

Main Directions and Mechanisms of Industrial Policy of Russia

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Abstract

Under difficult economic conditions for Russian business, characterized by difficulties of Russian companies' access to foreign modern technologies and long-term financial resources, there is a need for elaborated industrial policy which facilitates the development of national industry and provision of economic security of the country. With current sanctions, the Russian enterprises faced the problems of impossibility of getting foreign equipment under the previously signed contracts, re-orientation of orders for the similar domestic production, and attraction of financial resources from internal sources. Solution to these problems lies in the plane of development of "new" industrial policy. The purpose of the article is to determine main directions and mechanisms for realization of measures of industrial policy which facilitates the development of domestic industrial production, implementation of achievements of scientific and technological progress into industrial processes, and import substitution of science intensive products. Realization of industrial policy of Russia supposes the formation of special conditions. These are favorable economic and socio-infrastructure conditions, attractive entrepreneurial regime, high level of training of personnel for various industries, and informational support of government structures. Activation of innovational activity requires mechanisms that ensure the improvement of conditions for fair competition and increase of motivation of companies for innovations; regulation of product markets (service markets) and sectorial regulation for distribution of leading technologies; development of the system of technical regulation, which includes harmonization of legislative basis of Russia and the EU countries in this sphere; simplification of a procedure of entry of new products into the market; simplification and quickening of the procedures of certification, including as to the international quality standards; simplification of a mechanism of import of technologies; strengthening of requirements to efficiency of enterprises' usage of natural resources, safety of products (services) for ecology and health of population, decrease of energy and materials consumption; development of the system of appropriate bonuses and sanctions, harmonization of Russian standards with international ones, particularly, in the directions that are characterized by perspectives of expansion for export of innovational products.

Keywords: industrial policy, innovational policy, technological policy, directions of industrial policy, mechanisms of realization of industrial policy

1. Introduction

Economic development of a country and modernization of economy sectors are impossible without innovations. The factors of activation of innovational activity are conditions, required for scientific research, which constitute innovational environment and development of economy's industrial sphere. At that, the key role belongs to innovations, rational use of human capital, and strengthening of regional economic potential. Solving the problems of formation of innovational environment and implementation of achievements of scientific and technological process into production are possible due to realization of effective industrial and innovational policy, conducted both on the state level and on level of regions. These circumstances are the reasons for the choice of the topic of the research, aimed at the development of conceptual provisions and methodological approaches to development of industrial and innovational policy that ensures economic growth of national economy and its economic security.

Industrial policy is viewed as an element of socio-economic policy of the country and is a system of measures, aimed at progressive changes in the structure of industrial production and according to the chosen national aims and priorities (Abalkin, 1970).

According to the Concept of industrial policy, prepared by the Ministry of Economy of the Russian Federation, it is a complex of measures by the government, aimed at the increase of efficiency and competitiveness of national industry and formation of its modern structure that facilitates the achievement of these goals.

In our opinion, industrial policy is classified as structural, as it forms regional, sectorial, and industry-specific structural transformations; it has mid-term nature and influences the conditions of functioning and development of regions and certain spheres. Industrial policy is determined by the model of reproduction and economy system in the country. Every county has its peculiarities of formation and realization of industrial policy. They include purposes and tasks according to the priorities of economy, principles of formation, mechanisms of realization, and set of industry factors in the country (Podmolodina, 2014).

In our opinion, innovational policy, being a tool of industrial policy, facilitates the development of high-tech spheres of economy. Its purpose is to create favorable conditions for innovational activity; development of necessary infrastructure, ensuring the increase of competitiveness of products, based on the innovations; effective use of state resources, aimed at realization of innovational projects.

Analysis of Germany's experience in realization of industrial policy allows concluding the following. Technological and innovational policies are realized in direct connection with industrial policy. They facilitate the activation of innovational activity (Podmolodina, 2014).

Generating and implementing the novelties is related to the purpose of technological policy, within which two directions are realized: ensuring leadership in the market of high-tech products and increase of innovational level of country's development. The key task of the first direction is development by means of technologies mobility, their development in any sphere and selling to other countries. The second direction is realized with the purpose of reducing the lag of innovational development as to other countries by means of innovations acquired abroad. This, technological policy is aimed at the identification of important technologies, conduct of R&D in these spheres and implementation of received results into the practical activity (Meyer, 1996).

Innovational policy of Germany includes measures that allow solving problems of financing the development of R&D infrastructure, realization of thematic scientific and research and technological programs, support for innovational development of eastern territories and creation of favorable competitive environment, as well as support for development of small and medium business. Issues of financing the system of education and institutions of high school are managed by land governments – ministry of education and ministry of economy (Industrial policy of the European countries, 2010).

Thus, one of the directions of innovational policy is development of state infrastructural support for innovational companies; at that, there is demand and support for activity of various thematic centers and informational agencies, which provide services in the sphere of innovational management (Popkova, 2013; Morkovina, 2014).

Germany's experience in development and realization of innovational policy will surely be useful for Russian economy.

In our opinion, effective innovational policy should possess the following features:

- 1) It provides the cooperation of subjects of innovational activity;
- 2) Performs the function of connecting link between macro-economic policy, science, education, science-intensive industry, and market (Voronin, 2005);
- 3) Its realization is aimed at the achievement of strategic aims of the country (Freeman, 1987);
- 4) Knowledge, technologies, and innovations should be competitive both in the internal, and global markets (Podmolodina, 2014);
- 5) The decisive role in development of innovational policy belongs to the state (Bergsman, 2000).

Effective innovational policy supposes formation of appropriate infrastructure and implementation of government support for innovational activity of enterprises, which, while performing certain functions, ensure the perfection of mechanisms for the forced transition of the country to innovational oath of development and quick adaptation of enterprises to constant dynamic changes of modern state of the market.

2. Materials and Methods

Understanding of innovational environment, as a result of complex influence of socio-cultural, financial and economic, political, natural and resource, and scientific and technological factors and mechanisms, which ensure the development of scientific and technical sphere, orients at the complex and multi-aspect view of the task and its state. At that, the evaluation of its state gives an idea of the achieved level of development of innovational

environment and effectiveness of functioning of innovational systems and its elements, as well as of opportuneness of conditions for innovational activity.

In our opinion, for the purpose of evaluation of innovational environment, a complex approach should be used, based on the principle of division and further processing of indicators which reflect three main characteristics of conditions for the development of innovational activity:

1. Indicators characterizing conditions for creation of the sector for research and development;
2. Indicators reflecting conditions for development of institutes, legal protection of the results of research and developments;
3. Indicators characterizing conditions for modernization of economy, including technological innovations (Podmolodina, 2011).

The efficiency of the conditions should be evaluated as a level of achievement of planned results. Within realization of the targeted programs of development of innovational activity, the planned results could be the targeted indicators.

Following the requirements of the methods of complex analysis, the evaluation of innovational environment is advised to perform in logical succession of solving separate sub-tasks:

- Choosing directions which characterize innovational development and are to be analyzed;
- Choosing quantitative indicators, characterizing directions of innovational development, which are to be analyzed on the basis of planned values and data on their actual achievement for the viewed period;
- Calculation of coefficient of achievement of planned indicators of innovational development for each provisioned direction;
- Calculation of summarizing integral indicators, characterizing conditions of innovational environment, necessary for realization of the chosen directions of innovational development;
- Determining general complex indicator, characterizing the development level of region's innovational environment.

The first stage includes choosing the most important directions of innovational activity, influencing the innovational development of the country, which are to be analyzed. In our opinion, these are conditions for creation of competitive sector of research and work, development of institutes of use and legal protection of the results of research and work, and modernization of economy based on technological innovations.

The second stage includes choosing quantitative indicators, characterizing the planned and actual realization of the direction of innovational development, chosen at the first stage. Each of the stated directions requires certain conditions and mechanisms of implementation, so it's characterized by a variety of indicators.

The third stage includes determining the level of opportuneness of conditions of innovational environment based on the calculation of coefficient for achievement of planned indicators of innovational development of economic system for each provisioned direction. This coefficient is calculated as a ratio of the value of actual achievement to the planned indicator.

The fourth stage includes calculating generalized integral indicators, characterizing conditions of innovational environment as to the chosen directions. The generalized integral indicators, characterizing the level of opportuneness of conditions for each of directions, are advised to be calculated according to the following formula:

$$J_{uo} = \sqrt[n]{\prod_{i=1}^n K_i}$$

where K_i - individual indicators, characterizing a group of conditions;

n – quantity of individual indicators;

J_{uo} - generalized indicator, characterizing the level of opportuneness of conditions for each direction of innovational environment.

The fifth stage includes determining the general complex indicator, characterizing the development level of innovational environment and level of opportuneness of its conditions in view of all three directions of innovational development.

Using coefficients of weight, found by expert method, it is possible to find complex indicators, characterizing the general level of opportuneness of innovational environment of the country and efficiency of innovational policy. For this, the following formula is used:

$$A_{uo} = \sum_{j=1}^n J_{u\theta(j)} * B_j$$

where A_{uo} – value of indicator of complex assessment of innovational environment for each year;

B_j – weigh value of generalized indicator of conditions of innovational environment as to the directions.

The received indicators characterize the general dynamics of development level of innovational environment. Analysis of dynamics of generalized indicators, characterizing the level of opportuneness of conditions for each of the directions of innovational environment, allows revealing the problems of innovational development of substantiate measures for their removal.

3. Results

On the basis of the offered methodological approach, the evaluation of innovational environment was performed. The received results are represented in the form of three-dimensional model, which allows visually presenting the problems and top-priority directions of improvement of the country's innovational environment.

The fields of the following values are situated at the axes:

X – generalizing indicator of the level of competitive sector of research and work;

Y – generalizing indicator of the level of development of institutions of use and legal protection of the results of research and work;

Z – generalizing indicator of the level of modernization of economy on the basis of technological innovations.

The solid line on the axes X, Y, Z (Figure 1) shows the normative values equal to 1. This is the case when conditions of innovational environment allow achieving fully the planned results.

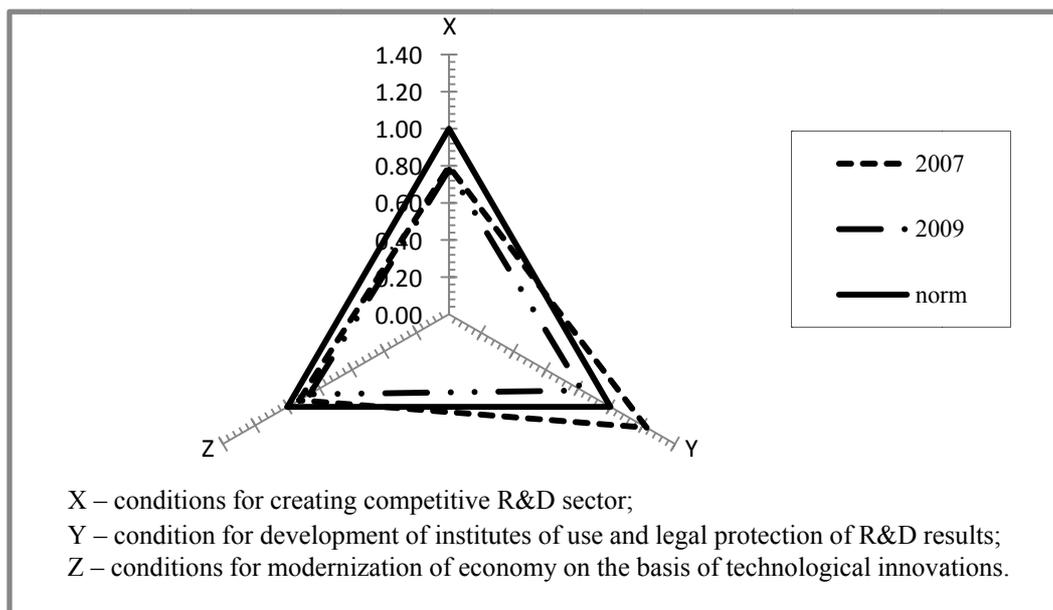


Figure 1. Evaluation of conditions of innovational environment

Figure 1 shows that the conditions that characterize the development of institutions of use and legal protection of the results of research and work in 2009 substantially decreased as compared to 2007. This is caused by the reluctance of entrepreneurial sector to purchase and implement innovational technologies into productive activity.

Indicators of each direction are ascribed coefficients of value, using the expert method. They are shown in Table 1.

Table 1. Coefficient of value of indicators of innovational development directions

Directions of innovational development	Value coefficient
1. Creating competitive sector of research and development	0.4
2. Development of institutes of use and legal protection of the results of research and development	0.3
3. Modernization of economy in the basis of technological innovations	0.3

Complex indicator, characterizing the development level of innovational environment in view of three directions, is shown in Table 2.

Table 2. Complex evaluation of innovational development of the region for 2005-2010

Directions	2005	2006	2007	2008	2009	2010
1. Conditions for creating a competitive sector of research and development						
Complex indicator $K_{j(1)gen}$	0.3603	0.0672	0.3188	0.307	0.3117	0.3168
2. Conditions for development of institutes of use and legal protection of the results of research and work						
Complex indicator $K_{j(2)gen}$	0.2536	0.3108	0.3674	0.3278	0.2469	0.2663
3. Conditions for modernization of economy on the basis of technological innovations						
Complex indicator $K_{j(3)gen}$	0.2858	0.2991	0.2786	0.2512	0.2590	0.2424
Complex evaluation of innovational environment of the country	0.90	0.68	0.96	0.89	0.82	0.83

Complex evaluation of innovational environment by years, showing the efficiency of innovational policy, presented in Figure 2.

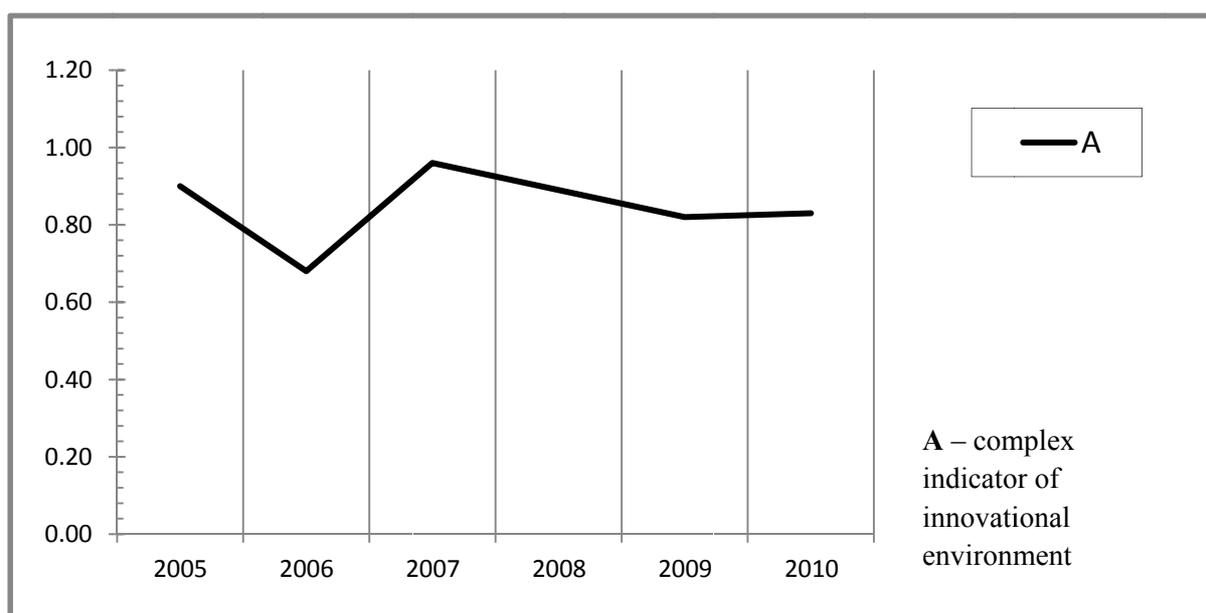


Figure 2. Complex evaluation of innovational environment by years

The conducted complex evaluation of innovational environment allows concluding that the best results in development of innovations and work were in 2007. In that year, the complex evaluation of innovational development reached the desired level (standard). However, it should be noted that during this period there was also underfulfilment of indicators that form the competitiveness of innovational sector of economy, which is caused by the lack of funds (expenses), given for research and work.

The least assessment belongs to innovational activity in 2006, which is also caused by lack of investments in this sector of economy.

Global financial crisis influenced not only financial sector of economy, but also innovational activity of enterprises. In 2009, due to lack of investments into innovations, the complex evaluation of innovational environment in the country was the lowest for the 4-year period (2007-2010). In 2010 there was a slight improvement of innovational environment.

Thus, evaluation of innovational environment allowed revealing the problem of insufficient effectiveness of mechanisms that ensured the commercialization of scientific development and use of leading technologies in productive activity, which is caused by insufficient government support for innovational activity of enterprises.

4. Discussion

Assessment of innovational environment of the country, characterizing the conditions for conduct of innovational activity, allowed revealing the problems, solving of which must be provisioned within industrial and innovational policy. First off, these are measures aimed at the creation of favorable conditions by means of perfecting the mechanisms of support for innovational activity at various stages of innovational process:

- development of legal, investment, and informational provision of innovational activity, development of innovational culture;
- government support for creation and use of objects of intellectual property (Podmolodina, 2011);
- government support for innovational activity at the stage of design and experimental work and preproduction;
- support for innovational activity during the transition to serial production at the stage of development of innovations and innovational growth:

Thus, the main mechanism for development of conditions, necessary for implementation of achievements of scientific and technical progress into industrial production is realization of innovational projects, observation of conditions for constant state management (Industrial policy of the European countries, 2010).

Using the Germany's experience, it is possible to offer recommendations as to improvement of innovational policy, which include:

- 1) reduction of taxes and removal of administrative barriers for innovational activity of enterprises (Popkova, 2013);
- 2) provision of highly skilled staff for small companies, with the help of professional training and personnel training on the spot and during the industrial process (Industrial policy of the European countries, 2010);
- 3) provision of state scientific and research base for implementation of joint innovational projects within private-public partnership (Dunning, 1993);
- 4) financial support for innovational activity of enterprises in the form of:
 - grants for realization of targeted thematic scientific and research programs;
 - subsidies for small enterprises' working in R&D performing on the cooperation basis;
 - loans or venture capital for innovative and small enterprises for realization of innovational projects (Morkovina, 2014).

It should be noted that if the technological lag of Russia remains, it will be important not only to provide support for innovational activity of enterprises, but concentrate on the import of technologies and their implementation. This predetermines the necessity for training of personnel – especially, for small and medium business – that will be able to provide effective cooperation of the enterprise's departments (R&D, production, marketing, sales), involved into innovational process.

5. Conclusion

Realization of industrial policy requires formation of special conditions. These are favorable economic and socio-infrastructure conditions, attractive entrepreneurial regime, high level of personnel training for various industries, and informational support from government structures.

Activation of innovational activity requires conditions which are caused by the improvement of the following mechanisms:

(1) mechanism providing the improvement of conditions for fair competition and strengthening of companies' motivation for innovations. This supposes the development of measures, aimed at the increase of efficiency of work of anti-monopoly authority in case of violation of competitive conditions. Under conditions of market economy, it is competition that makes the companies implement the achievements of scientific and technical progress for acquiring new competitive advantages.

(2) mechanism of regulation of product markets (service markets) and sectorial regulation, which facilitates the provision of favorable conditions for expansion of leading technologies. One of the directions of development of this mechanism is creation and development of technological platforms which are based on the partnership of business, science, and state, and will become tools for stimulation of innovations.

(3) development of the system of technical regulation which included the following mechanisms:

- harmonization of legal base of Russia and countries of the EU in this sphere, with full acknowledgement of the results of certification of by laboratories and certification centers;

- simplification of the new production rollout, including the formation of requirements, giving the manufacturers the possibility for production rollout under their responsibility, declaring with additional requirements for marking and increase of responsibility;

- simplification and quickening of the procedures of certification, including the according to international standards of quality;

- simplification of mechanism of technologies' import – primarily, by means of cancel of the requirement to provide approval documents for import of equipment, the list of which is established by the Government of the Russian Federation;

- strengthening of requirements for efficiency of enterprises' using the natural resources, safety of production (services) for ecology and health of population, reduction of energy and material consumption;

- development of the system of appropriate bonuses and sanctions, harmonization of the Russian standards with international ones, particularly, in the directions that are characterized by perspectives of expansion for export of innovational products.

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