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THE KNOWLEDGE-BASED ECONOMY AND THE LISBON STRATEGY: RESULTS FROM THE APPLICATION AND THE FUTURE

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Abstract: *The Lisbon strategy was agreed in 2000 with the main goal the European Union to become the most competitive and dynamic knowledge-based economy in the world. The main objective of the research is to investigate the transition towards knowledge-based economy realized in the beginning of XXI century in the European Union and to reach the conclusions about this transition. The results in the field of education and research and development in European Union for the first ten years are presented. It is argued that the application of the Lisbon strategy does not succeed in the transition towards knowledge-based economy. For the realization of this transition efforts should be concentrated on creating science based, real, concrete and applicable development strategy within the European Union.*

Keywords: *European Union, Knowledge-based economy, Lisbon strategy, Strategy*

1. Introduction

At the end of the XX and the beginning of the XXI century the leaders of member states of the European Union (EU) noted that the European economy lags behind more clearly than its main competitors on the global scene (mainly U.S.A. and Japan). To overcome the gap in economic growth in comparison to the major competitors, Europe's leaders introduced the idea of transition to a knowledge-based economy.

At the end of XX century there are a number of preconditions for the realization of this transition:

- Inflation in the European Union was reduced from 5-6% in the early 90s of the XX century to 2% at the end of the century;
- There is public finances sustainability – there is an established transition from growing deficits in the early 90s to public finances sustainability at the end of the century;
- Completed transition to stable interest rates at the end of the century;

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- Introduction of the single currency (Euro). It is formally introduced on 01.01.1999 and its mass use commenced on 01.01.2002;
- There is united and functioning European market.

Along with these preconditions, there are a number of disadvantages of the European economy:

- Lagging behind the U.S.A. and Japan regarding growth rates;
- Lagging behind its main competitors regarding rates of incorporation of new technologies and especially the Internet;
- High unemployment rates - at the end of the century about 10% of the EU working age population is unemployed;
- Low level of female employment;
- The necessary investments in education and training are still not available and these are required for the acquisition of the needed qualification skills so that newcomers to the labour market can be included in the knowledge-based economy;
- The aging process, which has serious implications for the sustainability of social security and social welfare of many European countries.

Considering these preliminary conditions, the European Union reached the conclusion that it is necessary to develop a strategy for economic and social development, with the help of which to close the gap with major world competitors - the U.S.A. and Japan.

2. The Lisbon Strategy

The European Council held a special meeting on 23-24 March 2000 in Lisbon to agree a strategy for economic, social and environmental renewal and sustainability (The Lisbon Strategy). The strategic goal of the document for the next decade is the Union „to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000). According to the presented document achieving the strategic goal requires an overall strategy aimed at:

- preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market;
- modernising the European social model, investing in people and combating social exclusion;
- sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix.

The basic priorities of the first direction are: an information society for all; establishing a European Area of Research and Innovation; creating a friendly environment for starting up and developing innovative businesses, especially Small and medium enterprises (SMEs); economic reforms for a complete and fully operational internal market; efficient and integrated financial markets; coordinating macro-economic policies: fiscal consolidation, quality and sustainability of public finances.

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In 2004 Wim Kok (former Prime Minister of the Netherlands) together with a group of experts was assigned the task to develop an analysis and evaluation of the results of the Lisbon strategy implementation. The general conclusions included in the report show that the results of the strategy implementation are unsatisfactory. Positive progress is observed for a limited number of indicators such as: employment growth (the report states that employment is mainly due to removing obstacles to hiring low-salary employees and to encouraging temporary employment), Internet use in schools and universities as well as in households.

The negative results of implementing the Lisbon strategy are predominant so far. Only two states out of all the member states satisfy the requirement for spending of up to 3% of the gross domestic product (GDP) on research and development, and both countries meet the second requirement as well - the spending for research and development in the private sector to equal 2% of the GDP. The report expressed pessimistic expectations for the attainment of net job creation (70% employment rate) and for older workers - 50%.

In addition, the unsatisfactory results in the field of environment are described: there is continuing environmental degradation, increased air pollution and noise pollution. Most member states are far from the required levels specified in the Kyoto Protocol.

The thesis that the information and communication technologies (ICT) sector is not enough developed is advanced. In the Wim Kok's report is written: „The latter has been associated with the same reasons Europe is not meeting the Lisbon targets: insufficient investment in R & D and education, an indifferent capacity to transform research into marketable products and processes, and the lower productivity performance in European ICT-producing industries (including office equipment and semiconductors) and in European ICT-using services (such as wholesale and retail trade, financial services) due to a slower rate of ICT diffusion. As a result, the contribution of ICTs to growth was half that observed in the US. This performance is also linked to Europe's industrial structure, which is based on more low- and medium-tech industries and its difficulty in moving into those sectors with high productivity growth prospects.” (Kok Wim, 2004, 15)

The conclusions about the lag of the European Union behind the main competitors in the world in the area of the competitiveness and the knowledge-based economy are confirmed by Tony Blair. In a speech to the European Parliament on 23 June 2005 the prime minister of Great Britain of that time announces: „First, it would modernize our social model. Again some have suggested I want to abandon Europe's social model. But tell me: what type of social model is it that has 20m unemployed in Europe, productivity rates falling behind those of the USA; that is allowing more science graduates to be produced by India than by Europe; and that, on any relative index of a modern economy - skills, R&D, patents, IT, is going down not up. India will expand its biotechnology sector fivefold in the next five years. China has trebled its spending on R&D in the last five.” (Tony Blair's speech to the European Parliament on 23 June 2005).

Alvin Toffler is even more extreme in his statements. In an interview in 2008 he said that the European Union has failed in its attempt to establish a knowledge-based economy. For the Bulgarian magazine *Manager*, he said: "I am particularly impressed by the development of the European Union. In 2000, at the meeting in Lisbon, it was stated

that the EU will be the most developed and competitive economy in the world. In 2001, they said that there is a short delay. And every year thereafter, they only reported what was not yet completed. The EU does not take advantage of existing opportunities" (Toffler Alvin, 2008).

The conclusions made by these three highly regarded persons were confirmed by the specific achievements of the European Union in the field of education and of research and development for the 2000 – 2010 period.

3. Achievements of the European Union in the Field of Education for the 2000 - 2010 Period

In 2010, at the request of the European Parliament's Committee on Employment, a report was presented under the following title: "The Lisbon Strategy 2000-2010 An analysis and evaluation of the methods used and results achieved". It evaluates the implementation of the Lisbon strategy, and the report outlines also the achieved results and the most important quantitative achievements of the first decade of the XXI century.

The report pays special attention to the indicators characterizing the development of the education sector in Europe. Exactly the development of the education sector is also one of the most important conditions for the development of the knowledge-based economy. The investments in education ensure results in the long run. They promote increased economic growth, improved competitiveness of the economic system, and personal and social development.

The first of the indicators is "Early school leaving", which shows the percentage of the population aged 18-24 having (at most) lower secondary education and not in further education or training. In the initial version of the Lisbon strategy there is no adopted recommended quantitative value for indicators, but in 2006 it was adopted that early school leaving should be no more than 10 percent in the EU. The percentage of early school leaving in the European Union gradually reduced for each year of the 2000 – 2010 period, but is still at a higher level than the adopted required rate of 10%. In 2000, this indicator was 17.6% for all member states, and in 2010 it reached 14.1%. In 2010, 9 countries are able to cover the 10% norm. These are as follows: the Czech Republic, Lithuania, Luxembourg, the Netherlands, Austria, Poland, Slovenia, Slovakia and Sweden.

Another important indicator in regard to the educational system is the "youth educational attainment level". According to Eurostat, this indicator expresses the percentage of the population aged 20 to 24 having completed at least upper secondary education. The Lisbon Strategy adopts that the indicator value should reach 85% in 2010. A positive trend is observed for this indicator for the 2000 - 2010 period. In 2000, the percentage of the population aged 20 to 24 having completed at least upper secondary education was 76.6% and it gradually increased to 79% in 2010. In 2010, 9 of the member countries are able to cover the 85% norm. These are: the Czech Republic, Ireland, Cyprus, Lithuania, Austria, Poland, Slovenia, Slovakia and Sweden.

The third indicator in the report in regard to the level of education in the European Union is "Lifelong learning". According to Eurostat, the indicator is defined as the percentage of the population aged 25 to 64 participating in education and training. The Lisbon Strategy defines that the value of the indicator for the European Union should reach

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12.5% in 2010. The values of this indicator for the 27 member states in 2010 were 9.1%, with marked decrease from 2005, when it was 9.8%. By 2010 only 8 countries met the defined requirements. These are as follows: Denmark, Luxembourg, the Netherlands, Austria, Slovenia, Finland, Sweden and the United Kingdom.

In addition to the three indicators identified in the report, it is necessary to explore others, having direct relation to the development of a knowledge-based economy. The first is Public expenditure on education (% of GDP). In 2008, the values of the indicator for the European Union reached 5.1% (Eurostat). In regard to this indicator, the European Union lags behind the U.S.A. - 5.4%, and Switzerland - 5.4%, but is ahead of Japan - 3.4%.

At this stage the spending on education in the European Union is mainly at the expense of the public sector. In 2008, according to Eurostat, the public spending on education accounted for 5.07% of the GDP, while spending by the private sector was only 0.75%.

The countries with the highest proportion of education spending in the European Union are Denmark - 7.8%, followed by Cyprus - 7.4%, Sweden - 6.7%, Belgium - 6.5%, Finland - 6.1% Malta - 6%, etc. The lowest share are the Czech Republic - 4.1%, Greece - 4%, Slovakia - 3.6% and Luxembourg - 3.2%.

It should be noted that in addition to the amount of funds invested, the level of education in individual countries depends on the effectiveness of investments. However, the values for this indicator are a criterion for assessing the attitudes of individual states to the education sector.

The university system in Europe, one of the key components of the knowledge-based economy, is in crisis. The state of the system currently does not allow to offer the services necessary to increase the competitiveness of community education. This conclusion is particularly attributable to universities from Central and Eastern Europe.

In his speech on 23.06.2005 in the European Parliament, Tony Blair expressed his concern that "of the top 20 universities in the world today, only two are now in Europe"(Tony Blair's speech to the European Parliament on 23 June 2005). What is the situation after the implementation of the Lisbon strategy and of the beginning of the implementation of Europe 2020?

According to the ranking of the QS World University Rankings in 2011 of the top 20 universities in the world only 5 are in Europe, all located in the United Kingdom. According to this ranking when comparing the total number of universities, the European Union has some advantage over its main competitor - the U.S.A.: in the top 100 universities, 35 are in the EU and 31 are in the U.S.A. - and in the top 200 universities - 78 are in the EU and 54 are in the U.S.A. When these values are calculated against the EU population (500 million for 2009) and for the U.S.A. (307 million for 2009) the conclusions differ drastically. It turns out that for the ranking of the top 100 universities in the world, for one university in Europe there are around 14 million people and for the U.S.A. it is about 10 million inhabitants. Similar conclusions can be drawn when assessing the ranking of the top 200 universities in the world – for one university in Europe there are 6.4 million inhabitants and for one university in the U.S.A. there are about 5.7 million inhabitants.

Table 1. Top 100 and top 200 universities by regions of the world according to QS World University Rankings 2011

Region	Number of universities – top 100	Number of universities – top 200
European Union	35	78
Europe (without European union)	3	9
Russia	0	1
USA	31	54
North and South America (without USA)	4	11
Africa	0	1
Asia/Pacific	27	46
Total	100	200

Source: QS Quacquarelli Symonds (www.topuniversities.com).

The study carried out by the Shanghai Institute for Higher Education, the lagging behind in Europe when compared to its main competitor the U.S.A. is even greater. Among the top 20 universities in the world for 2010, in Europe there are only 2 universities, both located in the United Kingdom. According to this ranking when comparing the total number of universities, the U.S.A. has an advantage over Europe also for the top 100 universities (54 in the U.S.A. compared to 28 in the EU) and in the top 200 (89 in the U.S.A. compared to 66 in the EU).

Table 2. Top 200 and top 200 universities by regions of the world according to research of the Shanghai institute for higher education, 2010

Region	Number of universities – top 100	Number of universities – top 200
Europe (including EU)	33	74
EU	28	66
Americas (including USA)	58	100
USA	54	89
Asia/Pacific	9	26
Africa	0	0
Total	100	200

Source: <http://www.arwu.org/ARWUAnalysis2010.jsp>

In addition to the lagging behind when compared to the U.S.A., polarization of universities within the European Union is observed for the European higher education system. Thus, for both rankings for the 200 most prestigious universities in the world, there is not one in the countries of Central and Eastern Europe. Most universities from member states of the European Union in the top 200 from the ranking of the Shanghai Institute of Higher Education are located in the UK - 19, followed by Germany 14, the Netherlands 9, France 7, Sweden 4, Belgium 4, Italy 4, Denmark 3, Finland 1 and Austria 1. From the member states that recently joined the European Union, only Poland and Hungary have two universities in the top 500 and the Czech Republic and Slovenia have one each. Thus, besides the efforts required for the development of its university system, the European

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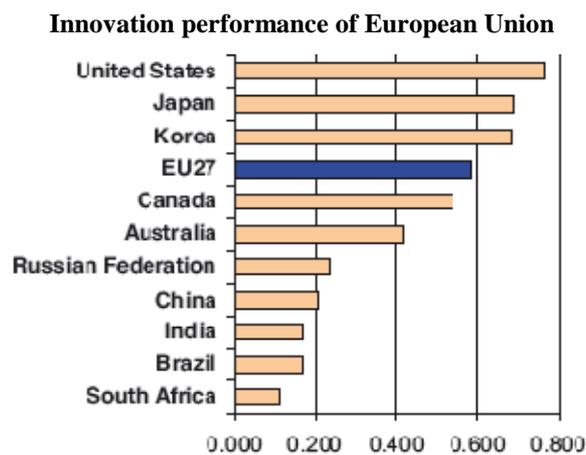
Union has to take measures to address the regional discrepancies. The opportunities for development of universities from Central and Eastern Europe include cooperation with universities, and scientific and educational centres from Western Europe.

4. Achievements of the European Union in the Research and Development Sector for the 2000-2010 Period

Raising the level of research and development activities is directly related to increasing the competitiveness of the economic systems. This is the reason why over the last decade, the European Union stimulated investments in this field. So, in 2002, in Barcelona, it was adopted that the European Union shall have spending of 3% of its gross domestic product on research and development activities and 2/3 thereof must be financed by the private sector.

For the 2000-2010 period, the research and development spending in the European Union increased gradually from 1.86% of the GDP in 2000 to 2% in 2010. With the exception of Finland - 3.87%, Sweden - 3.42% and Denmark - 3.06%, none of the other member is successful in meeting the criteria in 2010. Moreover - 8 member states have research and development spending of less than 1%: Bulgaria, Cyprus, Latvia, Lithuania, Malta, Poland, Romania and Slovakia.

In addition to failing to achieve this objective, the European Union is lagging behind when compared to the U.S.A. and Japan, for the entire period between 2000 and 2008. In 2008 the research and development spending in the European Union was 1.92% and for the U.S.A. - 2.79%, and Japan - 3.45%. The research and development spending in the public sector and in the higher education sector in 2008 in the European Union and in the U.S.A. are relatively the same. The lagging behind for the European Union is mainly due to spending from the private sector. In 2008 these were 1.21%, while in the U.S.A. they were 2% and in Japan - 2.68% (data for Japan are for 2007).



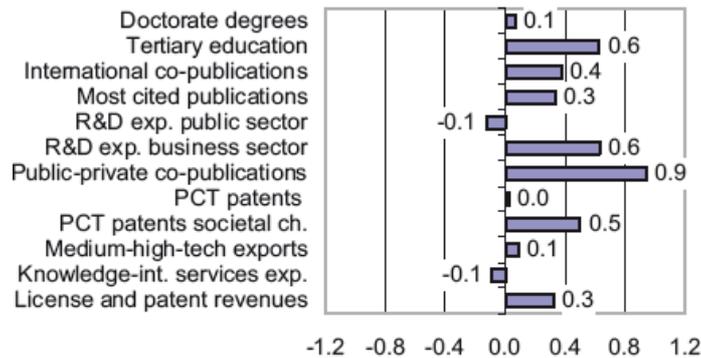
Source: Innovation Union Scoreboard 2011

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The conclusions regarding the gap between the European Union and its major competitors are confirmed by data from the European Commission report "Innovation Union Scoreboard 2011", published this year. According to the "Innovation performance" indicator, the European Union lags behind its main competitor, the U.S.A. and to Japan and South Korea for the last five years.

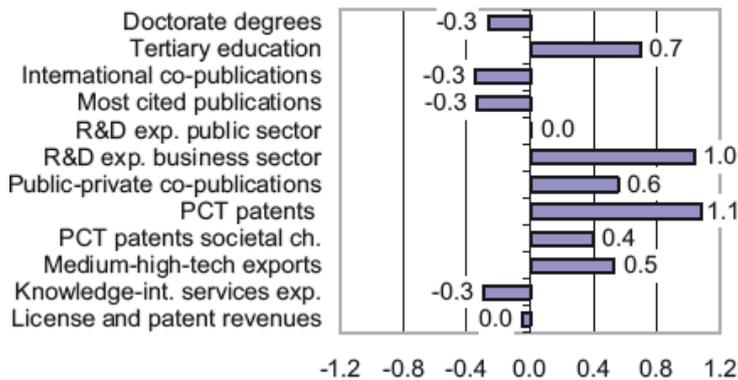
The European Union lags behind USA in 10 of the 12 indexes which characterize the innovative performance. The 10 indexes are: Doctorate degrees, Tertiary education, International co-publications, Most cited publications, R&D expenditure in the business sector, Public-private co-publications, PCT patents, PCT patents in societal challenges, Medium and high-tech product exports, License and patent revenues from abroad. The biggest lag is observed in the Public-private co-publications, Tertiary education and R&D expenditure in the business sector. European Union has insignificant lead in R&D expenditure in the public sector and Knowledge-intensive services exports.

Performance lead/gap United States



Source: Innovation Union Scoreboard 2011

Performance lead/gap Japan



Source: Innovation Union Scoreboard 2011

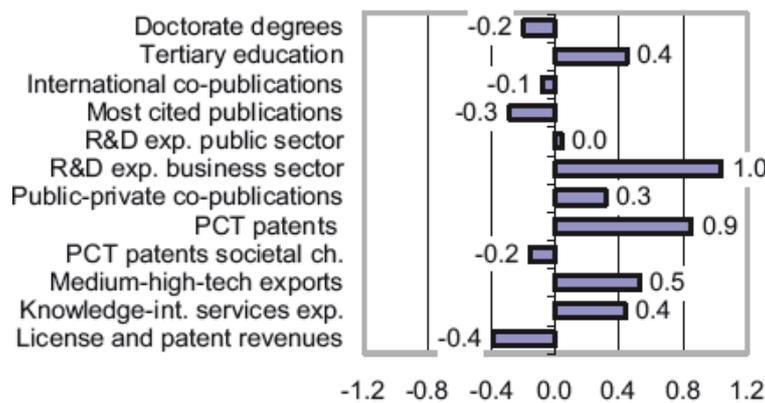
The lag behind Japan is of 6 indexes. They are: Tertiary education, R&D expenditure in the business sector, Public-private co-publications, PCT patents, PCT patents

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in societal challenges and Medium and high-tech product exports. The biggest lag of the Union is in the PCT patents and R&D expenditure in the business sector. The European Union leads Japan in Doctorate degrees, International co-publications, Most cited publications and Knowledge-intensive services exports. There is no lead in the R&D expenditure in the public sector and License and patent revenues from abroad for any of the both sides.

The lag behind South Korea is of 6 indexes: Tertiary education, R&D expenditure in the business sector, Public-private co-publications, PCT patents, Medium and high-tech product exports and Knowledge-intensive services exports. In 5 of the indexes the European Union has superiority. They are: Doctorate degrees, International co-publications, Most cited publications, PCT patents in societal challenges and License and patent revenues from abroad. There is no lead in the R&D expenditure in the public sector for any of the both sides.

Performance lead/gap South Korea



Source: Innovation Union Scoreboard 2011

5. Key Issues for the Implementation of the Lisbon Strategy

One of the biggest issues for the implementation of the Lisbon Strategy is the quite extensive range of document. "Lisbon is about everything and thus about nothing. Everybody is responsible and thus no one. The end result of the strategy has sometimes been lost"(Kok Wim, 2004, 16). The too extensive scope of the document, the too many key objectives, sub-objectives and indicators actually appear to hinder the socio-economic development of the Union. The European Union needs to establish its fields and sectors of development and specialization. The necessary competitive advantages for the Union will be created for these fields in regard to its main competitors in the world.

This problem is also associated with the misconceptions about the relationship between the objectives and the means to achieve these objectives. The objectives identified in the strategy - increased competitiveness, creation of a knowledge-based economy, realization of sustainable economic growth, employment growth - in fact should be understood as a means to achieve the ultimate goal of any economy. And according to

Ludwig Erhard, "the freeing of people from material needs and the related concerns thereto is and remains the ultimate goal of any economy" (Erhard Ludwig 1993, 200). The views of Michael Porter, one of the most respected scholars on issues of competitiveness, are that "the primary economic objective of the state is to create high and increasing standard of living for its citizens" (Porter Michael 1990, 18). Thus, enhancing competitiveness, creating a knowledge-based economy, sustainable economic growth and employment growth represent the means of achieving the ultimate goal of the economy.

In order to achieve a successful implementation of the strategic document it is necessary to identify the responsibilities on all levels. It is necessary to know what are the responsibilities both at the European Union level and at the level of the individual member state. It is necessary to know what are the responsibilities of the European Council, the Council of Ministers, the European Commission, European Parliament, the national authorities of individual states, the regional and local authorities and last, but not least, the various stakeholders.

Another disadvantage of the reviewed strategic document is that it relies too heavily on preconditions existing at the moment of the strategy development. It states that the Union is experiencing its best macro-economic outlook for a generation. It is believed that the included preconditions are appropriate for creating a knowledge-based economy. What is not reported is that the end of the XX century is characterized by an ever increasing seismicity of the environment. In the past the environment included trends and it was even possible to assume that the future is a repetition of the past. By the end of the XX century, this trend gradually faded, and there is a constantly increasing seismicity for the business environment. At the beginning of the XXI century the seismicity and turbulence of the environment is increased so much that authors such as Philip Kotler believe that „the environment has already entered the era of continuous and long-lasting turbulence and greater chaos” (Kotler Philip, Caslione John 2009, 20). So, if the first years of the XXI century were characterized by favourable pre conditions, at the end of the first decade of the century, the picture is radically different. A worldwide financial crisis is having an extremely adverse impact on the transition to a knowledge-based economy.

Among the main reasons for the failure of the Lisbon strategy is the fact that there is no interest and initiatives on behalf of the citizens of the European Union and that they are not involved in the process of creating and implementing the strategy. The report by Wim Kok stated that "Far more emphasis must be placed on involving European social partners and engaging Europe's citizens with the case for change. Greater focus is required to build understanding of why Lisbon is relevant to every person in every household in Europe"(Kok Wim, 2004, 8). One of the definitions of the planning process is that "planning is a sociological process, process of generation, the raising of interest and incentives for creativity and coordination of these raised interests and creative initiatives" (Manov Vasil 2011, 1027). Without the transformation done by the experts in forecasting and planning of initiatives and the creativity of people, without the active participation of people, the implementation of any strategy is doomed to fail.

Indeed, the failure of the Lisbon strategy and the transition to a knowledge-based economy is happened because the developed strategy is more a document presenting political solutions, rather than one that meets the theoretical requirements for the preparation of a strategy for development. Then, quite logically, we can ask the question about the need for development of new strategic documents concerning the future

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development of the Union. The answer to this question can only be positive. But the economy of the European Union needs the development of a document which is in a greater degree in line with the theoretical developments and requirements for preparing a strategy for development.

The transition from an industrial technology based economy, to a knowledge-based economy and information technology-based economy is not possible without the process of forecasting and planning, without the development of quality strategic documents which will facilitate the transition from one level of socio-economic development to a higher one. The problems and disadvantages of the Lisbon Strategy reinforce the need for development of planning, the development of the process of preparation of meaningful strategic documents.

European Union leaders recognize that without the development of a quality strategy there will be no positive results in any sector. So, on 03.03.2010, the Europe 2020 strategy for smart, sustainable and inclusive growth was adopted. This document overcomes some of the shortcomings of the Lisbon Strategy. The strategy includes a narrowed scope of the document, and an attempt is made to identify the responsibilities on different levels and also there is a report on the extremely complex situation of the world economy caused by the global financial crisis. These facts require accelerated efforts and actions by all states in order to achieve the objectives by 2020 as well as for the strategy implementation.

6. Conclusion

Overall, the results of the Lisbon strategy implementation were disappointing. By 2010, the European Union continues to lag behind in the education and the research and development sector in comparison to its main competitor, the U.S.A., as well as for some of the indicators for other countries like Japan and South Korea. Few member states manage to meet the criteria set by the strategy. However, some of the identified indicators in the document show positive trends, but they are still far away from the specified norms.

The poor results from the application of the strategy are due to several reasons: the extremely wide scope of the document, the presence of uncertainty about the allocation of responsibilities for implementation of the strategy, basing the relationship between the objectives and the means to achieve these objective on the wrong grounds, too much reliance on the original preconditions and not including the European citizens in the development and implementation of the strategy.

From the conclusions, it is clear that the European Union economy needs a document that meets the theoretical achievements and requirements for the preparation of a strategy for development. In order to achieve actual results in every area of social and economic development, particularly in the field of the knowledge-based economy, efforts should be concentrated on creating real, concrete and applicable development strategy within the European Union, with included specific responsibilities.

In response to these requirements the strategy for smart, sustainable and inclusive growth - Europe 2020 was prepared. Its future scientific research and study of the results to

be achieved will lead the way to the development of processes for forecasting and planning, and for development of quality strategic documents.

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EKONOMIJA ZASNOVANA NA ZNANJU I LISABONSKA STRATEGIJA: REZULTATI IZ PRIJAVE I BUDUĆNOST

Rezime: Lisabonska strategija je usvojena 2000. godine sa glavnim ciljem da Evropska unija postane najkonkurentnija i najdinamičnija ekonomija zasnovana na znanju na svetu. Osnovni cilj istraživanja je isptivanje tranzicije ka ekonomiji zasnovanoj na znanju na početku XXI veka u Evropskoj uniji, i da objasni zaključke tranzicije. Prezentovani su rezultati u oblasti obrazovanja i istraživanja i razvoja u EU za prvih deset godina. Tvrdi se da primena Lisabonske strategije nije uspela u tranziciji ka ekonomiji zasnovanoj na znanju. Za realizaciju tranzicije napor treba usmeriti na kreiranje naučno zasnovane, realne, konkretne i primenjive razvojne strategije u okviru Evropske unije

Ključne reči: EU, ekonomija zasnovana na znanju, Lisabonska strategija, strategija