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**ADAPTATION OF FOREIGN EXPERIENCE OF STATE POLICY OF THE
DEVELOPMENT OF REGIONAL INNOVATION POTENTIAL
TO THE CONDITIONS OF UKRAINE**

This paper's goal is to study the experience of foreign countries regarding the formation of state policy in the sphere of the development of innovative capacity in the regions of Ukraine. It is shown that the experience of leading European countries shows that the development of scientific and technological potential depends on institutional factors. Institutional systems of developed countries had formed branched structure and mechanisms of support that provide relatively low transaction costs in the market environment. It is proposed that due to the lack of funding of innovation activities and initiatives coming from the state budget in Ukraine, low activity of domestic entrepreneurs in applying for the allocation of funds from for the EU, Poland's experience is helpful in solving financial problems of innovative enterprises. The recommendations in order to improve the state innovation policy in Ukraine are proposed given the importance of the role of the state in creating and enabling institutional environment for the activation of innovation activity in Ukraine. It is concluded that the development of robust and efficient system of infrastructure support of innovation in Ukraine will help to establish civilized relations in the area of the market of innovative products and ensure competitiveness in the global market.

Keywords: potential, innovation, innovation potential, politics, public policy, government support

Бондарчук Наталія, Васильєва Леся. Адаптація зарубіжного досвіду державної політики розвитку інноваційного потенціалу регіонів до умов України

В статті розглянуто іноземний досвід активізації інноваційного розвитку. Визначено можливості адаптації моделей інноваційного розвитку розвинених країн до умов України. Запропоновані заходи для активізації інноваційної діяльності підприємств в Україні.

Ключові слова: потенціал, інновації, інноваційний потенціал, політика, державна політика, державна підтримка

Бондарчук Наталія, Васильєва Леся. Адаптация зарубежного опыта государственной политики развития инновационного потенциала регионов к условиям Украины

В статье рассмотрен иностранный опыт активизации инновационного развития. Определены возможности адаптации моделей инновационного развития развитых стран в условиях Украины. Предложены меры по активизации инновационной деятельности предприятий в Украине.

Ключевые слова: потенциал, инновации, инновационный потенциал, политика, государственная политика, государственная поддержка

Introduction

Borrowing the experience of other countries that have achieved in this area the greatest success can be useful for the development of forms and methods of state support for science and innovation. Mistakes can have long-term consequences because the state can lay the wrong direction of development that will continue further by its own laws, and only after a certain time, after spending

considerable financial and human resources, it will prove inadvisable. Even eminent scientists-pioneers were wrong many times in determining the real prospects of their achievements.

Unfortunately, not all decisions, which proved to be effective in developed countries, work in the same effective way in Ukraine.

The experience of twenty years of market restructuring in our country showed that a simple

borrowing of theoretical achievements and organizational decisions of the countries, where market economy has been working effectively for a long time, does not guarantee a success. Each country has its own unique combination of mentality of the population, natural and geographical conditions, available material and technical base and other factors that underlie its economic life. And therefore ready 'recipes' are not always applicable to these specific conditions.

Each state resorts to various forms of active development of innovative potential of the regions – from programs promoting knowledge to stimulation of new technologies' transfer. Theoretical and practical foundations in this area in developed countries include support for innovation development under different scenarios and directions.

Statement of research objectives

The objective of this research is to study the experience of foreign countries regarding the formation of state policy in the sphere of the development of innovative capacity in the regions of Ukraine.

Results

The state policy in developed countries includes direct and indirect methods of stimulating innovation and investment fields.

The direct methods include:

- budget financing or loans on favorable terms to companies and organizations engaged in scientific research and which prepare qualified personnel;
- free transfer or provision of public property and land for the organization of innovative enterprises on favorable terms;
- establishment of scientific and service infrastructure in the regions where research activities are concentrated;
- implementation of targeted programs aimed at improving business innovation activity;
- state orders mainly in the form of contracts for carrying out innovation activity, which provide the initial demand for innovation and then are widely used in a national economy;
- establishment of scientific and technological zones with special regimes for innovation and investment activities.

The indirect methods of management include mainly sphere of taxation, which are:

- preferential taxation of profits by reducing tax base and tax rates, deductions from tax payments;
- preferential taxation of operations related to the circulation of scientific and technical products (e.g. VAT rate of value added tax);

- provision of research and investment tax credit that is postponing tax payments in the part of expenses from the income on innovation objectives;

- reduction of the tax on growth of innovation expenditures;

- "tax holiday" for several years on income earned from the sale of innovative projects;

- preferential taxation of dividends of legal and physical persons received on shares of innovative enterprises;

- preferential taxation of profits earned from the use of payments, licenses, "know-how" and other intangible assets of intellectual property;

- reduction of income tax rates for ordered and joint innovative developments and research;

- reduction of taxable income by the cost of devices and equipment transferred to higher education institutions;

- deduction from taxable income the contributions to charitable foundations involved in the financing of innovation;

- transfer of profit share of innovative enterprises on special accounts with further preferential taxation if using funds for innovative purposes.

Setting the tax benefits depends on what model of scientific and innovation development is implemented in the country.

Currently, there are three models that are being used: a model of scientific and technical leadership; a model of rapid dissemination of promising innovations; a model of comprehensive innovation development.

The ratio between direct and indirect methods of state support of economic processes in general and innovative processes in particular in different countries can vary depending on the adopted paradigm of state role in the economy. Two generalized models of market regulation can be defined somewhat conditionally: Western (American) and Japanese. "The first is based on the need for state intervention if failures of the market mechanism (reactive) are detected. Second, on the contrary, is based on the historical tradition that focuses on preventive measures that compensate market imperfections even in cases of sufficient normal functioning of the market mechanism (projective). The latest model gives the state, represented by the government, a legitimate role in the development and implementation of scientific, technical and industrial policy" [5, p. 15-17].

Other studies have provided greater number of types of state influence: from liberal American

through neoliberal German, Keynesian English and social Swedish to administrative paternalistic Japanese one [4, p. 5-8; 5, p. 15-17].

1. The model of scientific and technological leadership. It is implemented in the countries with a high rate of innovation; countries oriented toward a large-scale targeted innovation projects, covering all stages of the innovation process (the USA, the UK, and France). These countries maintain a low level of taxation of corporations, believing that these structures are able to carry out a large-scale scientific and technical research. The low level of taxation enables to accumulate resources for risky and significant technological changes.

2. The model of rapid dissemination of promising innovations. Countries that use it are oriented on distributing and clustering (grouping into classes) basic innovations by creating a favorable scientific and technological environment and promoting risky projects through financial and credit instruments (Germany, Sweden, Switzerland). The generally high level of taxation of business entities and preferential taxation on innovation projects operate in such countries.

3. The model of comprehensive innovation development. It is inherent in the countries where the government coordinates the activities of various sectors in the field of science and technology and encourages the development of innovative infrastructure (technology towns, techno parks), which ensures the implementation of modern achievements of world scientific and technological progress (Japan and South Korea). The support of innovation activity here is not in providing tax privileges, but in creating conditions for active creative work of the population, especially in scientific and technical sphere. A variety of state educational programs, including initiated by local authorities, are developed and implemented to achieve this goal.

These innovative development models were formed under the influence of various factors. Peculiarities of national mentality that influenced the behavior of people in general, including in the economic sphere of activity, played an important role.

So, the high levels of individualism, the desire to succeed through their own efforts (knowledge, skills, adventure, etc.) and the ability to properly sort out the situation, with the risk of losing everything in case of a failure, but also to get a lot in case of a favorable completion of the project (this was supported by Protestantism

and was cultivated in American society), led to the formation of risk-individualistic management aimed at active search for new opportunities that lie in various innovations at the level of corporations and individual economic entities in the United States. The awareness of the majority of economically active population that thanks to innovations it is possible to obtain customer loyalty and to achieve commercial success formed the entrepreneurial economy in the US, which is based on business initiative that is supported by government support of effective innovation infrastructure and balanced innovation policy.

The American Science Foundation, which guides the directions of fundamental research, and the "American" scientific council, which represents the interests of industry and universities in science and technology policy are the main coordinators in the field of innovative research in the US. They identify promising areas of fundamental and applied scientific research that require government support. Their funding is based on the results of competitions. Grants the value of which is determined with regard to projected costs for research and expected results become the winners of the competition. Preference is given to those who have proved their ability to skillfully carry out scientific research and to demonstrate their high effectiveness. This protects investors from inefficient investment and increases work performance. Furthermore, objectivity and democratism in the process of evaluating the results of the competition and high salary level for the executors of the projects attract scientists from different countries to participate in this competition. This promotes concentration of the leading scientists from around the world in the field of scientific and technological activities in the US and provides the country with scientific and technical leadership in many fields [89, p. 15-17]. At the same time fundamental scientific researches are carried out predominantly in the higher educational establishments. Among them are the top 20 universities with large volumes of scientific research (Massachusetts Institute of Technology, Stanford, Harvard, Princeton Universities, etc.). Their scientific and research laboratories are equipped with the most modern equipment. The leading scientists who also involve students into this process work in them. The preconditions for rapid penetration of new knowledge into practical activity of those who are involved to their creation are formed in this way.

Applied research as opposed to fundamental one is carried out mainly by private business entities (both in their own research laboratories and in the specialized institutes on their order). As a rule, large corporations have their own powerful laboratories. Areas of their research are determined by the spheres of company's activities or their diversification.

Permanent and fruitful contacts between academics and representatives of businesses are an important component of innovation mechanism in the USA. This ensures a feedback between business and science, which, on the one hand, provides information on the effectiveness of scientists' research for business, and, on the other hand, determines the business needs for new knowledge. This serves as the basis for the formation of educational programs at universities, identification of new directions of training and retraining of specialists in the process postgraduate education and more.

There are effective mechanisms for the protection of intellectual property, which ensure big incomes for innovators and thus attract people to innovative activity in the US. This contributes to the realization of the intellectual potential of all members of society. The high price of intellectual work and the protection of its results created the preconditions for the development of venture business. The rapid growth of small and medium-sized companies busy looking for new ideas and their development, implementation and "launch" production became a characteristic feature of the American innovation entrepreneurship. At the same time the US state policy is aimed at creating favorable credit conditions for the activity venture companies through the formation of a national venture capital market. This allows both large and small business entities to finance innovation processes [3, p. 101-116].

So dedicated efforts of the state concerning the creation of innovation infrastructure that by protecting intellectual property facilitates the process of diffusion of innovations and their commercialization, provides coordination and state support of the priority scientific and technical researches as well as innovation activities of the entrepreneurs, who see the most effective way to increase business revenue in innovations, created favorable conditions for the accumulation and the development of intellectual potential in the United States and provided leadership of this country in many areas of scientific, technical and production activities.

Other countries with strong scientific potential, for instance, the United Kingdom, France, Germany and others also seek leadership in scientific researches. However, their innovative development models are based on integration processes, cooperation of efforts of various EU countries to hold the championship in the traditional European industries: pharmaceutical, chemical, transport engineering, communications technology, nuclear power and others. For this purpose the EU countries developed a general approach to the management of their economic activity, which focuses on the innovation component of economic growth. This ensures the unity of policy in the field of innovations and overall coordination of scientific and technical programs at regional and national levels; scientific and technical alliances and consortia are formed to solve complex scientific and technical problems that require efforts of leading EU member states; creation and development of high-tech enterprises is supported; mechanisms of transfer of new technologies are improved, which speeds up the process of commercialization of innovations and increases the return from their practical use; researches culminating in the introduction of the obtained results are supported; conditions for fruitful cooperation between researchers and businesses are improved by creating technology parks and technology valleys; open business environment is formed for interested groups and representatives of scientific organizations, enterprises, governments and the public that improves the interaction between separate members of the innovation process and increases the effectiveness of their work.

So the scale of interstate cooperation on scientific research, especially fundamental one, increases in the EU. Given the high scientific potential of European countries, it provides synergy effect and ensures not only the maintenance of leadership of the most developed European countries in scientific research, but the possibility of using the results obtained by other EU Member States through clustering and rapid spread of promising innovations. That is the innovative development of the EU Member States is a co-operative-integration one that facilitates the rapid dissemination of scientific achievements and interethnic technological parity within the EU [1, p. 182].

An important element of the European innovation system is an infrastructure that

consists of more than 1.5 thousand different innovation centers, including more than 260 scientific and technological parks. An important place in the EU innovation policy is given to the creation of innovation regions' network aimed at the development and exchange of experience on innovative strategies and local network centers on diffusion of innovation.

The study of European experience allows to distinguish Innovative coordination centers (technology transfer centers)—the Innovation Relay Centre (the IRC), among various contemporary forms of innovation structures in the EU. They provide effective communication in the field of transfer of new knowledge and technologies not only between national subjects of the innovations' market, but also outside the country, forming a network structure of a supranational character. The latter is of great importance for debugging interregional relations in the field of scientific, technological and innovation cooperation, and in the context of deepening integration into the European Research Area.

The Innovation Coordination Centre (the ICC) in England was established to coordinate the work of the regional centers (IRC North of England and Nord Manche). It uses the results of their research, provides them with direct assistance in the technology transfer. The ICC in England performs two main functions: pushes the innovative technologies and manufacturing processes established by the regional centers; makes placement of technologies exported from Europe, to the regional innovation centers [1, p. 182].

In Germany the Innovation Coordination Center (IRC South Germany Deutsch) is an independent institution that takes care of promotion of technical assistance programs and supports the technology transfers. The main activity of the center is aimed to help the industrial enterprises to participate in European research and development, assistance in processing the results of research and implementation of technology transfer abroad, stimulation of the innovative processes in industrial enterprises and their support in the management of cross-border processes. An important area in the activity of the ICC is a an innovative audit for small businesses in the region that allowed to systematize the technological needs of enterprises, carry out national and European research projects, collaborate with partners to use research results or perform a transfer of existing technologies [7].

The Innovative Coordination Center in France (IRC France Centr'EST) operates in the regional environment where local authorities actively cooperate in the dissemination of innovations among small and medium enterprises. As a basis of marketing strategy, the ICC of France has developed its own service proposal entitled "Proposal of global technologies of time", which consists of four main components: technological package of proposals; technological package of requests; short-, medium- and long-term services; research of the technologies' market. Such an approach proved to be effective in attracting customers, as evidenced by the 12 signed contracts on innovations for the period of 2000-2004, successful implementation of which has increased by 33%.

Japan was the first to implement a comprehensive model of innovation development. It was noticeably behind the US and Western Europe in the field of fundamental research before early 80-ies of the XX century. Having exhausted extensive development factors, due to the limited natural resources, Japan passed to stimulation of knowledge based industries stressing on its own researches rather than on the use of scientific and technological achievements of other countries. However, in order to achieve this it was necessary to establish own schools, to prepare high level specialists able to produce new ideas and implement them. So this country made a stress on cultivating high educational level of the entire population, which ensured the emergence of personnel capable to develop new knowledge and work in new areas. In addition, long-term programs of scientific and technological development, which defined priority directions of fundamental research for the country, began to develop in order to coordinate scientific and technical activities. This contributed to concentrating on relevant directions and gave high results in innovation activities.

A similar policy in the sphere of managing innovative development is shared by South Korea, which also takes a worthy place in world economic space, stressing on corporate and collectivist management.

The mentioned models are typical for the industrially developed countries. Countries that have now activated innovation processes, implement their own scripts of the support of innovative development. They can also be used in Ukraine taking into account peculiarities of the development of certain regions and industries.

In China, support of economic development of regions is being performed according to approximately the same scenario, but the precondition for providing support (usually in the form of initial investment of town councils) is the ability to efficiently use natural resources. In small rural enterprises of China industrial output growth in the 90-ies of the XX century was 3-3.5 times higher than in large state enterprises. Therefore, it's the innovative development model, which is based on the use of the resource potential of particular area. In Ukraine it can be applied in the areas with specific natural resources, such as recreational, climatic or mining.

For agricultural regions of Ukraine Chilean model of innovation development is very attractive. The Fund of Chile was established in this country in the end of the 1970s. Its main task was to encourage the formation of new chains of agro-processing chains of "surplus" directed at "bottom up", meaning from the agricultural producer to its end processor. At the same time the Fund supported project activities (identifying promising areas in the world market) and contributed to the development of technologies (adapted advanced technology and agribusiness firms to create their piloting).

In this model chains of "surplus" are created due to the initiative of the agro-processing plants. However, the formation of agro-industrial groups only on the basis of technological relationship is not the end goal on its own. The reasons for this association shall be to improve the ability of its members to attract modern agricultural technologies that would ensure the competitiveness of the final product. If one extends these chains of "surplus" on other industries, including engineering complex, one can create a base for technological push, involving high-tech technology in this chain. With the support (also in the form of investment) of such cooperation regional authorities can get competitive businesses, capable of equal struggle for markets not only in Ukraine, but also abroad.

Thus, international experience of innovative development shows that state efforts are targeted at comprehensive coordinated use of direct and indirect methods of innovation management with a predominance of financial and tax instruments to stimulate it. While doing this they chose the areas of the development of innovative models and take into account the scientific, technical and resource potential.

For Ukraine, given its prospect of EU integration and participation in the European

research area it is advisable to study and adapt the experience of European countries, including those where the development of innovative entrepreneurship is done with limited financial resources and the presence of significant scientific and technical potential. In particular, the Polish infrastructure of the support of innovation business is extensive and varied, allowing solving actual problems of science and technology activities and coordinating interests of the parties in the development of innovative activity.

The authorities of the city of Poznań and the Poznań Science and Technology Park launched the project "Development of a model for entrepreneurship support in the academic sector" as of on the 1st of January, 2006. The project aims at improving the use of innovative potential to enhance the economic competitiveness of the region through the implementation of programs of support of entrepreneurship in the academic environment in order to ensure technology transfer from academic sector to entrepreneurs [8].

In order to strengthen cooperation between the scientific sector and the small business, a project "nationwide network of technology transfer and support of innovations to small and medium-scale enterprises" is being currently implemented, which involves the creation of a network of information about companies and institutions that offer or require new technological solutions. This network has become a platform for the exchange of information and ensuring technology transfer in the country. All services are provided free of charge (due to co-financing from the European Regional Development Fund).

In 2005 the Polish Agency for Enterprise Development (the PAED) introduced online training in the sphere of entrepreneurship (particularly in the following areas a creation of private business, business plan development, market research, fundraising EU structural funds for entrepreneurs, safety in the sector of small enterprises). The Polish Agency for Enterprise Development implements a program of support for industrial property and allocates funds to pay for an application to obtain protection of the intellectual property (quota support in one application – not less than 4 thousands Złoty). The PAED provides loans to finance innovation (up to 2 million zlotys in 75% of the necessary funds) for a period of 10 years [8]

In 2007 a program of the Ministry of Science and Higher Education of Poland "The developer

of innovation” was introduced in order to support innovative entrepreneurship in the academic sector; “Patent Plus” – to support the patenting of inventions developed by research institutions. Thus, in conditions of underdevelopment of innovation infrastructure in Ukraine it is important to promote innovative entrepreneurship at the regional level through structures whose functions shall include: support of innovative entrepreneurship in higher education and research institutions, legal support and partial funding in the process of applying for protection for intellectual property rights; promotion of the fund-raising from the European Regional Development Fund targeted at national innovative enterprises [6, p. 103].

Given the lack of funding of innovation activities and initiatives coming from the state budget in Ukraine, low activity of domestic entrepreneurs in applying for the allocation of funds from for the EU, Poland’s experience is helpful in solving financial problems of innovative enterprises. For example, the Lubelski Development Fund was established according to the initiative of institutions interested in the economic growth of the region, among which there were co-founders, local governments, banks and the Chamber of Commerce. This organizational form has enabled the Foundation to unite the efforts of local authorities, businesses and the financial sector in the promotion of innovative activities of the province. In Lubelski province the Regional Development Fund serves as a regional financial institution for small and medium-size businesses. The Foundation’s mission is to provide social and economic development, in particular support of small business sector by financing investment and innovation activities of enterprises.

Given the importance of the role of the state in creating and enabling institutional environment for the activation of innovation activity in Ukraine we consider it appropriate to implement the following measures:

1. Monitoring compliance of the legal support of innovation and scientific and technological activities.

2. The National Institute for Strategic Studies and its regional representations should monitor as of today the efficiency of existing innovation of infrastructure and develop measures to increase the role of complementary elements in ensuring the commercialization process of technological innovation and market, that will enable to establish linkages between innovation active enterprises

and research institutions and to intensify the implementation of scientific and technological developments in the business.

3. The Ministry of Finance of Ukraine should make an assessment of financial support of scientific and research area and submit practical recommendations with the aim to increase the share in financing the costs of research and development work.

4. Improve the system of intellectual property protection through harmonization of the national legal framework in the field of innovation with international standards; develop clear and binding rules in order to ensure compliance with the legal framework in this area; establish a mechanism to resolve disputes concerning violation of rights in using intellectual property and institutionalized procedures for their solution, which are still not yet fully developed.

5. Develop national and regional innovation infrastructure through the creation of regional innovation centres of so-called the “first stage”. The “first stage” is seen as a large-scale, nationwide project that should provide a demonstration effect by year 2011; after reviewing the annual monitoring data – to develop recommendations for the “second stage” by creating a national network of regional innovation centres as organizational foundations of regional sub-national innovation system. The goal of innovation centres in the region is to build support structures of entrepreneurial innovation that will provide high efficiency activities of local authorities, the NGOs and other institutions in planning the regional innovation development and using the scientific and technological potential.

6. Delegate the Cabinet of Ministers of Ukraine to accelerate the adoption of the Concept of the national innovation system with the aim of forming a network of regional innovation centres across the country; foresee the system of measures in order to build regional innovation systems.

7. Create the Regional Development Fund as a financial institution to ensure management of regional and national programs supporting innovative entrepreneurship, for the practical operation of which grants and financial loans from the EU funds and the state budget are to be allocated.

8. The Ministry of Ecology and Natural Resources of Ukraine along with the Ministry of Education and Science of Ukraine is ought to conduct joint research on monitoring the negative impact of new technologies on the environmental

situation in the country and the development of a number of well-defined criterion limits of this influence in order to prevent the introduction of scientific and technical ecologically safe inventions.

Conclusions

The experience of leading European countries shows that the development of scientific and technological potential depends on institutional

factors. Institutional systems of developed countries had formed branched structure and mechanisms of support that provide relatively low transaction costs in the market environment. Therefore, the development of robust and efficient system of infrastructure support of innovation in Ukraine will help to establish civilized relations in the area of the market of innovative products and ensure competitiveness in the global market.

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