the organization, in order to create a new product, service, improve operations or create new possibilities and opportunities. Innovation is a combination of ideas and information to make positive changes. At the root of innovation is a Latin word *novus* which means new. Innovation means introducing something new or change to a new state. The idea or discovery is in the basis of innovation, and it is the result of a creative process that is often the result of luck and chance, and that is why their forecasting and planning are difficult. The knowledge as the base and innovation as the driving force are vital for creation of a competitive advantage.

⁷ Organisation for Economic Co-operation and Development

⁸ OECD <http://stats.oecd.org/glossary/detail.asp?ID=399> (accessed 01/12/2011)

4. THE KNOWLEDGE ECONOMY INDEX AND THE POSITION OF BOSNIA AND HERZEGOVINA IN A GLOBAL ECONOMY

The Knowledge Economy Index⁹ takes into account whether an environment is conducive for knowledge to be effectively used for economic development. The index represents the overall level of development of the country or region in the direction of the knowledge economy. KEI is calculated based on average ratings on all four pillars that represent the knowledge economy - economic incentive and institutional regime, education and human resources, innovation and ICT systems. The comparison is conducted for a group of 146 countries, including most OECD countries, and more than 90 developing countries. The structure of the index is based on four pillars and twelve parameters (Table 1).

Table 1 The structure of the knowledge economy index

Pillars	Variables
The Economic Incentive and Institutional Regime	Tariff & No tariff Barriers
	Regulatory Quality
	Rule of Law
Education and Human Resources	Adult Literacy Rate
	Secondary Enrollment
	Tertiary Enrollment
The Innovation System	Royalty and License Fees Payments and Receipts
	Patent Applications Granted by the US Patent and Trademark Office
	Scientific and Technical Journal Articles
Information and Communication Technology (ICT)	Telephones per 1,000 people
	Computers per 1,000 people
	Internet Users per 10,000 people

Source: The World Bank <http://go.worldbank.org/SDDP3I1T40>

From the comparison of index for 1995 and 2009 (Table 2) it can be concluded that Denmark has maintained its leading position with the most advanced knowledge economy in the world. The Nordic countries have the best results on a KEI scale. Sweden is second, and Finland and Norway take a close third and fifth place. The four pillars of knowledge economy in these countries are well developed and balanced. These countries are characterized by strong opportunities in education, and they are all in the first seven places. Innovation and economic incentive and institutional regime account for it to a lesser extent and put these countries in the first thirteen places.

United States had a good position compared to the previous KEI, which is impaired in all four pillars. Its KEI dropped from third to ninth position. Similarly, Japan's KEI fell from the second place and ranks as the twentieth. The UK is the seventh, thanks to the advancement of ICT, which is in fourth place. Estonia, a new high-income country, has moved in all fields and has progressed from the 29th to 21st place. Ranked at the 61st KEI position, Russia is lagging behind primarily because of its weakness in economic incentives and institutional regime, with a value of only 1.76.

The countries of Southeastern Europe occupy the central part of the ranking list. Slovenia occupies 25th place, and among others the best is Greece at the 38th place with the evident decline by eight positions. Following them are the countries with constant progress such as Croatia, Romania, and FYR Macedonia, as well as Bulgaria and Turkey with the fall by four and three places. It should be pointed out that Romania had a strong advance of nearly one whole by rating or ten positions, and Bosnia and Herzegovina and Serbia were not evaluated for 2009 in any of index pillars because there are no available data, which also speaks about the level of development of the knowledge economy.

⁹ The Knowledge Economy Index (hereinafter KEI).

With significant improvements in all four pillars China has gone up by 18 positions in recent years. Countries such as China, Korea, Malaysia, Finland and Chile illustrate the rapid progress in a short period, by taking concrete measures in the training of the country, creating and providing access for the use of knowledge.

Table 2 Comparison of the Knowledge Economy Index for 1995 and 2009

Rank*	Country	The Knowledge Economy Index (KEI)		Difference 2009 -1995		The Economic Incentive and Institutional Regime		Innovation		Education		ICT	
		2009	1995	Score	Rank	2009	1995	2009	1995	2009	1995	2009	1995
		1	Denmark	9,52	9,59	-0,07	0	9,61	9,57	9,49	9,53	9,78	9,61
2	Sweden	9,51	9,47	0,04	+4	9,33	8,84	9,76	9,74	9,29	9,59	9,66	9,73
3	Finland	9,37	9,56	-0,19	+1	9,31	9,43	9,67	9,32	9,77	9,74	8,73	9,75
4	Netherlands	9,35	9,49	-0,14	0	9,22	9,50	9,45	9,52	9,21	9,68	9,52	9,24
5	Norway	9,31	9,49	-0,18	0	9,47	9,39	9,06	9,08	9,60	9,71	9,10	9,78
6	Canada	9,17	9,23	-0,06	+4	9,45	8,41	9,44	9,32	9,26	9,69	8,54	9,49
7	United Kingdom	9,10	9,38	-0,28	+1	9,24	9,40	9,24	9,35	8,49	9,69	9,45	9,10
8	Ireland	9,05	8,95	0,10	+7	9,26	9,16	9,08	9,00	9,14	9,22	8,71	8,43
9	United States	9,02	9,51	-0,49	-6	9,04	9,20	9,47	9,58	8,74	9,42	8,83	9,83
10	Switzerland	9,01	9,40	-0,39	-3	8,79	9,54	9,90	9,82	7,68	8,64	9,68	9,62
11	Australia	8,97	9,22	-0,25	0	8,66	8,75	8,88	8,87	9,69	9,93	8,67	9,35
12	Germany	8,96	9,06	-0,10	+1	9,06	8,99	8,94	9,18	8,36	9,28	9,47	8,81
15	Austria	8,91	9,13	-0,22	-4	9,31	9,49	9,00	8,90	8,48	9,35	8,85	8,78
20	Japan	8,42	8,83	-0,41	-3	7,81	8,26	9,22	9,30	8,67	9,06	8,00	8,70
21	Estonia	8,42	7,87	0,55	+8	8,76	8,19	7,56	6,65	8,32	8,35	9,05	8,30
22	France	8,40	8,92	-0,52	-6	7,67	8,47	8,66	8,93	9,02	9,54	8,26	8,75
24	Spain	8,28	8,27	0,01	-2	8,60	8,61	8,14	8,22	8,33	8,54	8,07	7,71
25	Slovenia	8,15	8,01	0,14	+1	8,10	7,96	8,31	7,82	8,31	7,85	7,88	8,41
27	Hungary	8,00	7,27	0,73	+5	8,35	6,66	8,21	7,61	7,73	7,55	7,70	7,27
28	Czech Republic	7,97	7,53	0,44	+3	8,17	7,95	7,78	7,04	8,23	7,50	7,70	7,63
30	Italy	7,79	8,12	-0,33	-5	6,62	8,06	8,00	8,28	7,96	8,02	8,59	8,10
36	Slovakia	7,47	6,94	0,53	-2	7,78	6,38	6,89	7,02	7,26	7,16	7,95	7,18
37	Poland	7,41	6,69	0,72	0	7,48	5,84	7,03	6,08	8,02	8,14	7,09	6,71
38	Greece	7,39	7,75	-0,36	-8	6,82	8,18	7,57	7,31	8,21	7,75	6,94	7,76
40	Croatia	7,28	6,72	0,56	+5	7,26	4,98	7,67	7,49	6,56	7,05	7,62	7,36
43	Bulgaria	6,99	6,64	0,35	-4	7,14	5,76	6,43	7,10	7,65	7,24	6,74	6,45
47	Romania	6,43	5,48	0,95	+10	6,98	5,73	5,74	4,75	6,47	6,20	6,55	6,16
53*	Serbia	x	5,74	x	x	x	4,01	X	6,15	x	5,83	x	6,99
58	FYR Macedonia	5,58	5,17	0,41	+8	5,34	4,02	4,67	4,43	5,42	5,23	6,88	7,00
60	Russian Fed.	5,55	5,73	-0,18	-4	1,76	2,25	6,88	4,64	7,19	8,12	6,38	6,60
61	Turkey	5,55	5,12	0,43	-3	6,98	6,40	5,83	3,78	4,46	4,43	4,92	5,87
79*	Bosnia and Herz.	x	4,58	x	x	x	4,26	X	3,11	x	5,70	x	5,24
81	China	4,47	3,93	0,54	+18	3,90	3,24	5,44	4,07	4,20	3,62	4,33	4,77

* States elected by the free will of the author

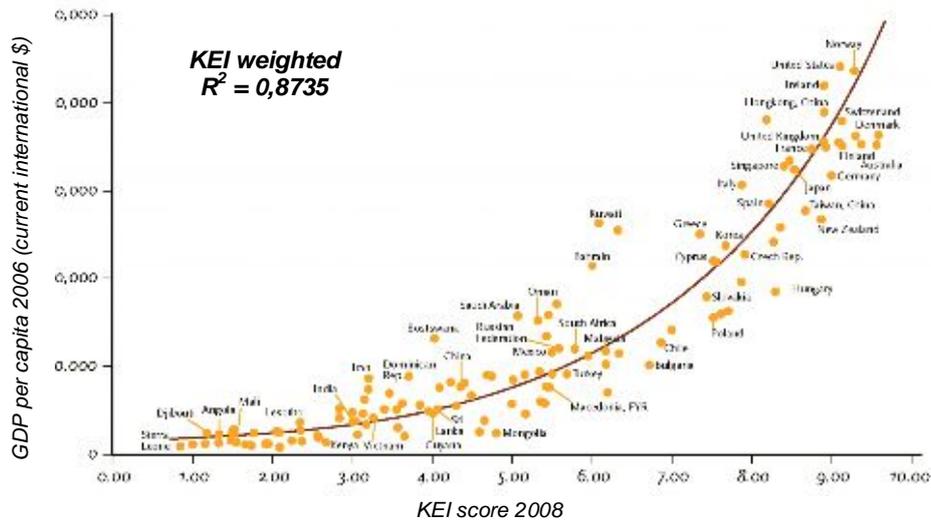
** Rank of Serbia and B&H is determined based on the index in 1995 (transposed score for 2009).

Source: Adapted from World Bank http://info.worldbank.org/etools/kam2/KAM_page5.asp

Knowledge is the key driver of economic growth. A strong correlation can be observed between the KEI and GDP per capita. Economic development and knowledge are closely linked. In fact, the correlation between the accumulation of knowledge, measured by the KEI, and the level of economic development is about 87% (Figure 1).

Countries with higher KEI values tend to a higher level of economic development, and vice versa. This positive correlation does not establish a causal link between KEI and economic development. In fact, it is likely that high-income countries are richer, more able to afford more investment in knowledge. Correlation does not allow predicting with any degree of certainty that the investment in certain forms of knowledge in a poor country will result in faster economic growth.

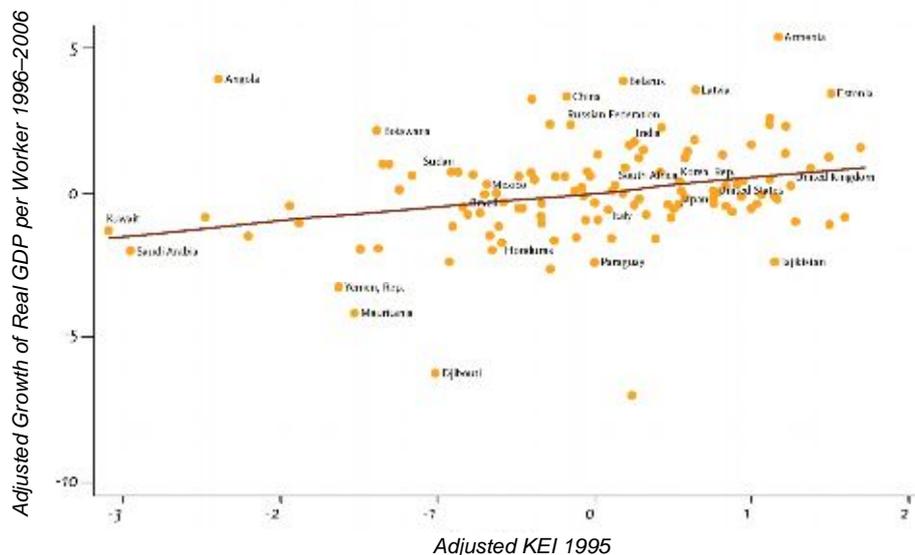
Figure 2 Knowledge economy and the current economic opportunities



Source: *THE WORLD BANK*, 2008. Measuring knowledge in the world's economies. World Bank Institute.

However, econometric tests really reveal a statistically significant cause-effect relationship that moves from the level of accumulation of knowledge to future economic growth. Figure 2 illustrates the relationship between the value of KEI of countries and their average growth rate of output per worker in the future. The horizontal axis shows the results of KEI in 1995, after accounting for difference in the initial real GDP per capita and the growth of capital per worker. The vertical axis shows the average annual growth in output per worker, during the period 1996-2006, after the initial adjustment of real GDP per capita and the growth of capital per worker.

Figure 2 Knowledge economy and future economic growth



Source: *THE WORLD BANK*, 2008. Measuring knowledge in the world's economies. World Bank Institute.

KEI higher values that are associated with higher rates of future economic growth (which remain constant with other factors) suggest that larger stocks of knowledge actually cause higher levels of economic growth and development. One unit of improvement in the KEI represents an equivalent of increase of one tenth or 13 positions in the ranking, leading to

an increase of 0.49 percentage points in economic growth, after taking into account the initial conditions. These important results confirm that knowledge and its applications played a major role in the growth process. Knowledge in connection with the policy and practice is one of the most important topics of today's development.

The place of Bosnia and Herzegovina in a global economy is defined by its competitiveness as a whole. According to the report of the World Economic Forum, the conditions for entrepreneurial activities in B&H reflect the adverse business climate. According to the Global Competitiveness Index, B&H occupies 100th position. The main objections to B&H in the field of competition were related to political instability and insecurity of power, poor transport infrastructure, excessive bureaucracy, corruption and so on. In the crisis period, since 2008, Albania, Montenegro, Bosnia and Herzegovina and FYR Macedonia have significantly improved their competitiveness. High growth of competitiveness of national economy of Albania is primarily the result of extensive public investment - mostly in road infrastructure - that the country has taken in the previous period. Montenegro has made significant progress in the competition in almost all segments, and the most one with regard to institutions. It reduced government regulation, increased level of trust in politicians and the infrastructure was significantly improved (investments in port infrastructure). In contrast to this positive trend, certain number of countries recorded negative trends. This primarily relates to Croatia and Serbia. In Croatia, the crisis has affected the competitiveness of some aspects such as the worsening of macroeconomic stability. Croatia has a high level of indebtedness and also inefficient labor market. Out of all the transition countries of Central and Southeastern Europe, Serbia is only before Bosnia and Herzegovina, according to the competitiveness. The biggest obstacles to doing business in Serbia are inefficient government bureaucracy, corruption and access to financing. Moreover, the problems include the high inflation, political instability, tax rates and tax procedures. The first three countries in global competitiveness rankings are: Switzerland, Singapore and Sweden.

Table 3 Global economic indices and the B&H

Institution or Organization, Address	Index Name	Year	Rank B&H and shift positions	Number of countries
World Economic Forum Geneva, Switzerland	Global Competitiveness Index	2011/12	100 (+2)	142
	Networked Readiness Index	2010/11	110 (0)	138
	The Lisbon Review Rankings	2010	11/38 (0)	11/38*
International Telecommunication Union Geneva, Switzerland	Digital Opportunity Index	2006	64 (+11)	181
	ICT Development Index	2010	63 (0)	152
UNDP New York, USA	Human Development Index	2011	74 (+6)	187
The Heritage Foundation Washington DC, USA	Index of Economic Freedom	2011	104 (+6)	179
KOF Swiss Economic Institute Zurich, Switzerland	Globalization Index	2011	62 (-4)	156
The World Bank Washington DC, USA	Doing Business	2012	125 (+2)	183
Forbes New York, USA	Best Countries for Business	2011	84 (+17)	134
* The first figure refers to a group of candidate and potential candidate for EU membership, and other information are addressed to the EU-27 countries and from the first data.				

Networked Readiness Index of the World Economic Forum explores how the countries prepare for the network economy and how they use opportunities provided by information technology. Three main areas are: general and economic, regulatory and infrastructure environment of info-communications, preparedness of individuals, companies

and governments for the implementation and exploitation of info-communication, and effective implementation of existing information and communication technologies. B&H is at the 110th place after all countries arising from the former Yugoslavia and countries which are our direct economic competitors to join the European Union. Topping the list are Sweden, Finland and Singapore.

WEF's report is the fifth and the latest two-year review, which assesses progress made in achieving the goals of the Lisbon strategy of economic and structural reforms. In addition to evaluating the results of 27 existing EU members, the study measures the competitiveness of the candidate and potential candidate countries for accession to the European Union. Out of eleven Eastern European countries outside the European Union, Montenegro is the first before Croatia and Azerbaijan and out of the countries of the EU-27, leaders are Sweden, Finland and Denmark. Bosnia and Herzegovina is located far to the rear of both lists.

Digital Opportunity Index is designed as a tool for monitoring progress in overcoming the digital gap. This is a composite index that consists of eleven separate indicators, grouped into three categories: opportunity, infrastructure and utilization. Bosnia and Herzegovina ranks on the list at high 64th place, and the results are satisfactory when you take into account the total number of countries in the survey. It should be noted that research has not been done since 2006 and it is very interesting to see where our country stands today. Republic of Korea, Japan and Denmark are the best rated countries.

Unique ICT Development Index consists of eleven indicators divided into three groups: infrastructure and access, level of use and intensity of use, and education. B&H is ranked at the 63rd position out of 152 countries. First on the list are the Republic of Korea, Sweden and Iceland.

The UNDP's Human Development Index is a formula that measures poverty, literacy, education, life expectancy, and other factors for countries worldwide. It measures the average achievements in the three basic things in human development: 1. long and healthy life, measured by life expectancy at birth; 2. knowledge, as measured by literacy, 3. decent standard of living, measured by GDP per capita, according to the purchasing power of dollar in a country, in U.S. dollars. Norway, Australia, the Netherlands, the United States lead the list of countries as the most developed human societies. B&H is at the 74th place in a group of countries with high development.

According to the American Heritage Foundation, in 2011 B&H occupied 104th position, out of 179 ranked states. The achieved result is by six places better than the previous year. Despite this, B&H is called „*mostly unfree*” economy, managing to overtake only the countries of the former USSR out of all other European countries, whereas the countries in the region are far ahead of it. The main reasons for such poor positioning of B&H can be the result of the global financial crisis, poor entrepreneurial climate, bad privatization (especially large companies), a slow judicial reform, weak protection of intellectual property, huge public spending and the prevalence of corruption.

The economic globalization means the flow of cash, capital and transactions, and the social one means the spread of ideas, information and interaction with people from other countries, and the political dimension refers to the incorporation in international politics. For the four consecutive years, Belgium is the most globalized country in the world, and Bosnia and Herzegovina ranks 43rd place on the list of Swiss Economic Institute "KOF" in Zurich, which traditionally calculates the globalization index of countries worldwide, every year. In its research the Institute measures the degree of economic, social and political globalization. Belgium is followed by Ireland, the Netherlands, Switzerland, Austria, Sweden, Denmark, Canada and Luxembourg.

The World Bank publication „*Doing Business 2012*”, which analyzes the „*ease*” of doing business in one country, B&H occupies the 125th position out of 183 countries. B&H has taken this position because of poor conditions for running a business, procedures for obtaining building permits and electricity connections. The list of top 10 has not changed

significantly compared to 2011, except that Norway, Great Britain and Ireland „redistributed” the score from the 6th to the 10th place, whereas Sweden and Saudi Arabia are not found in the top ten. This means that Singapore is still at the leading position measured by the ease of doing business.

In its list of countries with the best conditions for business in 2011, the prominent American magazine *Forbes* ranked Canada, New Zealand and Hong Kong at three top places. At this year's list, B&H is at the 84th place out of 134 countries, 17 places more than last year. According to *Forbes*, the competitiveness of other countries in the region is as follows: Slovenia takes 25th position, Macedonia 35th, Croatia 41st, Montenegro 53rd, Serbia 93rd, Bulgaria is ranked at the 47th position, Romania at the 52nd and Albania at the 64th.

5. CONCLUSION

In the knowledge economy, the focus is on the people who possess, use and transfer knowledge. Combining people, skills and technologies is essential for the knowledge economy, in order to increase the value for the customers. Companies that support and develop effective knowledge and use it to increase its market value advance ahead. Learning has positive effects on: creating a plan, better dynamics, increasing the efficiency of employees, changes in design, productivity and the like. Learning organization does not occur by itself but as a result of the efforts of its management and employees. Knowledge management provides management of a number of activities required for optimal use of existing knowledge of the company, encouraging the development of new knowledge and best decision-making. In this way, knowledge is the basis for achieving innovation and excellence. Knowledge is the source of competitive advantage.

The technology is the chief instrument in encouraging the development of knowledge economy. The company gains a competitive advantage if it is able to discover the technology that will enable it to perform an activity better than its competitors. Technological change improves the structure of the industry as a whole and generates new jobs arising from the existing activities of the company. The connection between technology and raised productivity is determined by the learning curve.

Globalization has led to the spread of knowledge and ability to transfer knowledge quickly in any part of the world via information and communication technologies. This process provides an opportunity for development to both rich and developing countries. The analysis of the country position in the global economy provided in the reports by international organizations and institutions, suggests that most of the parameters are directly or indirectly associated with the knowledge and education. The correlation between investment in knowledge and innovation, and gross domestic product shows that countries that invest more in these areas have a higher GDP. In addition, countries with higher GDP allocate a higher percentage. In addition to greater investment in knowledge, developed countries increase their investment in research and science and thus gain a competitive advantage.

Bosnia and Herzegovina is a country in transition with a heavy legacy of the war that burdens the transition process and the process of economic development. After the signing of the Dayton Peace Agreement, it has entered a phase of GDP growth and economic stability. The world's leading reports classified Bosnia and Herzegovina in the last third of the world's countries, and at the rear among the countries in the region. The indicators reveal weaknesses in certain sectors of the country. B&H has great resources and it must vigorously develop production and servicing sector. Well-conceived investment in education and knowledge is an opportunity for development. Strategies help to create, structure and apply knowledge. They need to be designed because action-based strategies provide competitive advantage.

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