

СЕКЦІЯ 3

«ІННОВАЦІЙНА ЕКОНОМІКА ТА ІННОВАЦІЙНИЙ МЕНЕДЖМЕНТ: СУЧАСНІ ТЕНДЕНЦІЇ ТА ВЗАЄМОВПЛИВ»

[Metadata, citation and s](#)

of Vadym Hetman Kyiv National Economic University

Arsenijevic O., PhD

Associate professor, Management Department
Faculty of Business Studies and Law, «Union — Nikola Tesla» University,
Belgrade, Serbia
olja.arsenijevic@fbsp.edu.rs

Lilic V.

Lecturer
Faculty of Business Studies and Law,
«Union — Nikola Tesla» University, Belgrade, Serbia
vladana.lilic@fbsp.edu.rs

Ivannikov N.

Assistant,
Faculty of Business Studies and Law,
«Union — Nikola Tesla» University, Belgrade, Serbia
nikolaj.ivannikov@fbsp.edu.rs

INNOVATION INFRASTRUCTURE IN SERBIA

ABSTRACT. National Innovation System in Serbia (NIS) is not functional, and it should be an actuator of transition and development. NIS is shaped by past and current social, cultural, and even political factors as well as the current economic environment in Serbia. The work is a part of a wider research of the factors shaping the national innovation system. The goal of this paper is to point out who are the actuators of innovation infrastructure in Serbia, such as the activity of the participants in the organizing the infrastructure, to check whether commercial enterprises are generators and carriers of innovation activities, and to find out whether small and medium enterprises are interested in using innovation infrastructure. One of the goals of this paper is the review of innovation infrastructure concepts in Serbia and review of strategy for development of science and technology.

KEYWORDS: innovation infrastructure, national innovation system, the concepts of innovation infrastructure

Introduction

Domestic and foreign literature offer myriad of information when it comes to organizing and organizations. For the purposes of this study, we will adopt the definition that the organization is essentially **a joint activity of two or more factors**. It arises from **the need for cooperation** with other stakeholders — the people and the fact that the effects of organization enable **meeting the individual needs** of the participants in the organization. The basic principle of the organization is **the principle of maximum efficiency**, bearing in mind to respect and develop a set of values for the purpose of continuous operation of the organization. In other words, the organization is a structure in which individuals work together in a systematic way by doing some work. It is adjusting elements with different functions using systematic planning and united efforts. (93) If we accept this interpretation of the organization, we realize that the essence of the national innovation system is determined by the mode and quality of organization by the interested parties, certain factors of a given society. In functional national innovation systems, there are more or less strong ties and interaction between these factors: scientific-research organizations, industry, market, public administration. Innovation infrastructure in such systems has the role of mediator in order to provide better linkage of the research and development sector and the business sector, enabling efficient transfers and diffusions of technologies as well as the placement of the results of scientific research in the market, provides easier access to various resources, encourages the development of innovative culture and awareness of the necessity of innovation, both technological, and organizational and marketing that contribute to the technological development, in all organizations and at different levels.

Innovation infrastructure includes various types of institutions and organizations, public and private, whose primary objective is to provide support, primarily to companies in their efforts to innovate. From state to state, they are different in their structure and organization and management, but the basic functions and reasons of existence are something they have in common (94).

Review of the development of the innovation infrastructure concept in Serbia. The imperative of supporting the processes of innovation or innovations as a term or condition of awareness is nothing new in Serbia, if it could be assumed according to most indicators of the technological development of Serbia. 1975 and 1976 were declared the years of technological innovation in the former

Yugoslavia, and that is the time when self-governing communities for science and technology at different levels were founded. However, measured by the number of reported and registered national patents, a number of patents — as a significant indicator of technological development, declined or stagnated in the coming years. Activities related to the promotion of innovation were related to the work of the R&D units and institutes in large industrial enterprises and the involvement of employees in improving productivity and business operations, because in the following year, 1977, a social agreement on the promotion and evaluation of innovation has been adopted. Interesting examples of innovation activities during the eighties we can find in «Crvena zastava», the car factory from Kragujevac. Those are the so-called spontaneous innovation activities emerged as a result of the need to solve a current problem in production. Such innovation activities were not managed entirely by the company's management, but only governed by the regulations on the remuneration of employees. Here we have the factor of collectivism and opposition to the affirmation of the individual, as a factor of Serbian national context, so many potentially successful product innovations or process ended in disputes between employees and companies (1). Based on the Social agreement on the promotion and evaluation of innovation, regional chambers of commerce brought their regional social agreements on encouraging innovation, and each organizational unit brought its self-government agreements on the same subject, as well as policies to stimulate innovations. Such a concept of the organization was passive, based on the pending fanatic innovators who were admitted as bores and those who disrupt entrenched routines. The market has not been developed, so administrative decisions themselves were not enough to get something started. Changing of mentality is a slow process, especially in societies in transition from routine to an innovative economy and life, and can take generations; therefore, one should not be impatient but durable (2).

Science and technology development strategy. During the eighties, work on strategies for development of science and technology began, which included the development of a public scientific and technological infrastructure, which could partly be in the function of innovation support. The first innovation centers were established, although mostly formal. A significant contribution to raising awareness about the need to organize the innovation infrastructure gave the «Mihajlo Pupin» Institute and its Center for research of science and technology from Belgrade. Contribution refers to a number of projects related to the strategy of scientific and

technological development of Serbia and Yugoslavia (3), (4), and within them strategy for developing scientific, technological and innovation infrastructure followed by bilateral cooperation with the Federal Republic of Germany — Project of development of innovative structures in Yugoslavia. Up to 1991, there were three; the fourth was in preparation, seminars including following themes: Innovation consultation centers, Innovation management, Innovation policy and regional development — national context, Innovation policy and regional development — European framework, study tours aimed at introducing innovation infrastructure of France, Finland and Germany. The Federal Committee for Science and the Federal Bureau of International Cooperation provided administrative and financial support to organizing these projects.

The nineties brought connecting of R&D and economic organizations as a result of the realization of technological development policy in the Republic of Serbia. Then three programs to support the establishment of innovation networks in the RS were launched: strategic research and technology projects, joint development projects, innovation projects. The result of these projects interesting in this case would be setting up of networking on R&D projects and enterprises, as well as enterprises themselves. However, the effectiveness of the program was inversely proportional to the number of established connections. The willingness of companies to use the obtained results was not noticed and there was a lack of connectivity achieved at the regional level (5). During the nineties, precisely in 1993, the Resolution on policy of science and technology has been adopted. Among others, the policy defined two major programs: Public scientific and technological infrastructure program and Regional innovation program. Since these programs were not implemented on time, in the following years there was enough space to provide support, but theoretical elaboration and modification also. So the study «Review of R&D system transformation in the Republic of Serbia» was created as a result of the «Investigation of the innovation system in the Serbian economy» project financed by the Ministry of Science from 1994 to 1997. It was suggested that the program of creating public scientific and technological infrastructure of Serbia in the upcoming period should be redefined in accordance with the development needs and capabilities of Serbia and clearly defined responsibilities of the federal and republican ministries on issues of scientific and technological infrastructure.

The latest developments in the process of organizing the innovation infrastructure are taking place on two tracks. On the one

hand, there are new attempts by the state, reflected in adopting new legislation and the implementation of the program through its administration, mainly the Ministry of Science. The new Law on Scientific Research, as well as the completely new Law on Innovation Activity has no counterpart in the local or global environment, which may be praiseworthy, but there are flaws also. This law provided normative preconditions for the development of innovation infrastructure, but since no law is perfect, this law limits entrepreneurial initiatives and the possibility of state support to enterprises continuing to see the lack of financial support from the public funds in companies of the information and communication sector in Serbia as the most significant barrier to innovation activities.

Since 2005, «Feasibility Study for foundation of Science and Technology Parks in Serbia» project has been launched, which includes 20 faculties and institutes. In addition, in order to promote innovation and innovation culture, the competition for the best technological innovation maintained for ten years, which is actually a competition for the best business idea at the level of teams and at the company level, in order to support the survival of new companies based on a business plan that means the sale of new products, services or processes. This support, currently only promotional and financial, later should be realized through technological incubators and technology parks. This project should enable gathering of high-tech enterprises in clusters, which will be accommodated in the newly established scientific and technological parks in areas that are able to organize them. This ambitious project is still in progress, and in the meantime, technology parks in Novi Sad, Kraljevo, Nis have started to operate, however, still with a insufficiently clear organization and goals. One of the project tasks was performed in cooperation with the «Enterprise Development and Entrepreneurship Support» project financed by the EU. A research and collecting data on the innovation potential of Serbia was carried out using the Oslo methodology of the EU.

On the other hand, the European Agencies for Reconstruction and UNDP financially and methodologically support organizing of some other forms of innovation infrastructure, and some new forms of innovation infrastructure proposed by the European Commission of the EU can be expected.

The Ministry of Economy, Ministry of Science, Department of Intellectual Property Protection and the Department of Statistics carry out the following activities in regarding with the organization of the innovation infrastructure: research of organizations to support innovation, research of enterprise innovation, research of innovation

policy, nine regional focus groups, a report on human capital for innovation, training for innovation management for consultants in Serbia, UNDP public-private partnerships for applied researches, development and science-based innovation, etc.

In this way, the image of the national innovation system of Serbia, which has recently been supplemented with new elements of innovation infrastructure, was formed. The missing elements are innovation centers, innovation relay center, science and technology parks, innovation incubators, technology parks, networks of innovative relay centers, agencies for Innovation consulting. (6)

Conclusions

When it comes to support and advancement of innovation activities, various actions undertake in Serbia for more than 30 years. We can say that protagonists of organizing innovation infrastructure are the Ministry of Education and Science, NI organizations, chambers of commerce and companies, as well as the international agencies to support technological and economic development. Participants in organizing innovation infrastructure were not equally active. Most initiatives came from R&D sector, and the smallest number of initiatives came from the economy, although commercial enterprises should be the main generators and carriers of innovation activities. The reasons are mainly financial; a deeper analysis shows a great lack of knowledge, information and innovation capacity of enterprises.

In order for NIS and its innovative structure to function, a systematic approach and establishing effective mechanisms for the coordination and implementation of innovation policy at national and local levels is necessary. A better co-operation on policies related to innovation among ministries and government departments and equal involvement of all stakeholders to whom the support for creation of innovation is a priority, is imperative.

References

1. Kutlača, Đ. Patent-related activities in Serbia form 1921—1995, *Scientometrics*, Vo. 42. No. 2 (1998), Elsevier Science Ltd., pg. 171—193).
2. Smiljanić, S. Milivojević, J. Spontane inovacije u velikom preduzeću — primer Zavoda «Crvena zastava», IInd German-Yugoslav Meeting in the Framework of the Bilateral Project «Development of innovation structures in Yugoslavia», Plitvice, 1989.

3. Strategija tehnološkog razvoja Jugoslavije, usvojena na Veću republika i pokrajina Skupštine SFRJ, (1987)., Službeni list SFRJ, br. 32/87.

4. Naučno-istraživački projekat Strategija naučno-tehnološkog razvoja Srbije do 2000, Beograd

5. Semenčenko, D. Nova inovaciona infrastruktura Srbije, Tehnologija, kultura, razvoj, 13, Beograd, 2006.

6. Arsenijević, O. Ulaganje u ljudski kapital — investicija ili rashod, Lemima, 2015. Fakultet za poslovne studije i pravo, Beograd, (2015).

I. Gagnidze, Ph.D,
Associate Professor of Faculty
of Economics and Business
Ivane Javakhishvili Tbilisi State University
ineza.gagnidze@tsu.ge

THE IMPACT OF ENTREPRENEURIAL UNIVERSITIES ON THE INNOVATIVE DEVELOPMENT OF ECONOMY

ABSTRACT. The Entrepreneurial University model in the most successful for today. It is noted that effectiveness of such universities is determined by effective links between education, science and business. The efficiency of these links creates the basis for innovative development of the national economy.

KEY WORDS: Innovative Development, Entrepreneurial Universities, Academic Capitalism.

Introduction. The Universities have underwent the several stages of development from their formation up to day. Over time, there was changing their role and mission as well. At the end of 20th century, a new term «entrepreneurial university» appeared in the scientific literature. The term used to describe universities that have improved different mechanisms to contribute to regional development and increase their incomes. Additionally, other terms used have been: University Technological Transfer, Innovative Universities and Market Universities.

An entrepreneurial society refers to places where knowledge-based entrepreneurship has emerged as a driving force for economic growth, employment creation and competitiveness [1]. In such a society, entrepreneurial universities, by conducting their operations effectively, promote the innovative development of economy.

Purpose. The goal of this paper is to confirm the positive impact of entrepreneurial university on innovative development of economy.