

Science-Technology Park Ilidža as a Generator of Innovation Potential and SME's Development in Bosnia and Herzegovina

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Abstract

Many nations are currently adopting a variety of directed strategies to launch and support the development of research parks. Science and technology research parks are seen increasingly as a means to create dynamic clusters that accelerate economic growth and international competitiveness. Technology parks represent the place of SME's development and the place of the most direct technological transfer. Research parks encourage greater collaboration among universities, research laboratories, and SMEs, providing a means to help convert new ideas into the innovative technologies for the market. They are recognized to be a tool to create successful new companies, sustain them and attract new ones, especially in the science, technology, and innovation sector. Universities, in turn, benefit by exposure to the business world. What all these parks have in common is that they are, at heart, knowledge partnerships that foster innovation. University research and science parks provide the launch pad that startup companies need when they are "spun out" from a university or company. The current state of development of technology parks in Bosnia and Herzegovina and possibilities of establishment of a new technology park in Sarajevo (Ilidža) region are analyzed in this paper.

Key words: *Science-technology parks, technology transfer, entrepreneurial, innovations.*

1. Introduction

The Western Balkan region faces complex structural and macroeconomic challenges. On the structural front, a legacy of unfinished reforms still prevents most economies from reaping the benefits of investments in research and innovation — despite the progress they have achieved in recent years. At the macroeconomic level, adverse circumstances required governments to adopt tighter fiscal policies and cautious financial markets reduced public and private resources available for research and innovation. The countries share a common set of problems, such as low business expenditures on R&D, outdated research infrastructure and brain drain.

Many development documents at the state level of Bosnia and Herzegovina (B&H), and the Sarajevo Canton emphasize the need to improve development and innovative activity of SME's, [1, 4, 12, 13]. For example, at the state level, the strategy for the development of small and medium enterprises in B&H for the 2009-2011 year and the Strategy for Development of Science in B&H (2009) were adopted. The

Government of the Federation of Bosnia and Herzegovina (F B&H), has adopted the Strategy for Development entrepreneurship and craftsmanship in F B&H 2010-2020, and the Strategy of development of science and research work,

which was adopted 2012th year. At the level of the Sarajevo Canton, The study of economic activity of the Sarajevo Canton of 2009th year should be emphasized [12].

In this development documents the importance of SMEs in the economic development and provide for measures to encourage their development are emphasized. Among other activities, on the significant position are the measures of improving technical and technological level of production and improve the innovation capacity of SME's. It is anticipated that the research relies partly on the resources of the Fund for Science and Research, and the other part of the company assets.

The general assessment is that all these documents and studies declaratory support to SMEs, but measures for their

implementation absent. The main reasons for this are the lack of financial resources, but also the absence of a strategic approach to the management of small and medium-sized enterprises at different levels.

A majority of EU Member States are in the process of improving their governance structures and strategic guidance

for research and innovation, which is often accompanied by a gradual integration of the two policy fields and increased targeting of public funding on selected areas. Business environment and economic recovery are in direct correlation, Figure 1, [2].

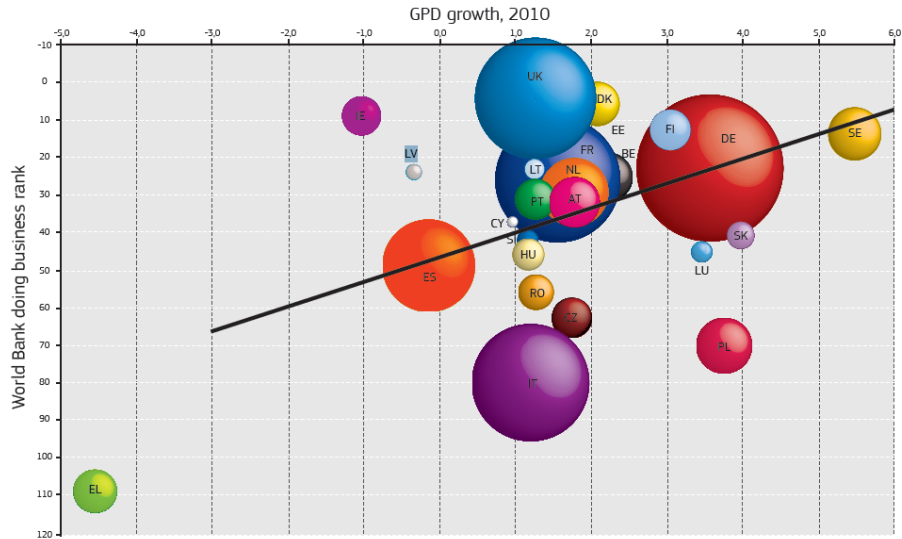


Fig. 1: Business environment and economic recovery, [2].

Establishing of technology /scientific parks (TP/SP) is a faster way to overcome the weakness and inertia of state structures, [7, 10].

According to IASP, "A TP/SP is an organization, managed by specialized professionals, whose main objective is to increase the wealth of its community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions." To reach these goals a TP/SP stimulates and manages the flow of knowledge and technology amongst universities, R&D institutions, companies and markets; facilitates the creation and growth of innovation-based companies through incubation and spin-off processes, and provides other value added services as well as high quality space and facilities.

2. Methodology

The EU noted that SMEs are dynamic source of employment, growth and competitiveness, but if care is taken that the authorities must develop a comprehensive strategy to support these businesses, which includes strategy of support technology and innovation, [3, 6, 11].

Research and development activities can play a very important role in regional development by providing a knowledge base that supports innovation. This is the most important way in which universities can contribute to the development of a particular region by the "translation" of their research in the form in which it can be downloaded and implemented by the private and public sectors.

It is important to recognize that university research can be involved in the process of regional development, not only through the support of innovation that begins with research,

but also as a result of the reported demand by the regional public and private sector.

An overview of high-tech exports as % of total exports to the countries of the Western Balkans is given on Figure 2. It is apparent lagging behind B&H, which is the result of almost no connection between higher education and industry. The above suggests that the contribution of university research activities to the regional innovation must be treated as a multidisciplinary and iterative process.

Consideration of the present state of the industry in the Sarajevo Canton and the F B&H is not possible without taking into account the situation in the area before the war. It is clear that the region of Sarajevo was the most developed area in B&H, and the city at the time was the seat of great economic systems (ENERGOINVEST, FAMOS, UNIONINVEST, UNIS, ZRAK, etc.), which were generators and holders of economic activities and development in the most industries. The current state of the industry in the Sarajevo Canton is a result of general negative climate for economic development and incomplete or incorrect privatization process.

The privatization of large systems is not brought to an end. These processes are regularly accompanied by politicization instead of planned actions to restructure the company and change the character of the ownership.

The importance of ideas that are analyzed in this paper should be placed in the context of the industry in the Sarajevo Canton. After a difficult transition period it is now restored and trying to develop on the basis of inherited production and new companies that are appear in this sector. Sometimes extremely developed industrial sector in Canton Sarajevo, the war is degraded in two ways:

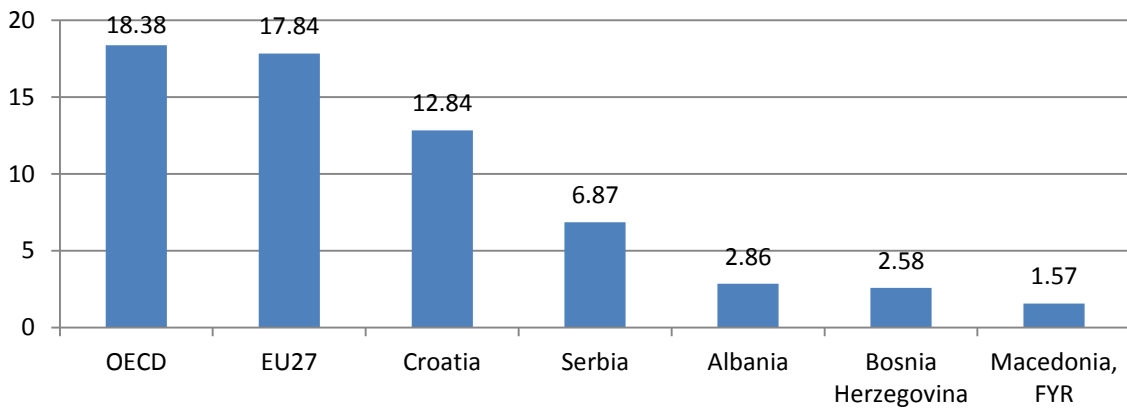


Fig. 2. High-tech exports (% of total commodity exports) 2009, (Source: UN Comtrade).

1. Through war destruction of research and development institutions that existed in large enterprises. These institutions were separate legal entities and arrange the research and development projects with legal entities within large companies.
2. Through lack of updates in research and development institutions and their customers' research and development services.

Policy in Bosnia and Herzegovina was to continue thinking only to small and medium enterprises (SMEs), which are formed mainly in the retail sector. Later, when SMEs began some kind of production, they are quite low-tech aspirations. Within themselves are not formed any research and development groups, or research and development centers, they ordered research and development projects to develop new products, technologies and services, either in the form of external R&D organizations.

Chambers of commerce that are usually main founders of technology parks (as ambient for cheap R&D activities and technology transfer, [8, 9, 10], have not formed any technological park in Bosnia and Herzegovina. There are only a few TP/SP established in B&H at this time: STP INTERA, [16], in Mostar (the Herzegovina region), TP of University of Zenica (the central B&H region) and TP Tuzla (the north-east B&H), [12]. Therefore, the formation of a technology park in Sarajevo Economic Region, in the municipality of Ilidza, should fill the existing gap.

3. Results

Almost complete destruction of the once great systems through improperly conducted privatization process has destroyed almost 90% of the manufacturing base. So they collapsed logically complex forms of clusters only for arrival in possession of a property. That's what today is best witnessed by the large industrial sites mentioned and other companies.

By introducing the principle of entity privatization and corporate bond rupture within the once great systems has led to further fragmentation of clusters, a division once a single

economic space, and the consequence of the impossibility of creating a national strategy for reconstruction and development.

Most of the actions carried out last 10 years, nor result in the development of the industrial sector, but a change of ownership of the property and not on business.

This process was accompanied by all the phenomena of transition that are social, ethnic, ethical and psychological character. This is further deformed and destroyed the human potential of the former base of industrial workers. If you add the factor of elapsed time (over 20 years), it can be concluded that the greatest benefit of the last remaining time tradition, yet vital references and little remaining capacity and experienced personnel. At the same time, these are the main characteristics of Sarajevo region and Ilidza municipality.

The Sarajevo economic region properties

Sarajevo economic region is a unique natural, geographical, cultural, historical, economic and communications area. Covers an area of 32 municipalities, of which 13 are in the Republika Srpska (RS) and 19 in the Federation of Bosnia and Herzegovina. The total area of the region is 8699,9 km², of which the municipality of FB&H refers 3531,9 km², and the community / municipality from RS 5,168 km², [4].

According to the last census (1991st year), in the region's 838,216 inhabitants lived in 254,669 households, with an average number of household members of 3,3 members.

The average population density is 97,3 inhabitants per km². In urban areas lived 64.9% of total population.

Total in the region during the 2010th year lived 738,840 inhabitants, of which 79% of the municipalities in the F B&H and 21% in the municipalities of RS, [4].

The population of the region accounts for about 19,2% of the total population of B&H. Sarajevo Canton has the largest share in the total population of the region (59,1%), followed by the municipality of RS (20,8%).

In the region exists two of public higher education institutions (University of Sarajevo and University of East Sarajevo), and three private universities (Sarajevo School of Science and

Technology - SSST, International University in Sarajevo, The Burch University) are placed.

Forests and timber represent one of the most important natural resources of the region. Around 4477,44 km² or 51,7% of the region is covered by forests. There are rich mineral deposits, and the region also has a huge capacity of drinking, thermal and mineral waters.

In the region there are 46 large and small rivers with a total length of flow through the region of around 979 km. At the region existed 18 major or minor natural or artificial lakes where fishing is possible and / or sports tourism, [12].

Important hydropower potential of the area, especially the Drina river and its tributaries where conditions for the construction of mini, small and medium-sized hydro-power plants exists.

Demographic growth of Bosnian capital and its surroundings creates the need for new investment and jobs. It is certain that the sectors of tourism, hospitality, telecommunications, information technology, banking and continues to be the focus of development policies.

When viewing the Sarajevo Canton, reveals that companies in the industrial sector, SMEs, some of them established after the

war and some were made from the composition of the former large systems.

In 2011 GDP estimates FB&H per capita is 6,821 KM, Figure 3, GDP per capita compared to the average of the FB&H is the largest in the Sarajevo Canton, [12].

If cantonal government wants to develop the Sarajevo Canton economy, then it must develop industry capacities and put the development of SMEs on the key place. Highly developed countries have a very large share of industry in total domestic economy. It is very typical when looking through exports. Thus, for example, in the structure of Japan's total exports, 60-66% are industrial products, USA 40%, while the EU countries around 40%.

However, examples of countries with a high level of real economy (China, Turkey, Germany, Poland, USA) show how the production as a generator of added value unsurpassed growth and development factor in times of crisis and normal economic situation, [11,14,15]. Sarajevo region with its professional potential, openness, communication, confidence in supplying energy, sites and traditions will be attractive for investment both domestic and foreign investors.

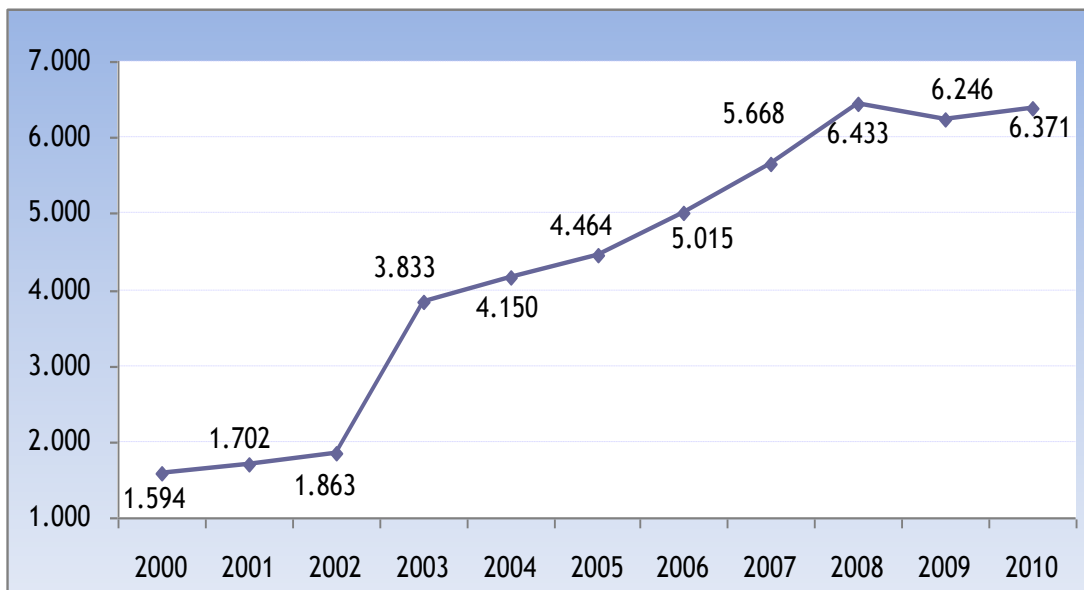


Figure 3. BDP per capita, 2000-2010 in KM, (Source: Agencija za statistiku B&H, 2012).

4. Discussion

Bosnia and Herzegovina does not have the capacity (organizational, political, institutional and financial) which is necessary for the process of restructuring of the system of scientific and technological development. It is, therefore, necessary to define the research and development as a priority of future interventions of the international community in B&H. SMEs require systematic support to services and technology transfer, technical cooperation and development, innovation support, etc.

The situation with regard to the development of technology or science-technology parks in Sarajevo region and B&H requires strategic definition of their development, government

assistance in the establishment and profiling, equipment, registration and other activities, on the model of technology parks in the world .

Scientific parks and research and technology centers require significant capital investment, but the activities that are carried out within them and that have the potential for realizing the transformational impact, [5,7]. They provide help universities to make them closer to market commercialization and bridging the gap between research and its applications.

The founders of the technology park can be universities, associations of municipalities, regional developmental agencies, individual companies or local levels of government. The primary task of a technology park is to generate new small

and medium enterprises through the involvement of university staff to solve the problems of these companies.

Final goal is to create sustainable economic space in which to create jobs and promote investment opportunities.

The basic preconditions for the establishment of a technology park Ilidža already exist: the existence of several higher

education institutions in Sarajevo region and especially in the Ilidža municipality, the strong tradition of industrial production in region and municipality Ilidža, land, human resources. After the initial phase of the existence of the technology park, the expected benefit would soon overcome regional frameworks.

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