Regional Innovation Policy: World Practice of and Conclusions for Kazakhstan

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Abstract: Study of national innovation system formation on regional level in developed countries allows to identify specific tools of state policy and points of use of such tools in conditions of Kazakhstan. Analysis of world best practices gives the following tools of innovative policy: public private partnership in the sphere of financing of both university and academic science and science of private sector, as well as in the sphere of financing of high-tech companies at the initial stages of their activity; organization of network cooperation between participators of innovative process in order to increase efficiency of technologies transfer.

Key words: Innovation · Regional innovation system · stimulation of innovation activity · Regional innovation policy · Tools of innovation policy

INTRODUCTION

In current conditions of knowledge-based economy, the role and influence of innovation policy implemented in the region grow constantly. World practice testifies that in many countries innovative way of development determines their competitiveness and economic stability.

While researching phenomenon of regional innovation systems it is important to identify the borders of this phenomenon in order to understand the role and the place of RIS concept in massive of scientific knowledge about territorially determined innovation systems. There are a lot of studies about RIS in which instead of region experts often took cities (G. Simi), city districts (Asheim, Izaksen) sometimes even separate countries (P. Maskel) [1].

One of the authors of RIS concept and leading world theorist in this sphere is professor of Cardiff university Philipp Cooke [2]. In his opinion RIS is a set of links in innovation chain including companies and organizations which directly generate knowledge, enterprises which use this knowledge and various structures which perform intermediary functions. State and regional government bodies while coordinating activity of these 3 components must perform efficient regional innovation policy [3].

Regional innovation policy is oriented to solution of territorial problems, such as: efficient use of available material-technical, resource and labour potentials, satisfaction of internal market demands. Regional innovation policy is implemented by means of programs to increase competitiveness of prioritized for the region industries through attraction of private institutional investors for realization of innovations, formation of the mechanism of economic stimulation of innovation activity.

Regional innovation policy is a component of economic policy of regional government bodies to create favourable conditions for trading-production, agro-industrial, building-industrial and scientific-production integration of all institutional economic entities.

The aim of regional innovation policy is stabilization and development of regional economy, providing conditions for efficient realization of budget thanks to keeping and development of scientific-technical potential and formation of favourable conditions for innovation activity.

Methodological foundation of the study is formed by general scientific cognition methods of theoretic and empirical research, system and comparative analysis, induction and deduction, analysis and synthesis, methods of statistical analysis. Our study was based on the following sources of information:

- Regulation acts, strategic and program documents of the Republic of Kazakhstan and foreign countries’ entities;
World practice shows that the level of innovation development of the country as a whole to a great extent is determined by the strength of innovation processes on regional level. Necessity of regionalization of innovation policy is conditioned by such reasons as flexibility and higher adaptive ability of regional economy, reinforcement of links between regional and global components in national economic systems; orientation of industries producing non-standardized high-tech products to local level of organization; the fact that regional concentration of innovation activity will facilitate acceleration of innovation processes and reduction of innovation implementation time. While considering an object, the methods and ways of management of innovation development of the region we first of all must differentiate notions "management system of regional innovation development" and "regional innovation policy". In regard to interpretation of these categories we can agree with T. Lashcheva who believes that the first one is of more general character and includes the second one. In T. Lashcheva’s opinion, regional innovation policy must be considered as important component of the strategic management system of innovation development of the region, which must provide stimulation of innovation activity of enterprises situated at the territory, overcoming of disintegration of economic entities, development of mechanisms of their economic integration [4].

In Nurlanova’s opinion regional innovation policy must be performed on 2 levels: republican and regional (including local level) [5]. Implementation of the policy to facilitate innovations and technological modernization in Kazakhstan on republican level is guided by the Ministry of industry and new technologies of the Republic of Kazakhstan, on regional level by local akimats.

Before we disclose the contents of regional innovation policy formation blocks we shall have a look at the ranking of Kazakhstan regions’ innovation activity and consider the last events in innovation sphere of Kazakhstan in 2012.

In accordance with innovation activity ranking (performed by Statistics Agency) the Top-5 innovation regions includes: North-Kazakhstan, Zhambyl, Western Kazakhstan, Kustanai regions. Reduction of innovation activity in profile industries is observed in Karagandy and Kyzylorda (Figure 1) [6].

Every region sets forth specific tasks of innovation development, determines the directions of innovation policy among which, for example, there are the following: provision of population with high-tech products; extension of internal and interregional markets of innovation products and new technologies; growth of competitiveness of the products on the market thanks to exploring scientific and technological achievements and renewal of production; creation of favourable conditions for development of competitive environment in innovation sphere, support of small and medium entrepreneurship; formation of modern efficient innovation structure etc. [7].

![Fig. 1: Innovation activity of enterprises](image_url)
Analysis given below demonstrates particularities of state innovation policy implemented in different countries – the aim of this analysis is to show patterns in stimulation of innovation activity. In general, the particularities are connected with the use of specific measures intended for acceleration of innovation development (different kinds of privileges, financial support, measures on improvement of interaction between science and business) and also with the proportions of state and private participation in this processes.

In the USA small and medium enterprises played key part in innovation development of the country. Since 1950s at the territory of Silicon Valley on the base of Stanford industrial park the following enterprises appeared: Eastman Kodak, General Electric, Lockheed, Hewlett-Packard etc. It resulted in formation of the biggest center of electronic production in the South of the USA. In 1960s development of high-tech industries was concentrated along the Route 128 or Boston route on the base of Massachusetts Technological institute, formation of these industries happened thanks to leading business companies [8].

Park "Research Triangle" in North Caroline was founded by Committee formed by the representatives of Government, Universities and business circles as a model for research, innovation and economic activity. The idea of park corresponded to trends in economic development of the USA after World War II when Federal government and business community started to prioritize R&D and high-tech branches of production. Opportunity to locate production facilities between 3 universities with powerful research base attracted many companies which were already impressed by formation of Stanford Research Institute in California and Route 128 center in Massachusetts. Besides that the companies liked the idea to create isolated production capacities in favourable ecological conditions of the central part of North Caroline. The main idea of the park was not only to stimulate economic growth in the region but to implement innovations. The park consisted of such companies as IBM, Nortel Network, Ericsson, BASF and others [8].

Thus, formation and development of innovation system in the USA, first of all, happened due to private sector which, in cooperation with state departments and institutes, promoted innovation projects, provided financial help and commercialization. In the USA new situation led to appearance of the phenomenon called "new Federalism" which was intended for transfer of the load of administrative and political decision-making from national to regional level [9].

In Germany regional authorities play bigger part than in the USA [10], which is direct effect of Federative structure of its state organization. About 10 years innovation, incubator and technological centers exist in Germany which proved to be real tools of innovation economy and technological policy. The concept of these centers is intended first of all to stimulation of organization of innovation enterprises. It proved its efficiency in the framework of regional development of economy, having enriched well-known tools of structural, industrial and research policy.

Apart from other European countries in Germany there exists single network which includes both technological centers/parks and incubator centers. Germans used available practice of incubators’ development in the USA, science parks in Great Britain, techno-cities in France and Japan. But Germans created their own unique variant corresponding to the countries’ conditions. Technological and incubator centers are nodes in single network. They were formed mainly thanks to regional initiatives and are considered as prominent example of public-private partnership. Successful centers find support in partnership with associations, trade and industrial chambers, institutes and banks of the region and realize activity in social interests. They facilitate implementation of new forms of technologies transfer from science to industry. The network is formed by 3700 innovation enterprises, technology-oriented companies, research institutes, information organizations, service enterprises and agencies whose aim is to transfer technologies [11].

Innovation policy in Germany includes 4 strategic directions:

- Increase of state financing of IR (innovative regions) with emphasis on key spheres of science and technologies (Public health care, nano-technologies, ecologically pure technologies);
- Improvement of conditions for innovations in private sector, stimulation of mechanism of transfer of technologies;
- Performing institutional reform of scientific organizations;
- Implementation of administrative reform in order to improve coordination of IRs with state bodies.

In Spain innovation policy is realized mainly through projects intended for creation of consortiums of technological research (CENIT), fund of funds and the
Torres Quevedo program. CENITs is a practical form of realization of the task of improvement of interaction between public and private organizations through formation and joint financing of CENIT. In order to get grants and other supports from the state, CENITs must comply with a number of conditions.

Fund of funds combines the venture funds for support of the processes which can result in formation of high-tech companies. The participators of the fund are state and private companies; participation of public sector is 30%. Torres Quevedo program provides public sector with university specialists. Under this program it is possible to make contracts with PhD professors and technologists in order to support research projects in companies.

R&D sphere in Spain is still a bit lagging behind in comparison with many EU members, in spite of success achieved in pre-crisis years. This lagging behind is manifested both in the amount of allocated resources (state expenditure and especially private) and in the results. Because of crisis the volumes of state investments into R&D have decreased, as well as companies' expenditure in this sphere. In comparison with EU in Spain the level of private investments into R&D into industry is lower, the volume of investments from bigger companies is bigger. Spain is also characterized by territorial concentration - in two autonomous - in Madrid and Catalonin. There is a big gap between research works and the use of their results in production, which is explained by lack of money, especially in small and medium businesses [12].

It must be mentioned that role of Spanish universities in the sphere of scientific research significantly increased for the last time; they are the key actors in R&D but still demonstrate lower results than neighboring economies [13]. Insufficient public recognition of R&D in universities, restricted financial, logistic support and scarce resources, side by side with difficulties in implementation of new technologies, are still hindering progress in this sphere.

In Singapore the accent is made on development of electronic and chemical industries and technologies. Singapore government pays utter attention to the issues of creation and further development of infrastructure for support of entrepreneurship in high-tech sphere. For coordination of this activity the Ministry of trade and industry organized special bodies: Economic Development Council, Council of standards, productivity and innovation [14].

This country analysis shows that low level of development of separate institutes does not always hinder innovation development. Key moment here is choice of strategy of implementation of state policy and often - favourable situation.

Key element of state policy in all developed countries is tax privileges for innovative enterprises and organizations. They must be complex and must be applied to innovation products from the stage of development and formation of series production to the stage of delivery of the product to end consumer, even to abroad consumer.

Thus, analysis of world practice of innovation development allows to identify the following tools of innovation policy:

- Public private partnership in financing of both university and academic science and science of private sector, as well as in the sphere of financing of high-tech companies at the seed and start-up stages;
- Organization of network interaction between innovation process participators in order to increase efficiency of processes and improve technologies transfer;
- tax privileges and stimulation.

While building RIS in separate region it is necessary to study thoroughly the experience of realization of similar programs in different regions, their advantages and disadvantages;

Administrative and functional borders of regions will not obligatory coincide: in most cases it is more appropriate to build RIS with due regard to general economic efficiency, not to formal territorial characteristics. In comparison with many West-European, American, Japanese regional innovations systems the size of economic activity, especially in terms of financial support of R&D in Kazakhstan remains relatively small. But realization of mentioned conditions will allow to implement the advantages of RIS. The key moment is quick formation of high social and economic value of innovations. In its turn it will allow to overcome the enter barriers while using new technologies, to return investments more quickly, to produce new goods in big quantities, while cardinally reducing specific costs of production.

Key tool which influences all components of RIS is targeted development of separate territories as scientific clusters.
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