

СТРАТЕГІЧНІ АСПЕКТИ РОЗВИТКУ ІННОВАЦІЙНОЇ ІНФРАСТРУКТУРИ В РЕГІОНІ

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Наведено результати досліджень впливу розвитку інноваційної інфраструктури регіону на зростання конкурентоспроможності підприємств. Проведене дослідження дало змогу зробити ряд висновків щодо стратегії розвитку регіональної системи інновацій як основи організаційно-економічного управління інноваційною діяльністю підприємств у регіоні.

Ключові слова: інновації, інноваційна інфраструктура, регіональна система інновацій

STRATEGIC ASPECTS OF INNOVATION INFRASTRUCTURE DEVELOPMENT IN THE REGION

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The article describes the results of the impact of the innovation infrastructure in the region to increase the competitiveness of enterprises. The study made it possible to make a number of conclusions on the strategy of developing a regional innovation system as the basis of organizational and economic mechanisms of innovation activity of enterprises in the region.

Key words: innovation, innovation infrastructure, regional system of innovation

The staging problem. Due to the growing recent interest in knowledge and learning, as a way to regional economic growth, and thus the competitiveness and attractiveness, strategies are focused on running a regional policy in the context of integration processes with the EU structures. Moreover, a regional policy concentrates resources on selected areas of potential competitiveness, and it sees regional development through innovative organizational solutions. The durable power of the region is built with the continuous upgrading of knowledge. However, the dynamics of innovation processes is based on locally collected resources.

Regional innovation systems are the environments built in a way favoring the transfer and usage of knowledge serving the social-economic development. Local accumulation of knowledge is of strategic importance in promoting endogenous regional development. Innovativeness, understood in a broad scope has become a key point in modern economic development. The complexity of innovation processes requires cooperation of the production sphere with the environment [9, p.49]. Innovativeness highly depends on information and knowledge. It is vital to base on the knowledge coming in from the outside. Transfer of knowledge and learning find support from the institutional, cultural, and geographical neighborhood.

Competitiveness of a given region is no longer determined by single companies, rather by innovativeness of the entire region, individual communities, enterprises, institutions.

In modern conditions, the main factors affecting the competitiveness of a region are divided into two groups - microeconomic and regional.

The most important factors belonging to the first group are: innovativeness, entrepreneurship, gaining knowledge and permanent learning of business units. The second group consists of: existing in the region economic conditions for business activity, primarily, the development of innovative infrastructure,

the attitude of the authorities and the public towards innovative processes. The basic territorial innovation models include the innovative environment (Innovative Milieu), industrial districts (Industrial Districts), clusters / groups (Clusters), regional innovation systems (Regional Innovation Systems), learning regions (Learning Regions).

We can ask ourselves, what an approach to solving the problem of economic innovation growth to choose, trade or regional? In the case of heavy industry branches (metallurgy, mining, shipping, rail), a professional approach will be applied. However, for a regional approach the role of infrastructure will be of a much greater importance.

Analysis of recent research and publications. The problem of increasing innovativeness of enterprises studied scientists such as McGrath R.G., Macmillan J.C, Taylor W.C., Labarre P, Peszko A., Kusa R., Karnat-Jasicka B., Gejec V, Kuzmin O, Oksanycz A. The specificity of the relationship between actors and institutions is explained by two theoretical concepts. One of them is a model of an industrial district, the other - a conceptual model of an innovation environment. Both of these models are developed on the basis of empirical studies dealing with the industrial and spatial dynamics based on connections between small and medium-sized entrepreneurship, production flexibility, and external relations with agglomerations. Each of these models emphasizes especially the importance of innovation processes and the role of learning. The most popular B.A. Lundvall's concept of learning by interaction illustrates how companies and regions (in open economies) remain competitive in the environments of rapid technological changes.

The aim of this article is to indicate the directions of solving the major problems of creating the innovation infrastructure in the region. It discusses the types of strategies adopted in the economic activity, particularly in the sector of services. In addition, it presents the topicality of the pro-innovation development as well as the ways of supporting R & D activities by the state.

The main material research. One of the strategic aspects of innovativeness growth of regions is the development of innovation infrastructure. Infrastructure is part of Regional Innovation Systems and its role for a regional approach is very large. Infrastructure supporting innovations is scientific entities – universities, research consortia, scientific-industrial centers, training centers, scientific-technological parks, technology incubators, and so all the units carrying out research-development activity for enterprises.

It performs the following functions:

- developmental,
- supporting activity,
- transfer (creates the conditions for the movement of goods, energy and people),
- service [5] ((satisfies the reported demand for services through the production and consumption spheres),
- shapes the social, economic and information bonds in regional systems.

The fact that the strategic approach to improving innovation in the economy is created in regions indicates the growing importance of the regional approach in formulation of tools for innovation policy. Regional Innovation Systems are an essential element of an organizational-economic mechanism managing a pro-innovation development. They are the tools of strategic planning and they must be targeted to specific institutions and economic operators.

The basic elements of the Regional Innovation System are subsystems of knowledge, motivation and organizational-legislative support. The regional level has become, therefore, crucial for the development of mechanisms supporting the formation of innovation. Analysis of regional innovation strategies and effects of their implementation can help to define the tools of impact on innovativeness of the economy at the national level. Simultaneously, this analysis will allow to draw conclusions and present recommendations for the assessment of innovation policy in the regions and coordination of innovation policies at the national level. An important result of the development and implementation of regional

innovation strategies is an increase in awareness and skills of identification of diagnosing the barriers which affect the implementation of innovation policies, thus developing an integrated approach to innovation in the regions [4]. The literature of the subject emphasizes that building RSI is an action which reflects the objectives of the Lisbon Strategy. RSI define the direction of innovation policy and ways of optimizing the regional structure supporting innovation. They are created on the basis of a comparative analysis of technology needs of enterprises, opportunities and potential of the research sector in the scope of technology, organization, management, finance and training. RSI are intended to assist local authorities in implementing an effective system for supporting innovation in the region. An important element of the strategy is to create partnerships between the scientific-research, private and public sectors, to promote a knowledge-based society and to enhance and exploit the potential of the regional academic and scientific-research sectors for business development and strengthening competitiveness.

The assessment of needs in the scope of supporting regional innovation strategies indicates the key differences between the phase of building strategies and their implementation. The first period, due to the regional focus of work (especially in carrying out research in the region and defining strategic and operational priorities), does not show the need in the scope of support from the central institutions. However, in the period of implementing regional innovation strategies, there is the need to establish cooperation with central institutions, in particular, on the basis of seeking funding for projects (because some barriers on the side of financing pro-innovation actions appear) and actions arising from the defined strategic priorities.

To make the cooperation between the region and the central level effective, it is necessary to create an infrastructure thanks to which particular government departments as well as the regions themselves will lead joint actions. Thus, central institutions play an important role in the process of increasing regional innovation through the intervention in the process of building and implementation of regional innovation strategies. The result of the integration of the Regional Innovation Strategy is the National Innovation Strategy. Its purpose is to ensure coordination of actions to increase innovation between central and local administration.

The infrastructure development strategy depends on:

- priorities and preferences of socio-economic development of the region,
- the potential of units generating innovation and involved in its transfer,
- the structures and development tendencies of the region economy.

Figure 1 shows the dependence of the infrastructure strategy development. Specific strategies of the innovation infrastructure development are:

- the blue ocean strategy (innovation of this strategy results from the use of the concept of innovation value designating the area of market space),
- the strategy of innovation niche [2] (which is one of the types of niche market strategy, and it is used by small and medium-sized enterprises constantly generating product and technology innovations),
- the strategy of open innovation [10] (it involves searching for and using innovations generated among consumers and also in the engineering environment formally not associated with the company),
- the strategy of innovation networks [1] (such structures introducing complex innovation strategies may take the form of multilateral strategic alliances),
- the innovative cluster [8] (clustering is a strategy involving the use of organized cooperation of enterprises and related to them institutions, dealing with a specified field and located in their immediate vicinity to build the competitive advantages).

In the Świętokrzyskie province emerged several specializations [7] which are likely to play a role of a driving force in the innovativeness of the region. The distinguished specializations include: efficient use of energy, medical tourism and trade fair and congress business. Two key directions of a horizontal nature were distinguished: transfer of knowledge and design. Their development plays an important role in increasing the competitiveness of the whole economy of the region. The use of instruments of support in these areas will result in an increase in regional specialization, and it will also affect profitably other related sectors, which, as a result, may arise new innovative and competitive areas built on the specialization of the region. Therefore, it is necessary to monitor the entire system of innovation in order to evaluate the changes and applications of actions relevant to the needs.

The Świętokrzyskie region adopted an innovative cluster strategy. Companies cooperating in the a group at the same time compete with each other. There are, among others: Klaster Słońce Regionu (a tourism-trade fair group), Klaster Medycyna Polska (carrying out treatments combined with active relaxation), Stowarzyszenie Producentów Komponentów Odlewniczych KOM-KAST, Klaster Ogrodniczo-Sadowniczy “Ekologiczna Żywność”, Klaster Budowlany, Grono Ceramiczne Końskie-Opoczno, Biomasa Świętokrzyska (an association of producers of biomass for the needs of energy in the Świętokrzyskie province), Grono Targowe Kielce (a fairs-convention-service cluster directed to the exhibition and congress activity).

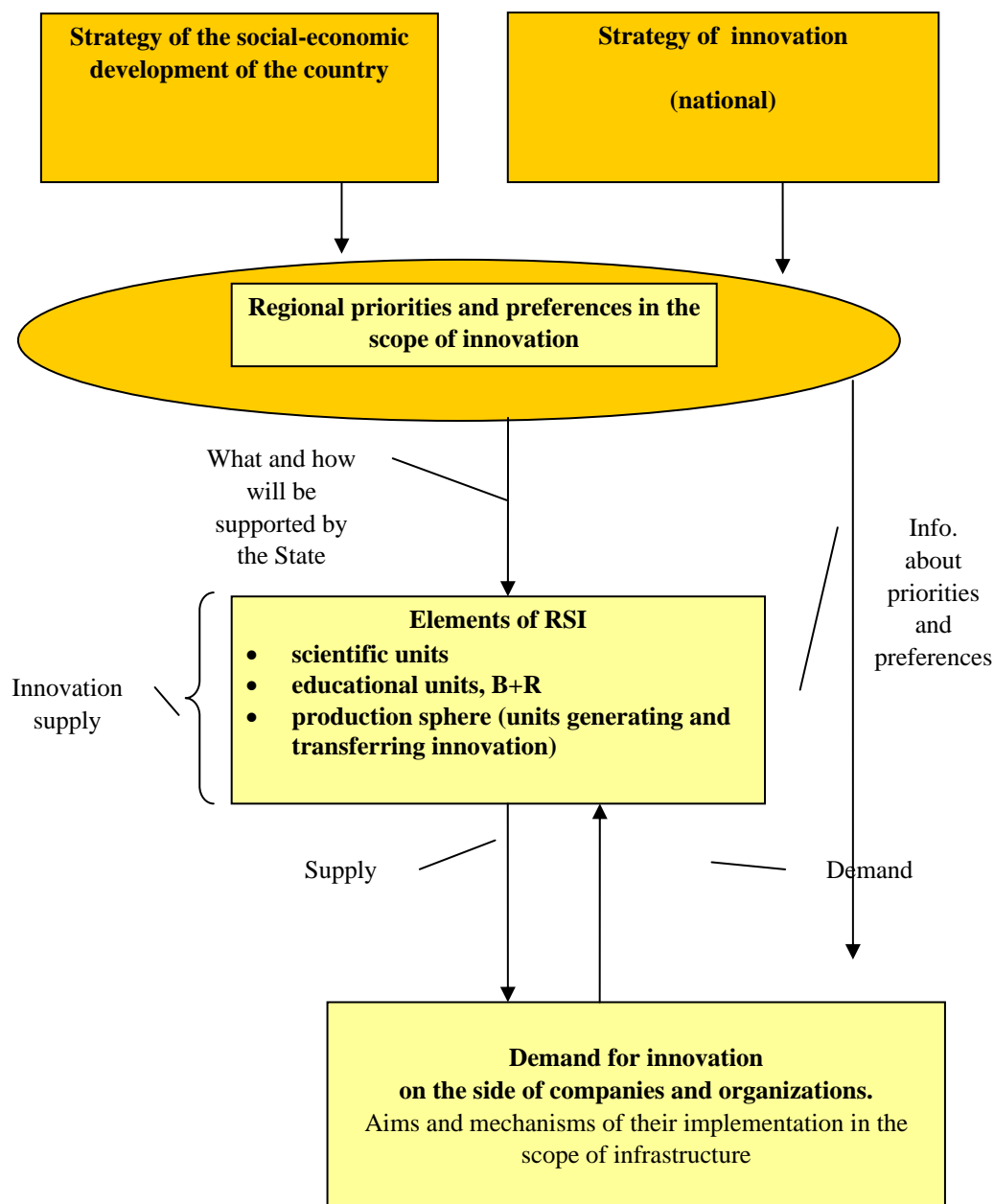


Fig. 1. Dependence of the infrastructure strategy development

Source: own studies.

Such actions of local authorities are supported by the European Union. In particular, there should be indicated: the Regional Operational Programme, Sectoral Operational Programmes (e.g. the Competitiveness of Enterprises Development and Human Resources Development), Operational

Programme Development of Eastern Poland. The support includes identifying the functioning of the cluster, co-creation of budgetary establishments, companies, associations co-contributing to the development of the cluster.

More and more research points to the growing role of the companies environment, and in particular policies and initiatives of public authorities, creating favorable conditions for the emergence of an innovative business climate.

Every modern business must operate in an environment in which it can use the knowledge of others. It is in constant evolution, in constant adaptation to the environment. In this way a new network of enterprise 'pushing out' the old structure and replacing the old organization is created. The network is the way of company organization which allows the company to respond flexibly and control the complexity of events without losing its originality, and without the necessity of abandoning its strategic objectives.

In the era of dynamic flow of information and logistics without barriers, the market of scientific research is becoming a global market. Therefore, the developing infrastructure R & D must compete and collaborate with other world entities. Patterns should be drawn from such developed countries as Germany, Spain, the United Kingdom, and create a common research infrastructure for scientific units. International and inter-regional cooperation (including seminars, conferences) makes it possible to exchange good practices and experiences. Particularly important are the strategies which facilitate rapid introduction of changes in companies and adaptation to the changes taking place at the market [6]. Crucial meaning has not only the subject of the innovation strategy, but above all, conditions for the rapid implementation of the strategy and obtaining the expected benefits associated with it.

Not every region can already become the proverbial Silicon Valley. Making an effort to expand the infrastructure of innovation in the region, it is important to assess the economic, intellectual or innovation potential. To develop the infrastructure, a suitable economic climate must be created. However, the fundamental and strategic importance in business, especially in the sector of services is played by knowledge [3].

Conclusions and prospects for further research. In Poland there are more and more investments of the private equity and venture capital types. The terms of private equity and venture capital mean the long-term financing of firms, usually non-public companies, which have an innovative product, service or idea to conduct business, and so they are characterized by high growth potential. Venture capital means investing in companies which are only in the early stages of development (i.e. the initial and start-up phases). Private equity is used to finance projects more mature, and thus being in the later stages of development. In the Polish terminology there is no a relevant equivalent for both these terms, therefore, their English version is used widely. Often, however, to define this form of financing 'capital of high risk' is used.

A characteristic feature of such an investment is also non-financial supporting companies, mostly in the form of strategic and know-how advice. The duration of such an investment is on average 3-7 years. Participation in risk for all participants in the project is somehow written into their future success. In addition, all the participants should properly see to safety, especially when it comes to copyright protection.

Regional innovation strategies are a key element of shaping innovation policy in Poland[4]. Being the mechanisms of integration between regional and national instruments of supporting innovation, they are the source of knowledge about the needs of the region in the area of innovation support instruments. Moreover, RSI are a source of knowledge about the potential of the region as well as information about the role of particular participants in building the innovation system. Furthermore, RSI are a database of good practice in the scope of supporting business innovation.

Special attention, in the strategies, should be paid to the creation and development of business incubators and industrial parks located, in particular, in the areas with high unemployment, or those which use the database after restructured or liquidated companies, and in the rural areas and small towns.

The increase in expenditure on R & D activity should gain support oriented to an increase in links of the sphere of R & D with the economy. Activity connected with the development of regional innovation infrastructure requires consistency of the adopted mechanisms contained in the Act on certain forms of support for innovation activity with regional innovation strategies.

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