

# CONVERGENCE OF REGIONAL INNOVATION INFRASTRUCTURE OF UKRAINE AND THE EU

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*The article deals with regional innovation infrastructure as an innovative component of the EU policy, analyzes its components, the possibility of integration of its structural elements into the infrastructure of Ukrainian regions as well as participation of Ukraine in European policies to stimulate innovation development.*

## INTRODUCTION

Growing interdependence of national economies and change in the importance of sustainable economic growth factors turned the innovations in economy into the most significant factor in the integration processes. The position of the European Union in the global economy is determined by modern competitive conditions, based on the constant generation and development of scientific and technical potential for innovative production and continuous transformation of scientific knowledge into innovative products sold in the market.

For the implementation of priority tasks innovative development strategies are developed by the EU and all activities performed by the EU member states in the innovation area are coordinated. Developing and carrying out a general effective innovation policy involves reduction of differences between Member States in terms of social and economic development and intellectual potential, forming a common innovation space.

Within the framework of the collective EU strategy towards Ukraine the importance of Ukrainian integration into the common European economic and social space, based on knowledge and innovation is emphasized. The EU experience in raising the competitiveness of economy of both the whole country and its individual regions, developing intellectual potential, reducing the differentiation between regions, implementing effective innovation policy is relevant and essential to the development of Ukrainian economy.

The innovative way of development of Ukraine and its regions requires the use of proven practices of international and European experience in terms of the country's course of integration into the European Community. The following practices are the most essential to implement:

- creation of innovation investment funds;
- creation of a common financial market;
- creation of common elements of innovation infrastructure;
- development of scientific research centres;
- proper remuneration for scientists;
- improvement of the quality of university education.

Regional and industrial differentiation is a substantial obstacle to the formation of effective innovation economy in Ukraine. Ukraine needs integration of education, science and innovation, creating favourable conditions for effective partnership between the state and business in the innovation economy. Innovation will develop in Ukraine only under the condition that the innovation component becomes dominant in the activity of all economic entities. First of all it is necessary to develop innovative infrastructure in the regions, which will facilitate the formation of supply and demand for innovative products, the creation of competitive markets and greater social and economic development.

The main idea of the EU innovation policy lies not only in financing projects but also in promoting European regional cooperation between different subjects of innovation activity, coordinating innovation policies of the EU member states, developing a common strategy, as well as sharing the best national experience in creating innovation. The program of fostering innovation

in the EU is aimed primarily at the diffusion of innovation by forming structural elements and mechanisms of implementing innovation policy. The EU has accumulated the most extensive experience in the development of innovative cooperation among regional economic integration organizations. The promotion of innovative development is being done through multiple interdependent and complementary channels including Framework for R&D, "Eureka" project and Structural Funds.

According to the Law of Ukraine "On the innovation activity" [1] innovation infrastructure is a set of businesses, organizations, institutions and associations of any form of ownership which provide services for implementing innovation (financial, consulting, marketing, information and communication, legal, educational, etc.).

Fig. 1 shows a diagram of the innovation infrastructure, which includes [2]:

- Financial component to ensure continuous funding of innovative projects at all stages of their implementation;
- Industrial and technological component: technoparks, innovation and technological centres, business incubators, technology transfer centres, etc.;
- Information, consulting, educational and marketing components.

The main elements of innovation infrastructure in the EU are business innovation, telecommunication and retail chains, industrial parks, business incubators, innovative technological centres, consulting firms, financial institutions and others.

A significant place in the EU innovation infrastructure is given to creation of the network of innovative regions involved in the development of innovative strategies and exchanging experiences on the diffusion of innovation. European innovation infrastructure includes more than 1.5 thousand different innovation centres, including more than 260 scientific and technological parks.

Among various forms of innovative structures in the EU countries there are centres for innovation coordination (technology transfer centres) called IRC (Innovation Relay Centre). Their aim is to ensure effective communication in the area of transfer of new knowledge and technologies between national entities of the innovation market and outside the country. The experience of European countries shows that the functions of innovation centres include exchange of scientific, technical and economic information; recommendations on innovative design, funding opportunities and the use of EU structural funds; collection and organization of information about European projects; collection, systematization and transmission of information about innovative features of the region; search and mediation for international project partners; organization of seminars on innovation, implementation of innovation at enterprises, EU funding opportunities and innovative development of the region; advice on the development and management of innovative projects, services on tenders preparation and proposals for public funding of projects. [3]

Among other components of the regional innovation infrastructure of EU countries it is necessary to mention the system of knowledge generation, represented by a set of state and public organizations that perform fundamental research and applied research and development. In addition, a significant amount of research and development is carried out by universities.

Universities occupy a significant place in European innovation infrastructure because on one hand they are an integral part of research training, on the other hand university laboratories are the base for fundamental research. Another type of European universities innovation activity is conducting applied research and creating intermediate structure for its industrial implementation. Universities also attract enterprises of high-tech industries into the region and provide the region with highly skilled engineering staff which raises its attractiveness for foreign companies as well.

This shows the importance of higher educational institutions as a factor of economic development on an innovative basis. The innovative component of the state policy also covers the range of national scientific institutions (institutes, research centres, university laboratories), which is aimed at creating conditions for market implementation of innovative product.

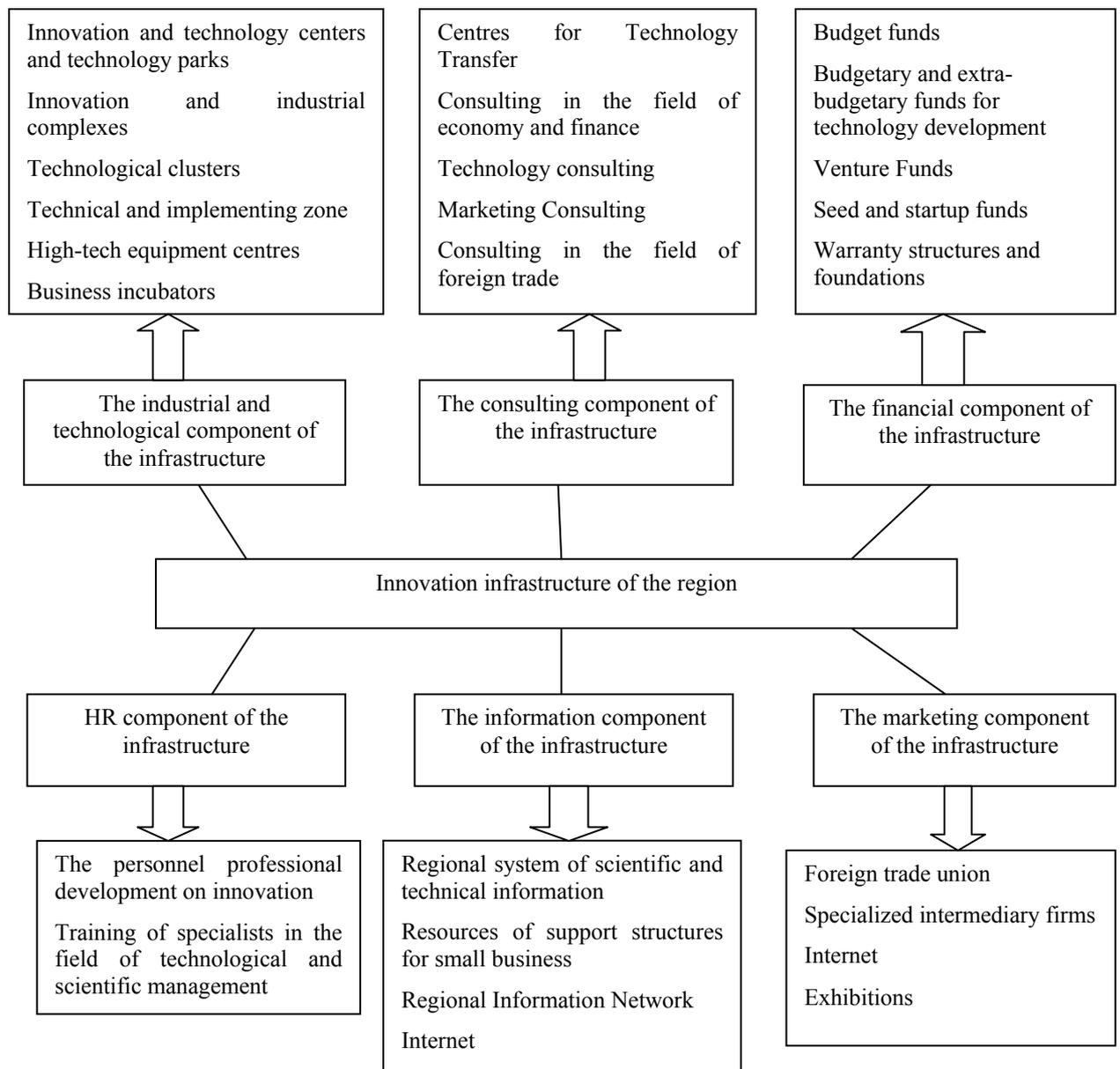


Figure1 - Basic elements of innovation infrastructure in the region

The development of Ukrainian universities as components of the innovation infrastructure, improvement of their quality and cooperation with European universities is not possible without effective implementation of the Bologna process which promotes general education and scientific space not only across the EU but also in other countries (including Ukraine) that joined the process and accepted the values of European innovation model. The new EU policy in education involves improvement of interaction between education, science, business, state and supranational structures, building a chain of "education, science and industry", which increases the competitiveness of the EU in world markets. The fact that such organizations as the European Union, the Council of Europe (Council for Cultural Cooperation, part of which is the Documentation Centre on education in Europe), UNESCO-CEPES (European Centre on Higher Education), the European University Association (EUA), the European Association of Institutes of Higher Education (EURASHE) and the National Unions of Students in Europe (ESIB) joined the cooperation in this field should be considered the most important feature of the present stage of integration in the field of higher education and science.

In the framework of the Bologna process growing attention is given to the development of the third stage of the higher education which involves obtaining a scientific degree. It is the degree holders who make the largest contribution to the development of science and enable putting scientific knowledge into practice. A special role in coordinating and exploring the establishment of common European research area is given to the European University Association (EUA). The development of the third stage of higher education will facilitate effective innovation policy of common European space for science and education, training professionals who, due to their knowledge, have high level of mobility and competitiveness and meet the current social, economic and technical requirements.

Together with joining the Bologna process, the development of Ukrainian universities and science is fostered by the partnership programmes on joint research projects (Table.1)

Table 1. Partnership Programmes on researchers' support and exchange within joint research projects [5]

Scientific organization	Number of Projects	Number of delegated scientists	Number of enrolled scientists
Polish Academy of Sciences	102	275	170
National Centre for Scientific Research of France (CNRS)	49	105	132
Bulgarian Academy of Sciences	45	72	-
Hungarian Academy of Sciences	39	129	54
Academy of Sciences of the Czech Republic	35	60	43
Slovak Academy of Sciences	29	43	33
Council for Research of Turkey (TÜBİTAK)	14	69	29
Romanian Academy of Sciences	12	58	44

Both large industrial corporations and small and medium enterprises that operate in knowledge-intensive business produce high-tech products in the EU countries. Small and medium-sized innovative enterprises (SMEs) are considered to be a form of intermediate structure between public research sector and large industrial firms. Their support is one of the priorities of innovation policy in all countries of the European Union. Multiple innovative institutions were established to assist SMEs; among them are centres of innovation and technology transfer, technology diffusion networks, information networks and other structures for technology transfer and innovation support [4].

One of the most important elements of the European innovation infrastructure is funding innovative projects through venture capital funds. According to the European Venture Capital Report, published by Ernst & Young and Dow Jones Venture One in Europe, Europe saw 212 deals accounting for €777 million in the first quarter of 2010, down 10% from the €861 million put into 227 deals during the same period in 2009. The average size of transactions increased by 9% to €2.25 million [10]

One of the tools of venture business development in Ukraine and its convergence with the European venture capital market is holding venture fairs, which can be a catalyst for the development of innovative technologies market. For small and medium businesses interested in attracting investment a venture fair is a unique opportunity to submit their project to the investors who act in the market of direct and venture investments.

Adam Smith Conferences in London is very actively engaged in expanding its portfolio of measures for Ukraine. The most important among them is the Ukrainian Investment Summit, which is held annually in London with the support of the Embassy of Ukraine in the UK. [6].

An essential role in promoting innovation belongs to structural funds which provide financial support for the development of innovation infrastructure, especially in the less developed

regions of the EU. Currently the European Union provides financial assistance through multi-regional development programs drawn between the regions, Member States and the Commission, and also within specific initiatives and schemes of the Community, with the help of four structural funds.

- the European Regional Development Fund (ERDF) finances infrastructures, provides investment to create jobs, finances local development projects to support small and medium-sized businesses;

- the European Social Fund (ESF) was designed to help the workforce adapt to changes in the labour market, as well as the unemployed and other vulnerable groups to find work, particularly by financing their professional training;

- the European Agricultural Guidance and Guarantee Fund (EAGGF) finances rural development measures and provides financial assistance to farmers, especially in regions lagging behind in development, and also within the Common Agricultural Policy in other regions of the EU;

In addition, there is also the Cohesion Fund in the EU, which finances projects in the field of environment and transport networks in those Member States whose Gross National Income (GNI) per inhabitant is less than 90% of the Community average. The financial resources of the Fund serve to reducing economic and social deprivation and stabilize the regional economy. For the 2007-2013 period the Cohesion Fund concerns Bulgaria, Greece, Estonia, Cyprus, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Hungary Slovenia and the Czech Republic. [7]

Over the past 10 years the EU countries have significantly increased the importance of regional innovation cooperation. As a result, three levels of regional policy formation (a policy that is carried out by regions, the regional component of the federal innovation policy and supranational EU policy) are very closely intertwined.

Innovation policy has become an integral part of the national regional policy. The regions that lag behind get government assistance in the form of promotion the development of innovative policy and infrastructure development instead of direct financing. Eliminating disparities of regional development is the main function of the EU, so the network of Innovation Relay Centres (IRC) works in the field. IRCs are national and transnational associations in the sphere of development and exchange of experience on innovation strategy. The innovation diffusion centres have the status of independent consulting organizations in the field of technology and business, supported by the European Commission on Enterprise [8]

The task of EUREKA, an intergovernmental program, established in 1985, is to strengthen the competitiveness of the economies of European countries by providing support to businesses, research centres and universities to develop innovative products: goods, processes and services based on new technologies.

The EUREKA program, which represents a decentralized community, sensitive to the market demands, offers partners a quick access to the acquired knowledge, skills and expertise across Europe and facilitates access to public and private sources of finance. Scientific and practical knowledge of Ukrainian researchers and scientists should be put into practice to yield business results. In addition, Ukrainian industry and infrastructure should make use of new innovative products and technologies to support economic development and competitiveness of the state.

EUREKA program should become one of the complementary tools to accelerate the transition of Ukrainian economy to the innovative way of development. To achieve this, regional institutions responsible for the innovation projects organization should extensively adopt the EUREKA principles. Regional scientific and educational institutions should be informed about the EUREKA programme, the mechanisms of its functioning, procedure of preparation and submission of projects and international cooperation opportunities opened through the programme. [9]

## CONCLUSIONS

Nowadays the EU moves to a new strategy of innovation stimulation which involves the growth of R & D expenditures, creation of a common European research and innovation space, expansion of horizontal and vertical coordination of innovation policy and strengthening innovation policy at the regional level. European experience in stimulation of the integration process in scientific and technical activities aimed at strengthening the competitive position in the world hi-tech markets may be useful for the design of innovative models of cooperation between Ukraine and the EU. Synthesis and analysis of the EU experience in formation of the regional innovation infrastructure can be a valuable contribution to determining main directions of regional innovation development of Ukraine.

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