

Multi-Dimensional Approach to State Regulation of Supply Chain in Innovative Economy

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Abstract- Nowadays in the world, one of the main engines of economic development is scientific and technological progress and intellectualization of the main factors of production. The problem is that most post-Soviet states, in particular, Russia need to develop brand new state programs for regulating innovation. Otherwise, the absence of this regulator may lead to an increase in the gap between Russia and developed countries. Thus, the purpose of this article is to define the main directions of the state policy on innovations and focuses on the supply chain economy in Russia. To achieve this goal, some state programs of developed countries, such as the United States of America and European Union (EU) countries, were considered.

As a result, the main directions of the state regulation of supply chain in the innovative economy were defined. There are some important aspects were identified, such as boosting innovation activity, improvement of the use of public resources, support of domestic innovative products, increasing the supply chain economy's quantity. Because of such economic policy, conditions for the effective functioning of the scientific and technical sphere will be created.

Keywords- state regulation, innovation policy, economic development, supply chain, innovative processes.

1. Introduction

Innovative development is the most important factor in the socio-economic development of the state in current conditions of economic modernization. The economies in the states that emerged on the territory of the former USSR experienced transformation processes related to the transition to the market economy. During this period, large-scale projects were canceled. In recent decades, there has been a positive trend in the innovation sphere. In Russia, on average, up to

eight hundred new technologies are introduced annually. However, this is 3-5 times less than in European countries [1], [2], [3], [4].

In the Russian economy, innovative supply chain processes have more dotted nature and are present almost in all sectors and regions of the country. A decisive role in their development is played by the state regulation as a purposeful system of influence on the development and introduction of innovative supply chain products. This system consists primarily of budgeting research and development, preferential taxation, investing and financing innovative supply chain start-ups, creating an innovation infrastructure as venture funds, innovative supply chain sites (Innopolis) for their planning, control, crediting, accounting [18], [19], [20].

At the current stage of development of economy, innovations are one of the main means of increasing the profit of economic entities, because extensive ways of expanding production are limited. However, in the absence of the state support, it would not be possible to introduce many projects into practice in a short time. This explains the national importance of the need for state regulation of innovative processes [5], [6], [7]. Therefore, such an object of state regulation as financing and support of research and development is of primary importance.

The need for the state regulation of innovation processes is explained by both national significance and economic content of innovations.

As practice shows, most developed countries have their own state policy on innovation [8], [9], [10].

For example, the USA's innovation policy is aimed at creating a business climate in which private sector activity in innovation will flourish and the competitiveness of products will increase; encourage the development, commercialization and use of innovation; integration of military and

industrial innovations capable to solve military and civil problems; ensure a world-class workforce that can function in chameleonic and knowledge-based economy; promoting industry in the development of innovation, economic growth through interaction with industry in the development and application of technologies, measurement systems and standards [11], [12], [13].

The strategic line of the European Union countries in the innovative processes is the concentration of investment resources in key areas, including [14]:

- Initiation of a single database for all EU member states accumulating and regulating a set of minimally necessary procedures and formalities for the establishment of enterprises;
- Support of small and medium-sized enterprises for legal protection against illegal copying of developed technologies or products;
- initiation of a mechanism for financial support of small and medium-sized enterprises, assistance in the preparation, registration and maintenance of patents, taking into account the experience of the national and European patent offices.

Thus, the purpose of this article is to determine the main directions of the state policy on innovations in Russia. This will give an opportunity to specify policy in this area, to develop the main directions and detail the plan for solving the problems.

2. Data, Analysis, and Results

The first aspect of the national importance of innovations is their decisive influence on macroeconomic indicators. Economic growth is based on a combination of extensive and intensive factors. Intensive factors have crucial importance for the economic dynamics. The contribution of scientific and technological progress to the growth of the gross domestic product (GDP) of the most developed countries is, according to various estimates, from 75 to 100% [15].

The second aspect is the impact on the structure of social production. Innovations are the direct cause of launching of new industries and branches, the gradual regression and the disappearance of others.

The third aspect is a significant impact on institutional economic mechanisms. Innovations also change the economic organization of society. New elements in the spectrum of economic structures (for example, venture companies, innovation sites, and mini-cities) appear and the interaction between them is transformed. There are

shifts in the structure and various forms of ownership, etc.

The fourth aspect is the increasing identification of the nation's ability to progress and its ability to produce and implement innovations. The structure of consumption of both material and non-material goods is being improved. The perception of a consumer changes qualitatively and quantitatively, new needs grow and new innovative products (e.g. smart homes, smart grid, fitness, new types of recreation, different kinds of tourism rise such as sports, health, pilgrimage, gastronomy, and romance) emerge after them. Adequate to these changes, the legal, aesthetic, and ethical norms dynamically change.

The fifth aspect is the influence of innovations on socio-economic dynamics and stability. The economic growth generated by innovations allows raising a standard of living of the population, solving the problems of employment, raises educational level and public health services, defuses social contradictions and conflicts.

The sixth aspect is the impact of innovations on the environment, the solution of environmental problems, so the growth of alternative energy in Europe, such as solar, wind, geothermal (in Germany, by 2017, its share in the total generation, according to expert estimates, reached 23%).

The seventh aspect is the activation of international scientific and technical cooperation, the internationalization of economic life, the pooling of resources from different countries, the transfer of technology.

The eighth aspect is the dependence of the global competitiveness of the national economy on the level of development of innovation processes.

The ninth aspect is the interconnection of levels of scientific potential and national security.

Finally, one more aspect of this list is the opportunity of using scientific and technical achievements for antisocial purposes [15].

Innovation potential (of the state, branch, enterprise) consists of a combination of different types of resources, including material, production, financial, intellectual, scientific and technical and other resources necessary for the innovative supply chain activities.

The results of supply chain activities are defined as the effect of many factors, including:

- The whole economic situation in the country (region), the full resource support of production;

- Market conditions;
- Marketing proficiency;
- Professionalism of management, and so on.

Solving the problems of the innovation process requires a developed innovative infrastructure, consisting of a various subordinate, auxiliary, and servicing organizations (institutions).

The infrastructure includes innovative science cities, business incubators, innovative exchanges, innovative funds, consulting companies, an active stock market, the availability of full-fledged insurance of risks, etc.

In addition, active state innovation policy and other specialized organizations are needed.

The main functions of state bodies in the innovation sphere:

- accumulation of funds for research in innovation;
- coordination of innovative supply chain activities;
- stimulation of innovations, insurance of risks;
- creation of a legal background for innovative processes, especially the system of copyright protection, intellectual property;
- staffing innovative supply chain economy activities;
- setting-up scientific and innovative infrastructure;
- institutional support of innovative supply chain processes in the public sector;
- provision of social and environmental sector;
- increase the social status of innovation;
- regional regulation of innovative processes;
- regulation of international aspects of innovative processes.

The state innovation policy is an integral part of socio-economic policy, expressing the state attitude to the innovative supply chain [16], [21]. On this basis, directions, purposes and forms of state bodies' activities in science, technology, and also realization of their achievements are defined. It includes three stages: at the initial stage, the development of scientifically based concepts (the system of views) for the development of innovation activity is carried out on the basis of an analysis of innovative potential. Then the main directions of state support of innovations are determined. At the

final stage, practical actions are being taken to accomplish goals aimed at increasing innovative supply chain activity.

The effectiveness of the state innovation policy, the methods of its formation and the main directions for supporting innovation are to a certain extent reflected in scientific and technical leadership. It manifests itself worldwide: expanding the export of scientific and technical information results (licenses, patents, etc.), increasing exports of ready to use innovations, and broadly providing gratuitous scientific and technical innovation assistance to other countries.

In developed countries, the state innovation policy is aimed at providing a favorable economic and investment climate for the implementation and functioning of innovative processes. In other words, the state policy on innovation is in these countries a link between the tasks of production and the academic science.

3. Discussion

Thus, the main objectives of state policy on innovation support are defined:

- arrangement of conditions (legal, economic, organizational) for the innovative supply chain activities;
- increase of production efficiency and competitiveness of domestic products due to the knowledge-intensive innovations in the production process;
- boosting innovative supply chain activities, as well as the development of entrepreneurship and innovation market relations;
- improving the use of public resources allocated to support innovation;
- expansion of the state support for producers using innovative solutions in commodity production;
- assistance in expanding the interaction of state actors during the innovative supply chain activities;
- support of domestic innovative products on the international market and development the export potential of the Russian Federation [17].

The complexity of the object and the breadth of the state regulation on innovation necessitate the development of a state innovation policy - a set of objectives, as well as methods of the influence of

state structures on the economy and society as a whole related to the initiation and enhancement of the economic and social effectiveness of innovation processes. Measures of state innovation policy should include stimulation of competition, informatization of society, standardization and certification of products and services. In addition, the state should support innovation. This support can be carried out directly and indirectly. Direct methods include financing research and development and innovative projects from budgetary funds, protecting the rights of participants in innovation (creating a state patent-licensing system), initiation of a state innovation infrastructure and innovation market, training qualified personnel, and moral support for innovation (awarding outstanding scientists and innovators state prizes and honorary titles, etc.)

Mechanisms of state regulation on innovation processes could be as follows:

- accumulation of funds for research and innovation;
- coordination of supply chain activities, i.e. the definition of common strategic guidelines for innovation;
- stimulation of innovations;
- the creation of a legal background for innovative processes;
- establishing scientific and innovative infrastructure;
- institutional support of innovative processes;
- regulation of the socio-ecological orientation of innovation;
- increase the social status of innovation;
- regional regulation of innovation;
- regulation of international aspects of innovative processes (scientific, technical, and innovative cooperation, as well as international transfer of innovation).

The role of the state on supporting innovations is, therefore, in creating of a favorable investment climate for scientific and technical programs.

The state innovation policy is implemented based on the following basic principles:

- Science is recognized as a socially significant branch that determines the level of development of the state's productive capacities;
- Openness and various forms of public discussions are crucial when choosing the most important directions of technology and science development, as well as in the examination of

scientific and technical projects and programs, which are carried out on a competitive basis;

- Priority development of fundamental research and development is guaranteed;
- Interaction of educational, scientific and technical activities, based on various forms of participation of workers, graduate students and students of higher educational institutions through launching educational and scientific complexes on the basis of universities, scientific organizations of academies of sciences which belong to the government, as well as scientific organizations of ministries and other federal executive bodies authorities;
- Support of entrepreneurship and competition in the development of technology and science;
- Ensuring the concentration of resources in the main areas of development of technology and science;
- Stimulation of scientific, technical and supply chain activities through the foundation of national scientific centers and other structures;
- Integration of the scientific and technical potential and technical by stimulating their activities;

Development of international scientific and scientific-technological cooperation of Russia at the international level [17].

4. Conclusion

The need for state regulation on innovation is explained not only by national importance, but also by economic content. At present, innovations become the main means of increasing the profit of economic entities due to meeting market demands in a better way, reducing production costs in comparison with competitors. At the same time, in the conditions of classical market mechanisms, obtaining scientific and technical results is difficult, and many innovations are simply not introduced into economic practice.

Therefore, the state, in the aspect of supply chain activities regulation, is aimed at creating conditions for the effective functioning of the science and technology, for which it is necessary to implement science-intensive technologies in production. Therefore, there are various programs, a system of government orders for research and development, as well as tax and other elements through which the state supports innovation.

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