Mechanisms of State Regulation of Regional Innovation Potential

Mecanismos de regulación estatal del potencial regional de innovación

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ABSTRACT:
In the modern context, this is the activation of the innovation activity, which is the core that will ensure positive dynamics of the national economy development. Taking it into account, stimulation of the innovation activity is a top priority area of the state regulation of economy. It requires creation of an efficient system of innovations and innovation processes management to ensure stable economic development of the country and its regions. The basis to perform the innovation activity is the innovation potential as a specific multicomponent resource. This problematics becomes especially important, because efficient use of the existing innovation potential has an impact on the region competitiveness, level of its social and economic development, and has an important influence on the country economy as a whole. The theoretic basis of the research is made up by the analysis of research works dedicated to peculiarities of organizing and performing the innovation activity on the regional level. The goal of this article is to define the essence and structure of the innovation potential of the region, to characterize the current state of the innovation potential of Kazakh regions, to define areas of improving the state impact in

RESUMEN:
En el contexto moderno, la activación de la actividad de innovación es el núcleo que asegurará una dinámica positiva del desarrollo de la economía nacional. Teniendo en cuenta, la estimulación de la actividad de innovación es un área de máxima prioridad de la regulación estatal de la economía. Requiere la creación de un sistema eficiente de innovación y gestión de procesos de innovación para garantizar el desarrollo económico estable del país y sus regiones. La base para realizar la actividad de innovación es el potencial de innovación como un recurso multicomponente específico. Esta problemática se vuelve especialmente importante, porque el uso eficiente del potencial de innovación existente tiene un impacto en la competitividad de la región, el nivel de su desarrollo social y económico, y tiene una influencia importante en la economía del país en su conjunto. La base teórica de la investigación está compuesta por el análisis de trabajos de investigación dedicados a las peculiaridades de organizar y realizar la actividad de innovación a nivel regional. El objetivo de este artículo es definir la esencia y la estructura del potencial de innovación de la región, caracterizar el estado actual del potencial de innovación
1. Introduction

In the context of globalization and integration processes, Kazakhstan regions have got tasks to intensively develop new methods and techniques of carrying out economic activity, applying innovation mechanisms and tools to stimulate social and economic development of territories that displayed positive results on the global practice. It causes the need to search for innovation approaches to forming new efficient strategies of the regional development.

Within the Strategy-2050 the President of the Republic of Kazakhstan N. Nazarbaev ordered the Government to develop a detailed plan of the next phase of the country industrialization. According to the Head of the country, “the world has entered the period of mega-changes. The Asia-Pacific Region has more and more chances to become a center of the global economy” (Message of the President of the Republic of Kazakhstan – Leader of the Nation Nursultan Nazarbaev – to the People of Kazakhstan “Kazakhstan 2050 Strategy: New Political Course of the Established State”, 2012). Approving a new political course of developing our country till 2015, the Nation Leader of the Republic of Kazakhstan accurately set a goal to enter top 30 of the world developed countries.

It is obvious that such setting of the task requires searching for ways to improve the structure of regions’ innovation potential, stimulate innovation processes, infrastructural update and comprehensive social and economic development of territories because regions are the basis for defining competitiveness and innovation nature of the country economy.

Over the recent years the country has done much both in institutional and legislative terms for forming the efficient mechanism to activate the innovation activity. Thus, the comparative analysis of ratings on factors of the innovation made it possible to make the generalized conclusion about the Kazakhstan movement on this way. According to the results of the 2015-2016 rating of the Global Competitiveness Index of the World Economic Forum, Kazakhstan has raised to position 42 among 140 countries and had increased its position by 30 points over the recent 5 years (position 72 in 2011-2012) and by 8 points as compared to 2014-2015 (position 50). This is the best result of Kazakhstan for the whole history of participating in the rating. Kazakhstan occupies the leading position among countries that are partners in the Eurasian Economic Union (hereinafter referred to as the EEU). According to the results of 2015-2016 Russia occupied position 45, Armenia – position 82, the Republic of Kyrgyzstan – position 102 (Byelorussia is not rated). In spite of the considerable improvements for the recent 5 years, the Kazakhstan positions are still weak for such factors as “Technological Readiness” - position 61 (+26 positions as compared to 2011-2012 (87)) and “Innovation Potential – position 72 (+44 positions (116)) (The Global Competitiveness Report 2015–2016).

A number of state programs that contribute to stimulating the research, research and technical and innovation activity were adopted. In particular, this is the State Program on Accelerated Industrial and Innovative Development for 2010-2014 (SPAIID) (2010), which is now further implemented in the State Program of Industrial and Innovative Development for 2015-2019
The innovation potential is a complicated dynamic system of generation, accrual and transformation of research ideas and research and technical results in innovation products and processes. The notion of innovation potential has been more and more widely spread. However, in spite of it, this category does not have an accurate and generally accepted definition. In its turn, it complicates revealing all structural elements and estimating and forecasting the development of the regional innovation potential (Fedotenkov and Padalko 2014).

Taking into account the mentioned above, it is appropriate to consider the innovation potential of the region as a capacity of the economic system to create innovations under the existing social and economic conditions and promote them on the market by using a set of the existing interrelated resources of the region in order to obtain a number of effects (economic, social, research and technical, and communicative).

The innovation potential of the region is the basis for fundamental and applied scientific researches, design and engineering and technological works that contribute to solving scientific, research and technical, social and economic, and ecological problems on the state, regional and sectoral levels. On the regional level innovation processes are territorially intensive and define the level of development and nature of economic development of the country and regions (Ballieva and Tleynshev 2013).

The formation and use of the innovation potential of the regional development are among the conditions of the efficient solution of social and economic problems, optimal use of the resources existing on the local level, use of the internal market potential, activation of entrepreneurs’ and community’s initiatives, and implementation of efficient mechanism and tools to stimulate regional development.

2. Methods

The above said allows stating the need to research the current state and to work out measures on developing the innovation potential of regions as an integral component in the system of the innovation model of the national economy.

The goal of the research is to characterize the current state of the innovation potential of regions and to defined areas for improving the state impact to activate innovation processes on the regional level based on the analysis of the industrial and innovational development of Kazakhstan regions (regional Industrialization Maps) and Concept of Industrial Development for 2015-2019.

3. Results

In accordance with the Concept of Industrial and Innovation Development, in the years ahead the purposeful support of the basic sectoral clusters concentrated in certain Kazakhstan regions must become the main area of policy. At the same time, it is planned to limit the level of support to 5-10 leading clusters that have the greatest innovation potential of development:

2) Oil and gas processing – oil processing Pavlodar and South-Kazakh clusters, Atyrauskiy oil and gas processing cluster.
3) Chemical area – Aktyubinskiy, Pavlodarskiy, and Zhambylskiy clusters.
4) Mining – Akmolinskiy cluster (joint-stock company Altyntau Kokshetau).

The development of territorial (including regional) clusters will be secured by the financial support (on a competitive basis), as well as by the required methodic and informational support focused on working out strategies and roadmaps of cluster development. Target technological programs will be among the tools to develop and strengthen the interrelation of the state,
business and science in national and regional clusters. The State Program on Forced Industrial
and Innovation Development also defined certain regional zones that had a uniform sectoral
structure.

The roadmap on providing regional production with highly qualified personnel was developed for
14 industrial programs and projects in the key areas of production: rare metals, geologic
exploration, automobile and food-manufacturing industry, production of building materials and
railway equipment, oil and gas technologies, appliances, etc.

Taking into account the specificity of the activity in terms of the region, 10 higher educational
establishments must be selected. They must train personnel based on the newly developed
educational programs, taking into account new technological processes.

As for the already performed work, only 14 regions have adopted territories’ development
programs that make classification by the industrial and innovation development.

Fig. 1 shows the number of created and used new technologies and objects of the Republic of
Kazakhstan in 2014.

![Figure 1](image)

**Figure 1**
Number of Created and Used New Technologies and Objects
by Regions of the Republic of Kazakhstan in 2014

Source: Statistics Committee of the Republic of Kazakhstan, RFCA

The analysis of implementing SPAIID in terms of a region through the example of 4 regions of
the Republic of Kazakhstan showed the following results (see Table 1).

<table>
<thead>
<tr>
<th>Region</th>
<th>Indicators</th>
<th>Years of implementing SPAIID</th>
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<td>Astana</td>
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<td>Almaty</td>
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<td>North-Kazakhstan region</td>
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<td>Other</td>
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35%

The analysis of implementing SPAIID in terms of a region through the example of 4 regions of
the Republic of Kazakhstan showed the following results (see Table 1).
For the period of implementing SPAIID the Karadandinskiy Region put into operation 59 projects and created more than 4.5 thous. workplaces with the amount of investments – 122 bln. tenge, and 76% of the introduced projects have already been brought to the planned capacity.

Within implementing SPAIID in the Karagandinskiy Region, the Concept of Developing Basic Industries and the Regional Innovation System were developed. They provide for the structural reconstruction of industry, implementation of program and target methods of managing an industrial complex. The implementation of these documents made it possible to move to a higher technological level and thereby ensure the growth of labor efficiency, to strengthen competitive positions of products on the internal and external markets in such areas as mining, ferrous and non-ferrous metal industry, machine building and metal processing, chemical and pharmacological industries, production of building materials (Alpsybaeva and Dzhakupova 2016).

Within SPIID in 2015 the Karagandinskiy Region launched 67 projects. Initially 6 projects did not plan to issue products. Only 56 projects (above 90%) achieved the planned capacity, above 50% - 4 - were loaded, below 50% - 1 project. 10 investment projects with the total value of
about 19 bln. tenge were launched. 649 new workplaces were created there. In 2016 within the Industrialization Map ten projects for the amount of 101.1 bln. tenge were implemented. Within SPAIID the Pavlodarskiy Region put into operation 68 projects for the investments amount of 284 bln. tenge, 5,617 workplaces were created. Within SPIID a list consisting of 24 projects in the investments amount of 1.3 tln. tenge and 5,817 workplaces was made up. It included 20 projects of the regional Industrialization Map in the investments amount of 193.17 bln. tenge. For the period of implementing SPAIID the North-Kazakhstan Region put into operation 32 projects in the investments’ amount of 31 bln. tenge. Within SPIID the region is implementing 41 projects in the total amount of 28.6 bln. tenge and has created 2,006 workplaces. In 2015-2016 27 projects in the amount of 11.7 bln. tenge were implemented, and more than one thousand workplaces were created. For 2010-2014 the Akmolinskiy Region implemented 49 projects in the amount of 121.5 bln. tenge, and above 5 thous. persons were employed. 35 enterprises manufacture finished goods. Within SPIID according to the Industrialization Map from 2015 to January 2017 the Akmolinskiy Region implemented 110 projects in the amount of 815.2 bln. tenge and created 13 thous. workplaces.

4. Discussion

Regions with their research and technological, financial and economic, production and social opportunities play an especially important role, when the economy is moving to the innovation way of development. The implementation of the state innovation policy on the regional level aims at structural transformation of regions’ economy. It provides their social and economic development, improves the innovation activity of enterprises and increases investment attractiveness.

Formation of the regional innovation policy must be based on the following basic principles (Safiullin 2012):

- System approach to forming the regional innovation policy.
- Creation of the regional innovation infrastructure that takes into account specificity of territories, and further integration into a unified system.
- Coherence of medium-term top-priority areas of the regional and state innovation activity.
- Concentration of resources on top-priority areas and accurate defining of financing sources.

Analyzing the global experience on implementing the innovation policy, it is possible to make a conclusion that the innovation potential of regions must be developed according to the following main stages (Razumovskiy and Baklanova 2007):

- Formation and legislative provision of state policy relation to developing the innovation potential of regions,
- Formation of the efficiently operating regional innovation infrastructure,
- Working out programs on developing the innovation potential of certain regions taking into account the top-priority areas of the innovation activity on the regional level, and
- Implementation and current correction of programs on developing innovation potential of regions.

Entrance of companies into international markets is a considerable stimulus to implement innovations. Thus, Russian companies that moved beyond the Russian market introduce global innovation technologies and global innovation business processes several times more often than their colleagues, who operate only within the national market. Such conclusion may seem obvious, but it is worth repeating it: in Russia private ownership and global competitiveness are still main movers of innovations (Suslov 2014).

The following factors have a direct impact on the innovation activity of Kazakhstan regions:
total amount of expenses for areas of innovation activity, internal current expenses for research and research and technical works, number of organizations that perform research and research and technical works, number of specialists involved in the research and research and technical area, including those who are the highest qualified, and the number of higher educational establishments.

The relevant innovation infrastructure is extremely important on the regional level. It allows providing financial, informational, consulting, marketing, and other types of support of innovation processes. Usually such infrastructure includes universities, research establishments, enterprises, research centers, bodies of regional management, and financial institutes.

Institutional structures of the regional level are at the colostrums stage in our country. On the one hand, regional governmental bodies obtained additional powers and economic opportunities in the context of innovation development. On the other hand, when forming regional governmental bodies and public authorities, a misbalance of authoritative powers arose, and conflicts between them strengthened (Lobanova 2015).

In addition to general institutional reasons of the insufficient innovation activity of regions, it is necessary to especially emphasize the use of out-dated management techniques by regional governmental bodies, lack of real economic, financial and institutional levers and stimuli to influence the innovation process.

The implementation of the innovation policy supposes a certain combination of measures, methods, and relevant institutes that develop and implement measures that are determining for the development and implementation of innovations, and implement the innovation potential of some regions.

According to L.S. Aganina, the state management mechanism to develop the innovation potential of regions must be implemented according to the following main stages (Aganina 2005):

- Formation and legislative consolidation of state policy that supports innovation development of regions,
- Formation of the efficiently operating regional innovation infrastructure,
- Working out programs on the innovation development of certain regions taking into account top-priority areas of the regional innovation activity, and
- Implementation and current correction of programs on the innovation development of regions.

The implementation of the mechanism to regulate the innovation activity on the regional level supposes the definition of specific tasks and goals set by regional governmental authorizes. They can be classified into strategic, intermediary and current. All the above goals are achieved by using a relevant set of methods and measures on regulating the innovation activity.

It is reasonable to consider strategic goals of developing the innovation potential of the region in the context of the region’s social and economic policy and benchmarks and tasks aiming at ensuring the economic, social and ecological development of the region. Strategic goals are formed for the long-term period based on forecasting the region development in the future.

Taking into account the need to provide the complexity, the modern state innovation policy as an object of state regulation must define and support priorities of the innovation activity on the state, sectoral, regional and local levels, and form and implement innovation programs for each of them.

Components of the comprehensive regional innovation policy of the state include the creation of the innovation infrastructure, development of the technologies transfer, venture financing, formation of the regional innovation system, development of the highly technological production, science, education and production integration, and formation of innovation clusters.

The main components of the innovation potential of the region include financial, HR, material and technical, research and engineering, marketing, production and technological,
The financial component characterizes the financial state, investment attractiveness, credit worthiness, and efficiency of managing finances on the meso-level to provide stable innovation activity at all stages of the innovation cycle of the regional economy. This component is formed by a combination of financial resources used directly for performing the innovation activity.

The following factors must become important for developing the innovation potential of the region:

- Financial support for implementing innovation projects by privileged crediting from the budget, full and partial compensation of innovators’ expenses to pay interests to commercial banks and other financial establishments on crediting innovation projects,
- Providing guarantees on innovation projects and property insurance to implement these projects in insurance establishments,
- Determining VAT incentive rates for transactions on implementing innovation projects, and income tax obtained from fulfilling innovation projects,
- Applying a flexible system of depreciation of basic assets of research, design and experimental, and innovation enterprises, in particular accelerated depreciation of active assets, and
- Releasing raw materials, equipment, complementary parts and other goods required for the top-priority projects from the import custom and VAT.

The innovation activity, being risky, also requires stable and predictable taxation environment (decrease in the tax rate, innovation tax discount, cancellation of taxes for reinvesting, taxation agreements with other countries, and taxation credits).

The combination of highly qualified HR of the region who can work creatively, generate and implement new ideas form an HR component of the innovation potential of the region. Undoubtedly, the HR potential is an important resource that defines the region’s competitiveness and success on the market.

According to its functional purpose, it is possible to divide the HR component of the region’s innovation potential into two groups: 1) persons who generate ideas, and 2) persons who specialize in the production acquisition of researches (Garifullin 2013; Imamov 2013).

In Kazakhstan the main areas of the HR component development must include innovation training aiming at the development of the innovation culture, non-standard thinking, creative skills, etc., development of the mechanism to maintain older employees who have high innovation potential in the production, and modernization of the system of education, retraining and improvement of innovation HR qualification.

Development of the region’s innovation potential is considerably stipulated by the material and technical component that covers all material and technical resources required for the efficient innovation activity. Material resources follow the HR component and are the most important factor of efficiency of the region’s economic activity. It causes understanding of the importance of their role in forming and developing the region’s innovation potential.

The next important component of the region’s innovation potential is the research and engineering potential that provides the novation creation. The modern stage of the Kazakhstan regions’ development is peculiar of transforming the research and engineering potential in accordance with the market transformations of the whole system of social and economic relations and its adoption to the market conditions, as well as objective changes that take place globally as a consequence of moving to the creation of the post-industrial society. Researches show that along with strengthening the differentiation of the social and economic development of the research and engineering potential, the inequality of placing and developing the research and engineering potential is also strengthened. The latter is considered as a basis of providing their competitiveness and an important component of regional innovation systems.

Undoubtedly, interregional differentiation of the research and engineering potential has an
objective nature. However, it is necessary to keep this process in economically reasonable and socially acceptable boundaries in order to, on the one hand, provide the capacity of territories for self-development, and on the other hand, prevent the loss of research potential, maintain its capacity to make innovation products, and provide innovation competitiveness of the region.

It is still possible to estimate the existing potential opportunities of the research and engineering sector of regions as sufficient for their development. To a definite degree, they can provide scientific support of the most important areas of the regional development in the context of creating the relevant stimuli by state and regional governmental bodies, as well as improving the interest of organizations and establishments – potential consumers of the innovation product. Such situation requires reconsidering conceptual basis and mechanisms of forming and implementing the state research and engineering policy, and defining new principles of organizing the regional science and regional innovation policy.

It is important to emphasize that the research and engineering potential is a component of the innovation potential only if the novation based on it was practically applied and brought the effect expected from using it, i.e. it became an innovation.

The process of commercialization, transformation of the novation into innovation is ensured by another component of the innovation potential of the region – marketing. The marketing component of the region’s innovation potential is a capacity of the region by using the existing resources, current innovation infrastructure and innovation culture to commercialize results of the research and engineering activity. The marketing potential characterizes the degree of compliance of innovation ideas and objects of the intellectual property with the needs of the society and separate economic subjects in competitive science-driven products and services. This component stipulates such conditions as the development nature of market relations, business activity of entrepreneurial subjects on and beyond the region’s market, and tendencies to increasing the demand in the region and improving its structure.

The analysis of the marketing component of the innovation potential of the majority of Kazakhstan regions shows that there are still no advertising centers in the area of research, and research and engineering activity and associated subdivisions in research establishments specializing in applied researches. Such centers would contribute to meeting the economy demand in the most urgent research and engineering developments and developing the market of innovation products.

The production and technological component of the innovation potential is the capacity to implement new promising technological process in the production in the context of innovation activity. According to functional features, the production and technological potential of the regions includes the following basic elements: production structure, applied technologies on the meso- and microlevels, production resources, and institutional conditions. The production and technological potential is a dynamic category that is changed depending, on the one hand, on the society’s needs, and, on the other hand, on the level of resourceful, technological and institutional provision of its development.

Information flows that are a basis for taking management decisions of the innovation nature form the information component of the innovation potential. The information component of the innovation potential includes 1) information funds, 2) system and technical means of formation service, 3) information networks and means of communication, 4) data for statistical report of research and technical organizations, higher educational establishments, and other subjects of the research and technical potential (Semenov 2011).

It is clear that today in order to take competent decisions related to the innovation activity, it is necessary to work out much information, because the society is found at that stage of its development when the information is the most important factor. In the modern society it is possible to provide high efficiency of the innovation activity only based on possessing true information both about the state of the internal environment and external surrounding. Practically, it is possible to achieve it by collecting and analyzing the research and technical
information. Due to it, it is necessary to create a perfect system of innovation and information provision.

In the context of globalization, economies’ penetration based on new information technologies and international communications systems, the formation of informational economy and development of science, where the information is a subject and a result of creative and highly intellectual labor are an integral strategic area of mastering research-driven economic systems of the future.

The cultural and educational component is related to forming the innovation culture. The innovation culture is a sort of a filter on the way of implementing all novelties. However, not all of them will have a positive effect.

5. Conclusion

Thus, it is possible to state that the development of the innovation potential of the region can be successful if it is supported by the state and the favorable innovation climate is created. Due to it, the following areas of state regulation of the regional innovation potential development prevail:

- Development and implementation of a unified set of measures focused on increasing the innovation potential, consolidating all types of resources of all organization and production structures in the region,
- Coordination of the innovation activity within one region,
- Training highly qualified personnel that must be good at issues related to the theory of projects management, commercialization of developments, and technologies transfer, theory and practice of legal protection and use of intellectual property,
- Purposeful formation of the relevant infrastructure of the regional innovations market,
- Coordination of the synchonic development of various sectors of science and production on various levels of managing the country and region social and economic development,
- Providing interrelation of science, education, production and financial and credit area in developing the regions innovation activity,
- Contribution to the development of cooperation between research institutes, academies, and differently owned enterprises of regions,
- Forming reference collections that include data bases and banks, informational provision; obtaining, processing, storage, distribution and use of information obtained during the research, design and experimental, design and technological, and production activity,
- Indirect stimulation of the innovation activity of enterprises taking into account research and technical, natural and other peculiarities of the region,
- Organization of the Kazakhstan’s obtaining, processing, storage and distribution of the research and technical information based on studying the global information market, and
- Efficient informing potential participants of innovation processes (particularly, foreign investors) about possibilities to implement regional innovation projects.

The innovation activity must be based on the efficient use of intellectual and industrial potential of regions, contribute to commercialization of knowledge and technologies, and, consequently, to formation of the innovation infrastructure, and act as a main source of implementing high technologies in the production process.

References


