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**SMART SPECIALIZATION OF THE EU IN THE FUNCTION OF  
INCREASING NATIONAL COMPETITIVENESS LEVEL**

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*Review*

**Abstract**

*The more competitive external economic environment and challenges brought by a long-term growth can only be solved by investment in research and development, innovations and human capital. Developed countries try to stimulate research and development in all important fields by forming special institutions and organizations, adopting clear policies and concrete measures. The European Union has made smart specialization strategy as platform to focus on development investments in area where Europe has critical mass of knowledge, capacities and competencies that are innovative potential for maintaining the highest positions of competitiveness at world markets. One of the most important tools in implementation of strategy are Centres of competences aimed to increase of small and medium entrepreneurship capacities that are in lack of own capacities for research and development. This paperwork will analyse how much countries are aware of importance and readiness to create national strategy of smart specialization. How ready they are to start transformation of national economies through forming and strengthening innovation chain of value i.e. how ready they are to be lead by the principle: "Research is transformation of money in knowledge, and innovation is transformation of knowledge in money." What is current condition and how are perspectives in Bosnia and Herzegovina regarding incentives for innovation and technology development, creating better business conditions of new and growing companies, promoting partnership and synergy in order to create value chains, ensuring continuous modernization of industry and*

*solving social and regional competitiveness that are the main challenges of the EU. Encouragement of growth and competitiveness for economic development and goals of the Europe 2020 Strategy belongs to the most important priorities of the Commission and the EU member countries after crisis. The Europe 2020 Strategy is focused on solving structural disabilities of existing growth models by creating conditions for smart, sustainable and inclusive growth.*

**Keywords:** *smart specialization, centres of competences, R&D, innovation chain of values, competitiveness*

**JEL:** O31, O52

## **1. COMPETITIVENESS OF GLOBAL ECONOMY – CHALLENGES OF GROWTH AND DEVELOPMENT**

Competitiveness can be defined as productivity by which country or company use its human capital and natural resources. – *Michael E. Porter* According to OECD definition competitiveness means ability of country under free and equal market conditions to produce goods and services that passes international market test, while maintaining and increasing in long-term real income of population. Competitiveness of a country is one of the results of globalization and has an increasing importance for each country willing to develop its industry and economy. All countries in the world today think more intense on their competitiveness and its improvement. By achieving better competitiveness position, they achieve growth and raise living standard within the country. Countries compete for markets, technologies, skills and investments that shows higher level of development and contributes to many other segments like better living standards, recognisability and image of a country.

Competitiveness is of crucial importance also for one small economy like Bosnia and Herzegovina that cannot be self-sufficient. In other words, economy of Bosnia and Herzegovina must be open to the rest of the world in order to achieve satisfactory growth for its citizens. International market represents huge potential for BH producers and creation of new jobs. Environment also represents significant potential export of financing investments necessary to increase production capacities and productivity growth. Interactions at international markets contributes to faster adoption of knowledge and technology necessary for more efficient organization and better business results. Data of the B&H Directorate for Economic Planning show that so far Bosnia and Herzegovina did not use many potentials of openness that indicates low living standard at the level of a third of the European average as consequence of high unemployment followed by low activity of working-age population. Bosnia and Herzegovina lags significantly behind not only the European average and more successful transition economies,

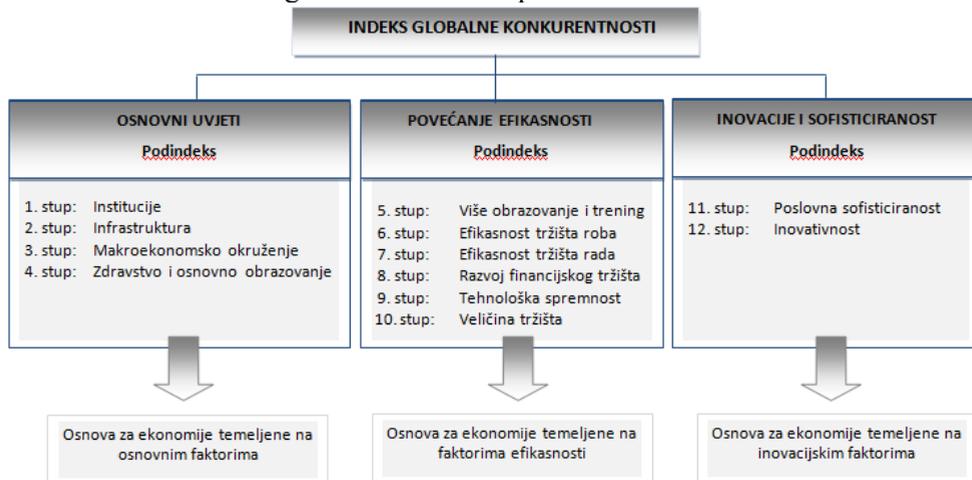
but it is also very often at the bottom of the regional list of environment of the former Yugoslavia. Poor competitiveness position is one of the main causes for extremely low living standard in Bosnia and Herzegovina comparing with the European average and average of successful transition countries in Europe. Low competitiveness of export, attraction of foreign capital with bad credit rating are among the most important indicators of low competitiveness position of Bosnia and Herzegovina. This was mostly caused by unfavourable business environments, low quality of educational system and insufficiently functional labour market with high share of grey economy. Structural changes are necessary in order to improve situation in all areas and they are mostly presented in the Reform Agenda.

Speaking about global competitiveness is mostly impossible to omit World Economic Forum and its Report on competitiveness in global frameworks. Results of the Report are based on the survey of businessmen in 14,000 companies around the world, statistic data from 2016 and 2017 and data of international organizations: World Bank, OECD, IMF, WHO, UNESCO. The Report includes 137 countries that makes 98% of the world GDP. Republic of Croatia is included in this research since 2002, and Bosnia and Herzegovina since 2005.

The Reports indicates three main challenges of the most of countries. The first challenge is financial vulnerability that represents threat to competitiveness and ability of economy to finance innovations and new technologies. The second challenge is that emerging economies become better in innovation but they have to invest more effort in innovations to develop faster and more efficiently. The third challenge is flexibility of labour market and protection of workers to increase their competitiveness at labour market and to prepare them for the fourth industrial revolution.

World Economic Forum (WEF) defines competitiveness as set of institutions, policies and factors determining level of productivity of a country. Level of productivity determines level of prosperity that economy can achieve. Methodology is based on analysis of 12 factors of competitiveness that include institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, efficiency of labour market, efficiency of market of goods, technological readiness, financial market, market size, business sophistication and innovation. Factors of competitiveness are grouped in three sub-indices: main factors, efficiency factors and innovation and sophistication factors.

Figure 1. Global Competitiveness Index



Source: <http://www.aik-invest.hr/konkurentnost/mjerenje-konkurentnosti/indeks-globalne-konkurentnosti/> (10.11.2018.)

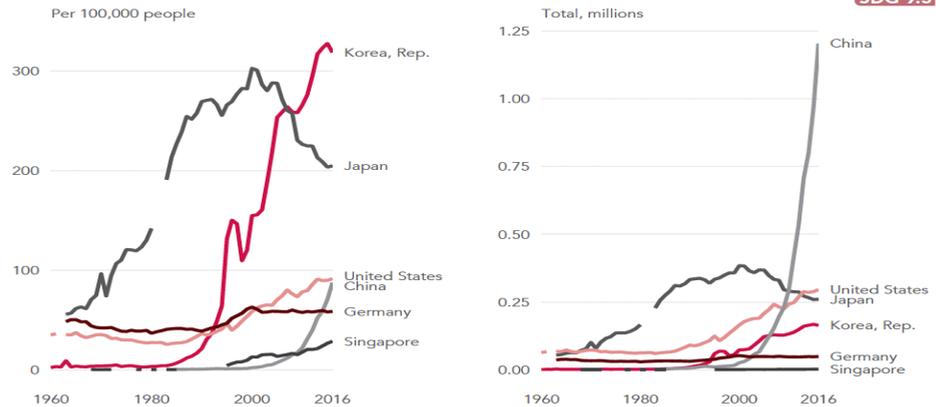
The world of new times shaped by globalization, liberalization and technological development offers to many countries worldwide progress, growth and development no matter strength and size and market winning. World market becomes available to everyone as a result of trade blocks, global companies and global economy. Aiming higher competitiveness, it gives opportunity to the smallest and least developed that can be seen in many countries that progress very fast from “world periphery” to very developed cores at global markets. The best example is Singapore that from once-poor colony become one of the richest and most developed countries in the world. In the 60s Singapore was very poor country with small prospects for success. Then with population of 1.6 million people and without any natural resources, they lived from trade and incomes of British military bases. They did not have developed industry, knowledge and own capital to induce development. They turn to creation of better business opportunities and attracted many investors. In the 80s they turn to the newest technologies. While in the 70s the main export goods in Singapore were fabrics, clothing and basic electronics. Already in the 90s pharmaceutical industry, microchip manufacturing, aviation industry etc. are developing. Today, this highly developed market economy with high level of security for investors and without corruption has GDP per capita in amount of 79,000 dollars in 2013 according to IMF data. This ranks them on the third place, just behind Qatar and Luxemburg. For comparison, GDP per capita in Bosnia and Herzegovina in 2016 was 8,516 BAM. The aim of Singapore government is to become financial and technological centre of Southeast Asia. Maintaining and increasing growth in the future the government plans to achieve by increasing digital and technological capacities, founding new funds for entrepreneurship, encouraging establishment of different companies and facilitating networking, approach to new technologies and safe financing, but also linking

Singapore's universities and companies with global centres for innovation in order to ensure and enable exchange of knowledge and skills between Singapore and world. They emphasize need to maintain relations with foreign investors who could contribute to gaining knowledge from outside. It can be seen from the next figure that progress and global competitiveness require knowledge and its application through development of new technologies.

Figure 2. Top six countries at patent development, innovation encouragement through research and development

**Patents are designed to encourage innovation by providing incentives for research and development.**

Patent applications, residents, top six countries in 2016



Source: WIPO, World Development Indicators (IP.PAT.RESD; SP.POP.TOTL).

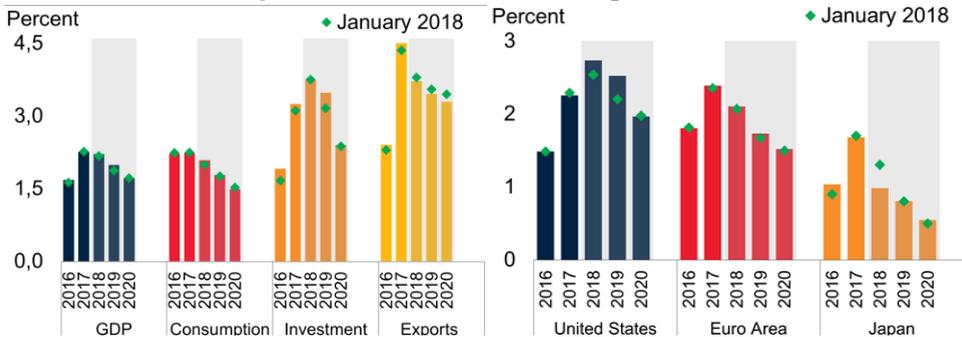
Source: World Bank, 2018

The precondition to good positioning at global market is the availability of knowledge, modern technologies and systematic research and development. This global activities cause that relation among people become more intense, almost cosmopolitan, since these activities enable free movement of capital, goods, information and people by spreading and omitting borders. Lončar (2005) defined globalization through different aspects from economic, where global markets affects course of world economic processes, gain profit and integrate planet to legal and cultural. Companies, especially multinational, include in their business millions of people around the world no matter their distance and use their scientific and professional capacities, monitor planet resources, capital and technology. Karić (2017) addresses that political field of globalization is mostly reflected in reduction of state power and autonomous decide-making on all matters within state territory. He also adds that adoption of different international documents in the second half of the 20<sup>th</sup> century put under jurisdiction of international community many issues that were exclusively under jurisdiction of state government. He continues that limitations of state government comes from different directions, like IMF and WB that condition their assistance with list of free market measures. Direct investments of transnational corporations if often caused by harmonisation of fiscal policy with

their interests. Membership in political blocks, like the EU, puts country in “causal” position. Globalization abounding with more complex threats on internal plan of weak state institution, like in many countries of the Western Balkan, can hardly be resist and deal with. In the same time, they hardly can be reliable and credible partner within international community so reaffirmation and strengthening state institutions consider to be the most real challenge of today.

While from one side under-developed countries are struggling with ordering and acting of state apparatus to ensure better position of global competitiveness, from the other side developed countries of triage, despite opposite signs, continue to record and predict growth of their economies. According to analysis of *Global Economica*, they are unstoppable followed by China that is predicted with extremely strong continuous growth of its economy.

Figure 3. Advanced economies, predictions



Source: World Bank, 2018

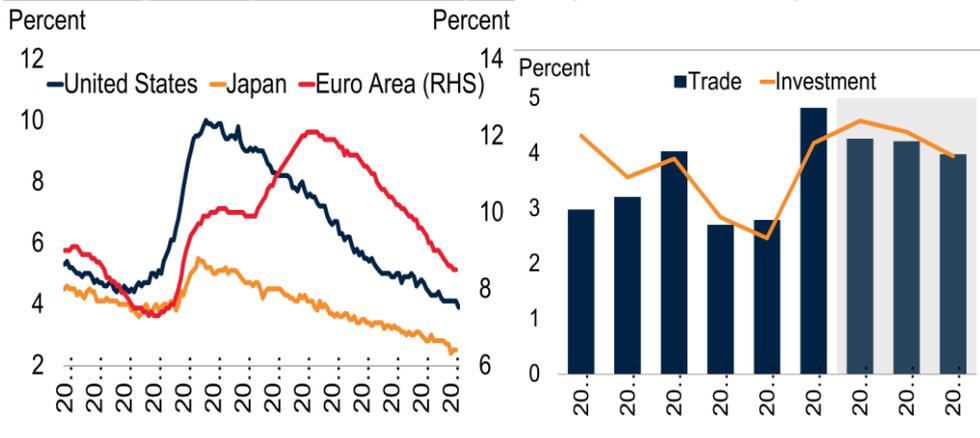
The figure shows unemployment rate in the most developed countries that is observed in April 2018 for USA, Japan and Eurozone. Trust of consumers is still large when it comes to economies of triage countries that results in continuous creation of new jobs. Globally in 2017, the increase of commodity exchange of 4.6 percent is recorded, three time exceeds dynamics observed in the previous year. This momentum is kept in 2018 that can be seen from the figure 4. Analysis of *Global Economics* shows that service trade still has the highest unused potential for further growth.

There are BRICS<sup>1</sup> countries that make 40% of population and more than 25 percent of planet on the other side. Also, it can not be ignored that BRICS countries in

<sup>1</sup> BRICS is English abbreviation and economic term that refers to growing development of economic potential of Brazil, Russia, India and China. Implicitly, it refers to economic partnership of these complement economies. The term was introduced by Jim O’Neil from corporation for global financial researches Goldman Sachs and soon it is accepted publically, especially in media to the extent that is used mostly today regarding global finances without any explications. Source: <https://sh.wikipedia.org/wiki/BRIC>

2017 have achieved 25 percent of world GDP, while IMF in its predictions states that in the next few years this percent will increase at almost 27 percent. In the last ten years, five member countries of the group have showed extreme resistance on few previous crisis, including decrease in commodity exchange in 2014 that lead to stagnation and recession in Brazil, South Africa and Russia. Growth within the group is very clear. For example, China is the biggest Brazilian trade partner that recorded growth of export in the world for 14% at the end of 2017. China also focuses on South Africa where bilateral trade between these two countries in the last decade had increased 20 times.

Figure 4. Dynamic commodity exchange and investment growth



Source: World Bank, 2018

Globalization has become a personification for competitiveness, i.e. according to economists subject of globalization lays on the fact that companies have to learn how to enter foreign markets, business globally and increase their global competitiveness. Without technological changes announced by the new industrial revolution characterized by increased convergence of digital, physical and biological technologies there is no national potential for growth. Hence, small countries characterized by relatively small internal market that want more intense to include in global courses, first have to improve their competitiveness. But also, economists agree (Zukić, Pupavac, Samardžija, 2017) they need to change managerial paradigm and development of logistic concept of business systems management and adjust institutional system to entrepreneurial environment. They also add that business networking of companies, inclusion in logistic supply chain, strategic alliances, clustering development and technological and management innovations through development and supply chain management, increase business efficiency and effectiveness, i.e. productivity and competitiveness in modern turbulent globalized business environment. We have to accept that fact that increased economic interdependence requires more decisive and coherent answer at political level, since economic reality moves faster that political as evidenced by

actual relations of the strongest at the global stage. Throne of global competitiveness shows the best turbulence of globalized business environment characterized by more complex relations of big countries like USA and China. Economists will agree that today China and USA change role and in new constellation of relations China leads American policy from the past and represents coexistence and globalization, while USA like “former” China represent even more nationalism and protectionism. The prominent European researcher Andrea Costa states in his analysis of American-Chinese relations that last decision of Beijing reveals that China has the aim to transform economic power in strategic. Together with de-americanization of the world economy, China also tends to abolish American monopoly in advanced technology and artificial intelligence that clearly could lead to future wars. The design of innovation policy is the newest trend in global economy.

Countries that want take a lead in race for global innovative advantage must shape and implement whole range of constructive policies to support innovation capacities of their economies. For this purpose, some 35 countries made formal national innovation strategies and at least 24 of them established national agencies for innovation. All this are procedures that intensified global competition for innovation leadership. These countries can not accept government policy to affect innovation recklessly and uncoordinatedly. They try to develop mechanisms that will value advantages and disadvantages of their nations, investigate policies of other nations to learn from them and revise own policies at large number of areas that could affect their innovation and competitiveness.

Countries with leading position in development of innovation policies have passed through three step process:

1. First, they recognized need for systematic approach to innovation.
2. Second, they have actively devoted attention to need for innovation through political system, imposing inspiring vision and strategy of activity filled with clearly articulated goals and ambitions. These goals and game plans for their achievement are resolved in national innovation strategies of the countries. At the end, they made hard decision, necessary not only for implementation of institutional reforms in order to encourage innovation strategies, but also for their adequate financing (including provision of tax incentives), even on the account of other issues of public expenditures and tax policy to individuals.
3. At the end, the define set of measures how process will be monitored and evaluated in broader context i.e. in the context of updating strategic decisions.

Proponents of free market ideology will say that nations should not set goals for their economies because, according to definition, whatever economy market creates, it will be correct and superior in relation to any economy where some rules

are dictated, whether they are Stalinist's Five Year Plan or market-oriented possible innovation policies. This is one of the reasons why USA did not set any goals in general related to innovations, except recent ones related to broadband internet and more clear energy. However, markets that act alone will fail when it comes to innovation and because of that at least 35 countries have implemented national innovation strategies. Within these strategies many countries with no excuse name their intention to take leadership over the world in some activities, technologies or areas of application and they are devoted to support the goals with all necessary means. These countries believe that without work on ambitious goals, private, non-profit and state sectors will not be enough motivated to take necessary steps.

Maybe, the best example of nation with ambitious goals is Singapore, whose success was explained in the previous part. Singapore openly admit that it tends to be leader of the world in biology, digital media and water and ecological industries. Ten years after, Singapore has succeeded. According to findings of Atlantic Century Foundation's Report for information technologies and innovations (ITIF), in 2009 Singapore was at the first place among 40 nations or regions in competition based on innovation. This made it second most advanced nation in the period from 1999 to 2009 (only China demonstrated faster progress).

Many nations distinguish a number of fundamental industries where they tend to achieve leadership. For example, Finland national innovation strategy recognized six key industries for its economy to their global leadership: wood industry, information and communication technologies, health care, energy and environment, construction and mechanical engineering. For each of these industries, Finland has created strategic centre for science, technology and innovation, partnership where companies, universities and research institutes agree mutual plan of technological research for industry. This indicates on technological challenges and key necessary areas for the next decades, what enlightens path towards development of technology and further phases for financing research. In general, Finnish national agency for technologies, broadband internet, advanced machine processing, production with small number of workers and innovations in services – that will be used to achieve significant advantage for its companies and activities and finances research in accordance with that. Netherland has focused on leadership in innovation in creative and financial services, pension system, logistics and management of supply chain. Denmark has focused on IT services, management of pension system and transportation.

## **2. ANSWER TO EU GLOBAL COMPETITIVENESS**

While the world is moving forward very fast and globalization pressures constantly resources, the European Union has to, in order to maintain its position on the throne of global scale, take control over its future. That is way the Europe 2020

Strategy brings vision of the European social market economy for 21. century. The Europe 2020 Strategy proposes three priorities that mutually complement.<sup>2</sup>

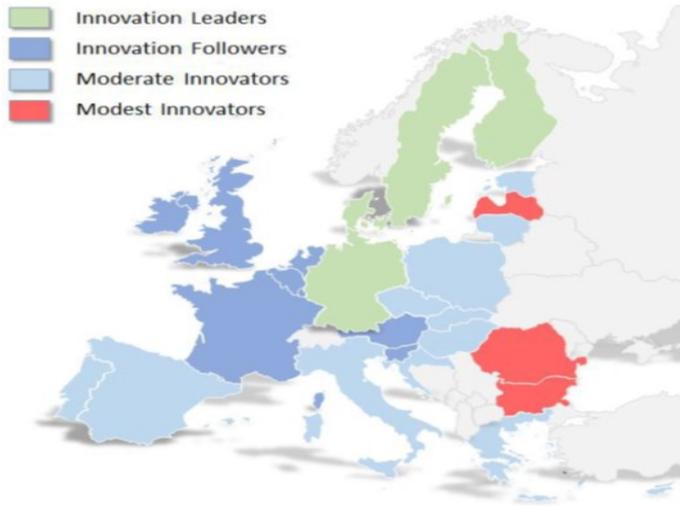
1. Smart growth: development of economy based on knowledge and innovation
2. Sustainable growth: promoting economy that efficiently uses resources, economy that is more green and competitive.
3. Inclusive growth: nourishing economy with high rate of employment that brings social and territorial cohesion.

Just encouragement of growth and competitiveness for economic development and achievement of the Europe 2020 Strategy goals, is included in the most important priorities of the Commission and the EU member countries in the period after crisis. The Europe 2020 Strategy is focused on solving structural weaknesses of existing models of growth by creating conditions for smart, sustainable and inclusive growth. The European Union is faced with the fact that slowed growth of productivity is obstacle to stronger total economic growth, where single market still does not achieve full potential. Especially, it is addressed lag in adoption of new technologies in economy. According to expectations of the European Commission, average investment in research and development should be 3% of GDP in the European Union. Last year, autumn economic prognosis for 2017, have estimated growth of real GDP in the EU in total at 2,3%, that is slightly above expectations that were 1,9% for 2016. However, positive economic trends are still burdened by insufficient growth of productivity and permanent inequalities between member countries. Inflow of direct foreign investment, trade integration and diversification in the certain EU economies are weak. To strengthen positive trends and convergence within the EU, economies of member countries should be more competitive, more resistant to crisis and more inclusive and innovative. From the next figure, it can be seen that there are large variations in innovation in the EU. Countries that are leaders in competitiveness and economic power are also leaders in innovation, first of all Finland, Germany and Sweden.

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<sup>2</sup> EC, Strategy for smart, sustainable and inclusive growth, Bruxelles, 2010

Figure 5. Innovation in the EU



Source: Restoring EU Competitiveness, 2016

Innovation environment is much weaker in south countries as well as in new members. All this confirms the fact of the European Investment Bank from 2016, that Europe will need additional 130 billion annual allocations in R&D to achieve planned level of 3% of allocations in R&D till 2020.<sup>3</sup> Global allocations for R&D are mostly concentrated in G20 countries. In total they make 92% of all allocations for R&D.

Figure 6. World list of allocations in R&D

Country	Allocation in R&D (% GDP)
South Korea	4.23%
Japan	3.29%
Germany	2.93%
USA	2.79%
France	2.22%
Australia	2.11%
China	2.07%
Canada	1.71%
Great Britain	1.70%
Italy	1.33%
Russia	1.10%
Turkey	0.88%
South Africa	0.73%
Argentina	0.63%
Mexico	0.53%

Source: <http://www.visualcapitalist.com/global-leaders-r-d-spending/>; October, 2017

<sup>3</sup> Restoring EU Competitiveness, 2016

Figure 7. Allocations in R&amp;D of global companies

<b>Company</b>	<b>Allocations in R&amp;D (2016/2017)</b>
<b>Amazon</b>	17,4 billion dollars
<b>Volkswagen</b>	15,1 billion dollars
<b>Alphabet</b>	14,5 billion dollars
<b>Intel</b>	12,8 billion dollars
<b>Samsung</b>	12,8 billion dollars

Source: <http://www.visualcapitalist.com/global-leaders-r-d-spending/> (October, 2017)

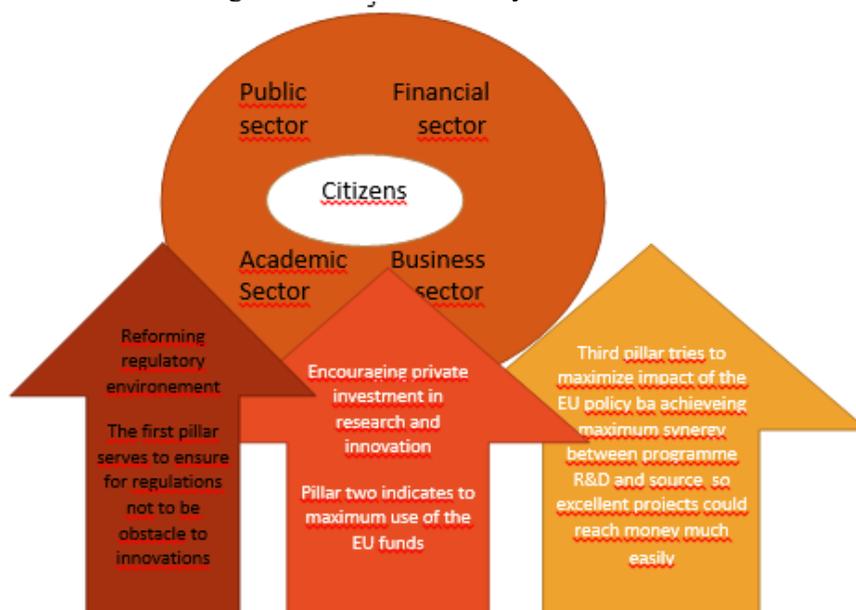
The European Commission's Report from 2017 clearly points out that even though many European regions are well positioned and use advantages of globalization, the less developed (especially in the south and east Europe) are faced with risk to loose large number of jobs as result of competitiveness, specialization and technological changes.

The European Union is still world leader in producing scientific knowledge, in front of USA. However, problem of Europe is that often its knowledge is not commercialized in Europe but somewhere else in the world. This is reason why Europe protects more *open innovations* based on transfer of knowledge, professionalism and resources of a company or research institution to another. Concept of an open innovation is constantly evolving and it moves from linear, bilateral transactions and cooperation to dynamic, networked, multi-user innovations of eco system. An open innovation assumes that companies can and need to use external ideas as internal ideas, and internal and external paths to markets since they tend to improve their performance and emphasize role of public research organizations as producers of knowledge, co-operators and generators of qualified human capital.<sup>4</sup>

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<sup>4</sup> Open Innovation, Open Science, Open World, Directorate – General for Research and Innovation, 2016

Figure 8. Innovation eco system



Source: Directorate-General for Research and Innovation, 2016, corrected by author

From the figure it is seen that *Directorate for Research and Innovation EU* emphasizes importance of acceptable environment for innovation, i.e. innovation eco system that recognized values and support wide approach to innovations. This should include users in the innovation process and encourage circulation of ideas and knowledge. In the future, it should focus on proactive solution of needs of the European companies to enable them to grow, cooperate with citizens and knowledge users, i.e. to use more efficiently knowledge base in Europe.

For insufficient success of so far EU strategies to new model of innovation development, the EU has made strategy of smart specialization as platform to focus development investments in areas where Europe has a critical mass of knowledge, capacity and competences that makes innovative potential to maintain the highest positions of competitiveness at world markets.

## 2.1. Smart specialization S3

Smart specialization is designed within reformed cohesion policy of the European Commission based on identification of strategic areas of intervention based on analysis of strengths and potential of economy and entrepreneurial discoveries process with large participation of stakeholders and broad view to innovations. Smart specialization means determining unique characteristics and resources of each country and region emphasizing competitive advantages of a region, gathering

regional stakeholders and resources around their vision of future based on excellence. Each region identifies key areas, activities and technologies with comparative advantages, and regional policy is directed to encouragement of innovations in the areas.

Strategy for smart specialization should be designed around the following key principles:<sup>5</sup>

- Smart specialization is approach based on place, what means that is built by means available to regions and member countries and their specific social and economic challenges to identify unique possibilities for development and growth;
- To have strategy means make choices for investments. Member countries and regions should support only limited number of well determined priorities for investments and/or clusters based on knowledge. Specialization means to focus on competitive powers and real results of growth supported by critical mass of activities and entrepreneurial resources;
- Setting priorities should not be top-bottom process, choosing winner. That should be inclusive process of inclusion of stakeholders focused on “entrepreneurial discover”, interactive process where market powers and private sector reveal and produce information on new activities, and government estimates results and strengthens the most active actors for achievement of the potential;
- Strategy should include broad view to innovations, following technological and practical and social innovations. That should ensure to each region and member country a shape of political choices in accordance with their unique social and economic conditions;
- Finally, a good strategy has to include monitoring system and sound evaluation, as well as revision mechanism to update strategic decisions.

Ex ante conditions of the RIS3 strategy requires that EU member countries and regions implement smart specialization based on SWOT or similar analysis to direct resources on limited set of research and innovation priorities, take care that each member country adopts framework that states available budget resources for research and innovation. Member country, also, should adopt multi annual plan for financing and determining priority investments related to the EU priorities (European Strategic Forum for Research Infrastructure – ESFRI) and sketch measures to stimulate private investment in research, technology and development and have monitoring and verification system. Indeed, key elements clearly show whether it is about process that include cyclical course.

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<sup>5</sup> <http://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation>

Figure 9. Key elements of the Smart Specialization Strategy process



Source: Prepared by author

Step 1 – Analysis of regional context and innovation potential

Step 2 – Management: ensuring participation and “ownership”

Step 3 – Design of comprehensive vision for future of region

Step 4 – Identification of priorities

Step 5 – Definition of coherent mix of policy, action plan

Step 6 – Integration of mechanisms for monitoring and evaluation

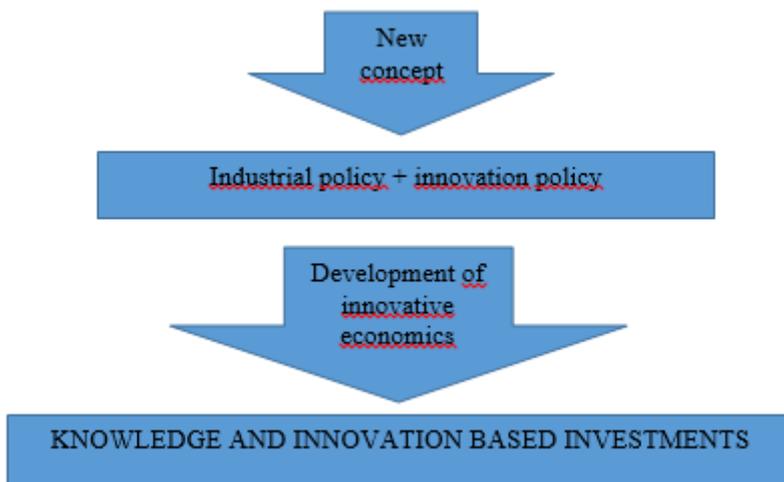
The aim is to focus member countries to make new model of economic growth that should increase total competitiveness of the EU and decrease, as much as possible, differences between economies of member countries.

Member countries are focused on making new model of economic growth that will increase the total competitiveness of the EU and decrease differences in development between economies of 28 members. The new EU Cohesion Policy for the period 2014-2020 as “ex ante” condition requires member countries to identify specialization areas that suit the best their innovation potential, and that are based on means and abilities to use EU funds in the area of research, technological development and innovation. The aim is, from the one side, to enable more efficient use of the ESI funds and increase synergy between EU funds and funds of national and regional policies. On the other hand, the aim is to create in a unique way a unique assets and abilities based on specific industry structures and knowledge base in region.

## 2.2. Concept of the smart specialization

New concept of the smart specialization connects industrial and innovation policy for development of innovative economics. It focuses on knowledge-based investments and innovation, and in financial perspective it is precondition for use of ESI funds for thematic goal Research, development and innovation.

Figure 10. Concept of the smart specialization



Source: made by authors

The new concept is precondition for use of the ESI funds for thematic goal Research, development and innovation. In financial period 2014-2020, in the Republic of Croatia, there is in total 10.676 billion euros available from the European structural and investment funds (ESI).

The smart specialization refers to defining territorial capital and potential of each country and region, emphasizing competitive advantages and networking of stakeholders and resources around vision of the future based on excellence. It also include strengthening national and regional innovation systems, determining and development of thematic innovation platforms and improvement of knowledge exchange as well as spread of advantages through the whole economy that enables more efficient use of the ESI funds and increase of synergy between the EU, national and regional policies.

Strategy of smart specialization should be based on available resources and potential for their use, identification of competitive advantages and technological specialization as basis for future innovations. The S3 will help member countries to enhance public and private investments in research, technological development and innovations. Instead to follow “top-bottom” approach, primarily including public

sector, it should use “bottom-up” approach in making S3 and through cooperation and mutual effort of public, scientific and research and business sector and through entrepreneurial discovering process determine own strengths and competitive advantages.

Strategy of smart specialization can enhance structural changes through modernization, diversification, transition and radical changes in all EU countries/regions. The process of smart specialization is not unified model equal for everything but an entrepreneurial process based on research of territorial capital and innovations. It is focused on economic transformation of the EU countries/regions and on bigger added value and knowledge-based activities.<sup>6</sup> It also tries to reconcile logic of strategic choices, priorities and high level of targeted orientation (by government) with a logic of decentralized and entrepreneurial information and incentives not only bottom-up nor top-bottom but combination of approaches aimed at improvement of entrepreneurial activities and coordination with the framework (priorities) set by government. Fiscal measures are one of the support that governments use to enhance economic activity.

On the other hand, one of the key sectors that horizontally can be connected with almost all development sectors is IT sector. Beside, importance of the IT sector reflects in the part of digital agenda for Europe that mentions the following facts:

- Internet economy makes 5 jobs for each 2 lost offline jobs
- EU digital economy grows for 12% annually and now it is bigger than Belgian economy
- In the EU number of post-paid mobile is bigger than number of inhabitants
- There is 7 million jobs in information communication technology sector in the EU
- It estimates that half of the productivity growth is from investment in information and communication technology.

### **3. EX ANTE CONDITIONS AS KEY ELEMENTS OF COHESION POLICY**

Ex-ante conditions (ExAC) are one of the key elements of cohesion policy reform for the period 2014-2020. They are introduced for the European structural and investments funds (ESI funds) to ensure necessary conditions for effective and efficient use of the ESI funds.

These conditions are related to<sup>7</sup>:

- *political and strategic frameworks* to ensure high quality of strategic documents at national and regional level that support the ESI funds and

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<sup>6</sup> [http://www.obzor2020.hr/userfiles/obzor2020/pdfs/Strategija\\_pametne\\_specijalizacije\\_RH\\_2016\\_2020.pdf](http://www.obzor2020.hr/userfiles/obzor2020/pdfs/Strategija_pametne_specijalizacije_RH_2016_2020.pdf)

<sup>7</sup> [https://ec.europa.eu/regional\\_policy/hr/policy/what/glossary/e/ex-ante-conditionalities](https://ec.europa.eu/regional_policy/hr/policy/what/glossary/e/ex-ante-conditionalities)

their adjustment with standards mutually agreed of member countries in the EU;

- *regulatory frameworks* to ensure adjustment in implementation of operation co-funded from the ESI funds with the EU acquis communautaire and
- *sufficient administrative and institutional capacities of public management and stakeholders implementing ESI funds.*

It is clear that fulfilment of ex-ante conditions shall also be met by ex-Yugoslavia countries who are preparing for full membership in the European family. When it comes to economic criteria, according to the last Report of the European Commission, Bosnia and Herzegovina is still in early stage of development of functional market economy. Certain progress is made in modernization of labour legislation, improvement of business environment and solution of disadvantages in financial sector within agreed Reform agenda.

However, public sector is inefficient and private sector develops slowly. Strong and continuous political support will be the key for fast implementation of necessary reforms in accordance with agreed Reform agenda. It is emphasized that Bosnia and Herzegovina is in the early stage of building capacity to cope with competitive pressure and market forces in the Union, what means that last observing period did not bring any progress regarding competitiveness.

The overall level of education and allocations for research and development are very low. Quality of physical capital is jeopardized with insufficient investments. Transport and energy infrastructure is under-developed. Structural adjustments are slow, even though there is certain diversification in regional trade structure of the country.

Regarding convergence to the European standards, certain level of readiness in public procurement and internal market is made. Bosnia and Herzegovina still has to adopt strategies for the whole country in the field of agriculture, energetics and life environment. Also, continuous efforts are necessary in the field of justice, freedom and security, competition, industry and SME companies, environment and policies.

When it comes to our neighbour, Republic of Serbia, the European Commission's Report as of 2018 says that this country has made good progress and moderate readiness in development of functional market economies and that they solved weaknesses of policies, especially regarding budget deficit. Still, it needs strong and preserved macroeconomic stability, controlled inflation and growth-friendly monetary policy as basis for the growth.

Also, Commission has identified improved labour market conditions. But main structural reforms are still not done like reform of public management and state-owned companies. private sector is insufficiently developed and level of investment activities is still smaller than market needs. However, it is praiseworthy that Serbia has achieved good level of readiness for the EU especially in the fields: law of legal entities, intellectual property, science and research, education and culture, customs, and it improved connection of investment planning with budget execution.

According to European Commission's Report Montenegro has made moderate readiness for functional market economy. It has strengthened its macroeconomic and fiscal stability, but still it has to make additional efforts to solve permanent challenges, especially burden of high public debt. Montenegro's economy since 2013 has steady growth trend with low or moderate inflation rates. However, weaknesses in the rule of law, including unfair competition in the form of informal economy, affects negatively business environment.

Market is faced with structural challenges that are reflected in small participation and high unemployment rates. The European Commission identifies progresses in Montenegro only as moderate readiness regarding capacities to confront with competitive pressure and market forces in the Union. Education reform in Montenegro is underway, but Commission addresses that it is important to make greater efforts to solve issue of mismatch between skills required at the market and offered skills. Small and medium companies are still facing with many challenges like financing and complexity of regulatory procedures. Continuous efforts are necessary to improve overall export results of domestic companies. The Commission emphasizes that in future period Montenegro should focus especially on competitiveness policy, strengthening administrative capacities, environment and climate changes and public procurement.

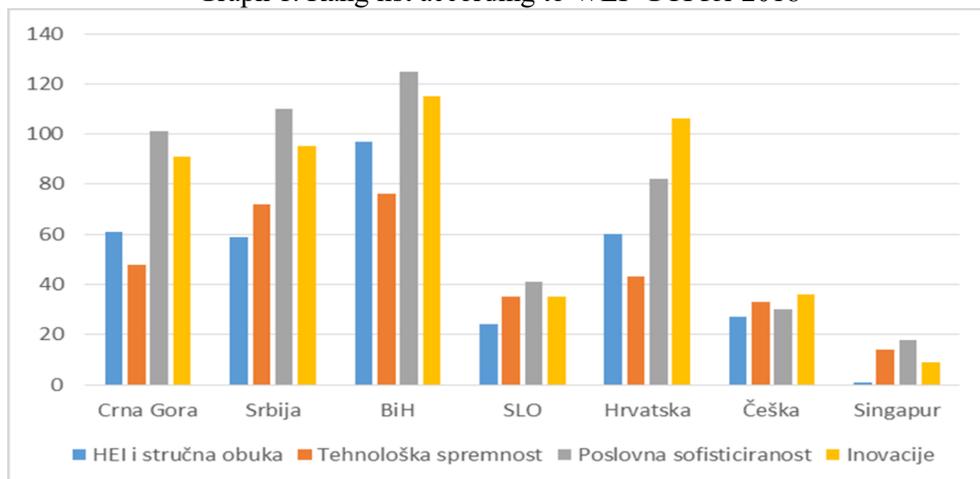
The last World Economic Forum's Report corresponds with the European Commission's Reports for mentioned countries in the region. To prepare smart specialization, it is necessary for countries to have prepared, before everyone, ex-ante conditions: political and strategic frameworks i.e. high quality strategic documents, beginning from Bosnia and Herzegovina who still has unfinished job for many sectors, regulatory frameworks and additional administrative and institutional capacities of public administration where countries have not good results. Then, it can go further to serious job to identify sector priorities and all other key stakeholders to create strategy of smart specialization.

If it is according to the following graph, problems of consistent implementation of ex-ante conditions are clear for Bosnia and Herzegovina, Serbia and Montenegro, also for Croatia who adopted Smart Specialization Strategy in 2016 and where

conditions for smart growth, according to WEF from 2018, are not at desired level (Graph 1).

In comparison to Serbia and Montenegro, Bosnia and Herzegovina records the worst position at WEF's list when it comes to higher education, technological readiness and business sophistication and innovation.

Graph 1. Rang list according to WEF GCI for 2018



Source: The Global Competitiveness Report 2017, made by authors

From the previous graph, looking at competitiveness through GCI pillars that reflect requirements of smart specialization strategy, it is clear that priorities of countries are to:

- identify sector priorities of development, public, private research sector
- invest in higher education and scientific-research work in the sense of its connection with social and economic environment, market
- necessary to create preconditions for technological changes and business sophistication from the context of technological and human resources, and
- make efficient eco system for innovation and transformation of economy.

All mentioned are preconditions for global competitiveness capacities, i.e. elements for strategic document of smart specialization, that is still to come in Bosnia and Herzegovina and other countries of the region, Serbia and Montenegro.

#### 4. CONCLUSION

Smart specialization refers to determine areas where our long-term and sustainable growth and development can be based, based on analysis of resources and preferences and interests of citizens, entrepreneurs, education institutions, government. Decision on priorities or areas of specialization has to be made

according to partnership principle and combining approach up-bottom and top-bottom. The fact is that state should make conditions for macroeconomic development, but undoubtedly it is important to identify all capacities and values available to community from material to intellectual. This should be inclusive process involving stakeholders focused on “entrepreneurial discover”, interactive process where market forces and private sector reveal and produce information on new activities, and government estimates results and empowers the most active actors in achieving this potential.

In the context of smart specialization, regions have to focus on several areas or goals, instead of spread scope-limited investments that proved in practice as wasteful and ineffective. The choice of priorities should be result of collective thinking on future of the region.

It is important to choose priorities with innovative potentials, potentials for sector transformation or manners to establish new sectors that will be regionally recognized. The S3 goal is to determine and implement activities used for modernization, transformation and step forward and strengthen certain activity, and this again is impossible without higher education institutions and scientific and research work and its synergy with entrepreneurship. These smart specializations are important for each region. For less developed and transition regions, S3 is not replacement for existing policies focused on improvement of system but it is additional option recommended to regions. Focusing on smaller number of goals will show that region is capable to use its advantages. Bosnia and Herzegovina and its neighbours Serbia and Montenegro as well as all countries of the region still has to show and prove this if they want to keep up with the European and global competitiveness.

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