

The Innovative Development of the Territory: Institutional Aspects

Ekaterina Leonidovna Anisimova*, Zhanna Arkad'evna Mingaleva, Raisa Grigorievna Zakharova, Valeriy Vasilyevich Prokin and Stanislav Vasilyevich Rybin

State National Research Polytechnical University of Perm Perm - 614990, Russia;
nsmvtrn@mail.ru, mingal1@pstu.ru, raisa207@pstu.ru,
vvprokin@mail.ru, svRybin@yandex.ru

Abstract

The article considers the innovative development issues in the regions of the Russian Federation (RF), emphasizing the importance of transition of Russian economy to an innovative path of development. The authors consider some of the issues of innovative structure of the RF regions and present certain indicators of their innovative activity, as well as various peculiarities of regional innovation structure formation. The authors propose some recommendations to improve the institutional environment for innovative development of Russian regions.

Keywords: Development of the Region, Innovative Development, Institutional Environment, Scientific and Technical Potential, The Entity of the Russian Federation

1. Introduction

Currently, great significance is paid to the issues of innovative development of Russian regions. Foreign and Russian scientists conduct a large number of studies focused on the innovative development of territories and possible ways and directions of innovative activity development¹⁻⁷.

Lately in Russia, the state authorities are giving increasing attention on the need of innovation sphere development and transition of economy on innovative path of development. Bringing the economy on an innovative path of development is a non-competitive requirement of the present stage of market transformations. To achieve globally competitive positions, the Russian economy must develop its innovative component.

When forming and conducting the innovation policy at both regional and federal levels, institutional aspects of innovative activities and the analysis of the institutional environment are extremely important. Management mechanisms of innovative development must be based on the interaction of factors, such as business operation conditions, state and market regulation, as well as

fundamental and applied research³. Most contemporary approaches to studying of innovative processes and management are based on the role of production, science and the state as interrelated parts of a complex system, whose functioning is provided by a specific basket of institutional factors².

To date, the basic principles of innovation policy in advanced economies are based on:

- Reinforcement of the regional component of innovation policy;
- Formation of a unified research and innovation space;
- Maintenance of an environment, conducive to the creation of novelty and innovation;
- Recognition of innovation as an important source of competitiveness¹.

The government of the Russian Federation directs small and medium businesses towards the manufacturing of competitive innovative products. Today, to optimize the pace of scientific, technological and economic development of Russia, becomes important to determine legally the share of the state sector of science in the scientific-technological complex of the country that will allow optimal regulation in this sphere. The solution of

* Author for correspondence

these problems is impossible without the analysis and understanding of structure and functioning principles of the public sector⁴.

2. Materials and Methods

The methodological basis of the study includes the principles, provisions and conclusions contained in the works of Russian and foreign authors focused on the problems of innovative development of the economy, as well as legislative acts and normative documents of the Russian Federation and international practices.

Research of innovative development of territories and institutional aspects of the innovation infrastructure formation are studied in a large number of scientific works of Russian and foreign scientists. The issues of innovative development of the economy are considered in the works⁸⁻¹⁰.

The aspects of the institutional foundations of the Russian Federation economy are analyzed in the works of Russian and foreign researchers, namely^{7,10} L. Goncharenko, Yu. Arutyunova, O. Williamson, T. Veblen, D. North and others⁷. Study of innovative development of regions was carried out using common scientific methods, traditional statistical techniques for information processing and decision making, decision making methods based on the optimization of performance indicators, the methods of searching for innovative ways of development, which are based on the analysis of economic systems strategic development schemes, the methods of integrated analysis of economic activity, the methods of risk assessment of innovation activity of economic systems, and the project management methods.

3. Results and Discussion

Most of the advanced economies have moved to an innovative path of development, which is based on the development and implementation of new effective technological solutions in various technology fields.

The development level of the innovation sphere determines the ability of each country to ensure the competitiveness of its economy. Innovation is the tool to ensure competitiveness, production renewal and development. All developed countries for several decades undertake a broad range of measures to give the economy an innovation-oriented trend is shown in Figure 1.

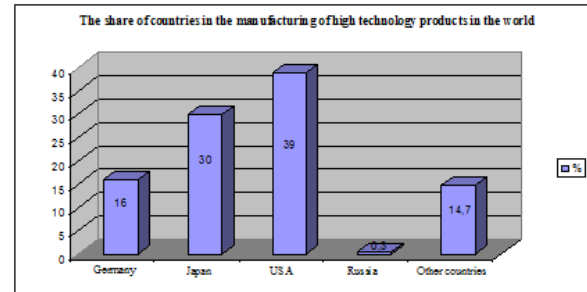


Figure 1. The comparison of the manufacturing of science-intensive products in some countries.

Innovative resources (world intellectual potential and intellectual property) as well as the degree of susceptibility of the economy to new products, started to play a key role in economic development. The course of building an innovative economy is taken by countries such as the USA, China, Japan, Korea and the European Union countries. The increased use of innovative scientific and technical solutions is a characteristic feature of the industrial stage of economic development. Scientific and technical potential, emerging in the world, is able not only to change the pace of development, but also the structure of the economy. Scientific and technical potential can create a variety of economy configuration options within a certain framework, which is based on the resources and social institutions¹⁰.

In Russia the necessity of transition from the raw material economy model to the model of innovative economy is conditioned by the following factors:

- Russia has a high intellectual potential, which is one of the key competitive advantages in the world;
- High dependence of the economy on energy prices.

Strategic challenges facing Russia in the sphere of innovations are the following^{8,11}:

- Acceleration of technological development of the world economy, including the technological revolution in the resource saving and power economy;
- Strengthening of global competitive struggle for highly skilled labor power and investment;
- Insufficient involvement of private business in the development of promising sectors of the national economy;
- Complication of the world political situation (cooperation in the global innovation sector).

The development of innovative processes in Russian regions is a non-competitive factor of economic growth

because it contributes to the following: 1. For federal authorities - in promoting joint initiatives of business, education and science in the regions; increasing the efficiency of the federal measures of state support at the expense of their differentiation depending on characteristics of the regions; developing and implementing regional innovation strategies; 2. For regional authorities - in developing of small and medium businesses, youth involvement in entrepreneurship, boosting employment and increasing tax base; improving the quality of life by stimulating innovation in the social sphere; creating a new impetus for the development of traditional industries of the region; improving the image of the region to attract investment and highly qualified personnel.

The innovative development in most regions of the Russian Federation has become a key element of the program and strategy for socio-economic development. The innovation infrastructure, i.e. innovation-industrial complexes, business incubators, technoparks, special economic zones and small innovative enterprises affiliated at the universities, were actively created in all regions and municipalities. Innovative infrastructure is a network of interrelated institutions serving and providing implementation of innovative activity.

The Institute for Statistical Studies and Knowledge

Economics of the National Research University "Higher School of Economics" calculates the innovative development rating of the territorial entities of the Russian Federation. The rating is based on the four sub-indices that characterize: 1. The socio-economic conditions of innovative activity; 2. The effectiveness of innovative activity; 3. The scientific and technical potential; 4. The quality of innovation policy of the regional authorities shown in Figure 2^{8,11}.



Figure 2. The structure of the Russian regional innovation index.

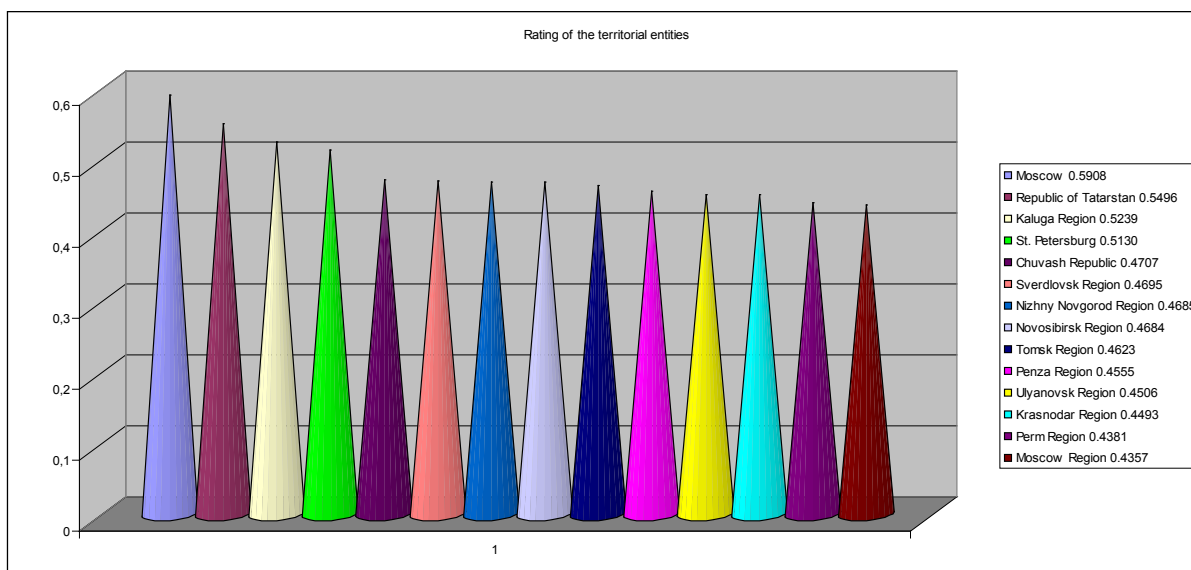


Figure 3. Rating of the territorial entities of the RF based on the Russian regional innovation index.

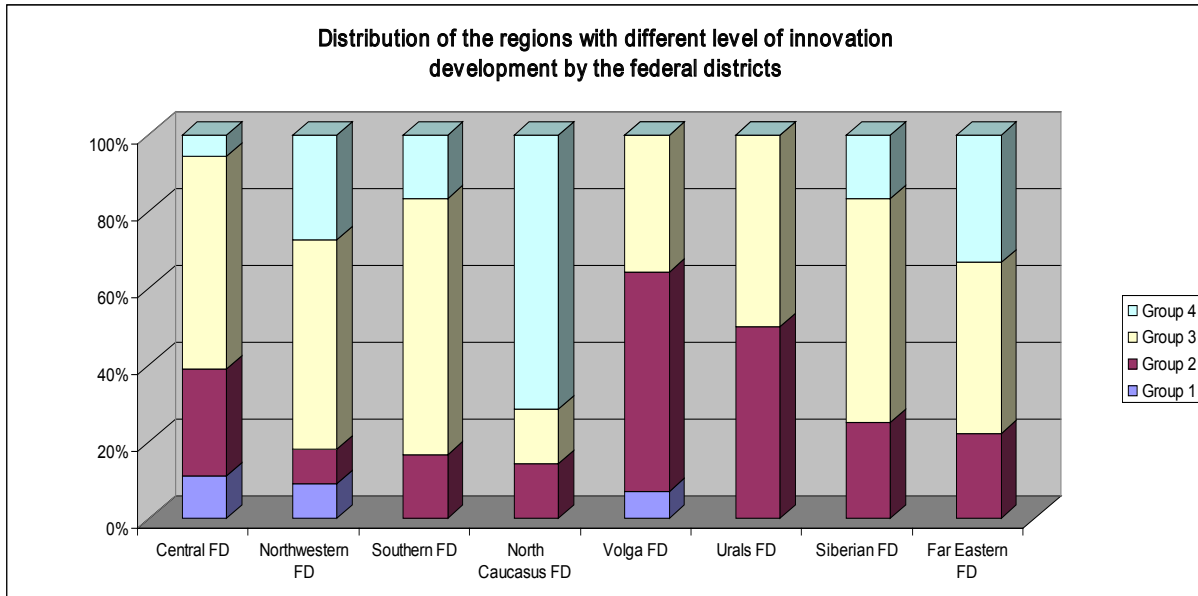


Figure 4. Distribution of the regions with different level of innovation development by the Federal Districts.

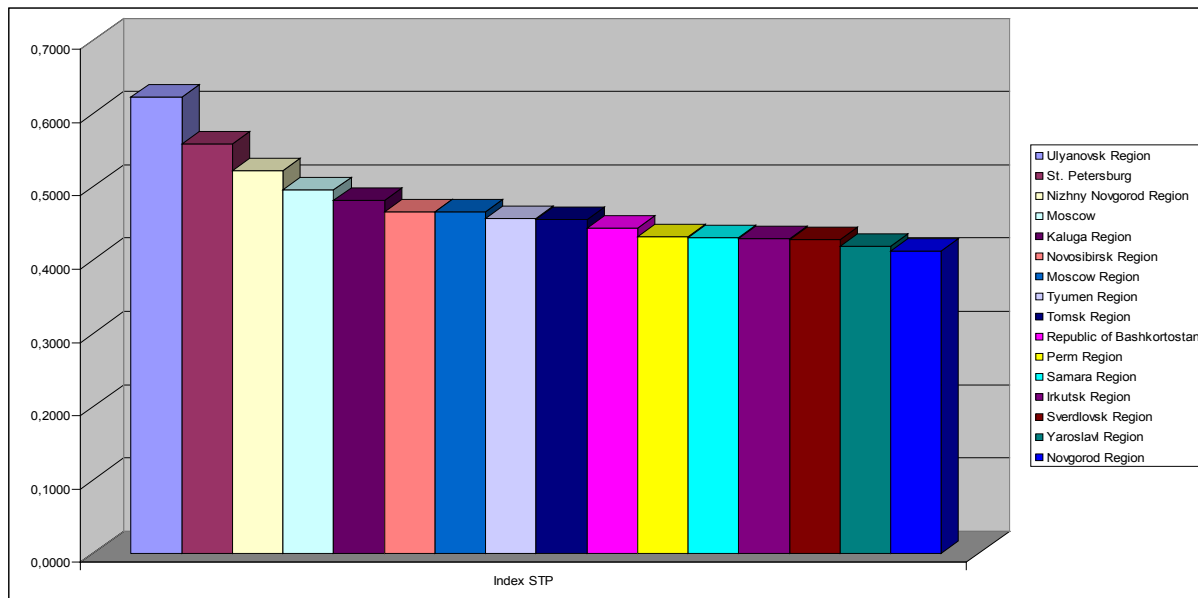


Figure 5. Rating of territorial entities of the Russian Federation, based on the index of scientific and technical potential.

The rating enables decision makers at the federal level to “localize” more precisely the innovation support tools, and each region - to assess their strengths and weaknesses in this area, as well as to trace the dynamic pattern of innovation status over the last years^{8,11,12}.

The highest values of the Russian Regional Innovation Index (RRII) in 2014 were shown by Moscow, Republic of Tatarstan, Kaluga Region and St. Petersburg (first group in terms of RRII). The second group included 24 regions,

and the third group - 40 regions. The regions of the fourth group (15 entities of the RF) complete the rating.

Figures 3–5 present some indicators of innovative activity of the Russian regions.

scientific and technical potential.

The Ministry of Economic Development of the Russian Federation within the support program of small and medium enterprises co-finances the establishment in the regions of innovation infrastructure elements,

such as cluster development centers, shared-access high-tech equipment centers, prototyping and industrial design centers, engineering centers, innovative business incubators and other innovation infrastructure facilities. Besides, technology parks (technoparks) in the field of high technologies, special technical innovation economic zones, and nanotechnology centers are established in Russia at the initiative of the federal center.

Especially noteworthy is the project on Innovation Center "Skolkovo". The aim of the "Skolkovo" innovative project is the establishment in Russia of a model ecosystem to support the research and development, and to commercialize their outcomes. Currently on the territory of the "Skolkovo" Innovative Center (IC "Skolkovo") there are more than thousand innovative resident companies that are successfully operating, while their number is constantly growing. The structure of the "Skolkovo" fund is based on the cluster principle; each cluster includes a major problem - the coordination of all the activities carried out in the appropriate direction. This coordination of activities is associated with the university, as well as the cooperation with large companies to support new initiatives and new startups. There are five innovation clusters on the territory of the IC "Skolkovo" to carry our research and development:

- Information technologies cluster;
- Energy-efficient technologies cluster;
- Nuclear technologies cluster;
- Biomedical technologies cluster;
- Space technologies and telecommunications cluster.

The participants of the project on creation and ensuring functioning of the IC "Skolkovo" (Skolkovo residents) enjoy significant tax and customs privileges, as well as the opportunity to get financing of their own developments at the expense of Skolkovo Fund in the framework of the current grant policy. The activities of the IC Skolkovo are regulated by the Federal law of 28.09.2010 No 244-FZ "On the Innovative Center"¹³.

The state sector of science includes organizations engaged in the implementation of fundamental and applied research. Fundamental studies provide the development of scientific and technical potential and are an important factor in creating of innovation-based economy. Major fundamental research in Russia is carried out in scientific and research organizations of the Russian Academy of Sciences as well as at higher education institutions (including federal universities) and R&D

institutes. At that, since 2001 till present time the role of government organizations in science tends to increase⁴.

The majority of Russian scientific brainpower (about 75-80%) is concentrated in the public sector. Analyzing the indicators of material and technical base, we can conclude that on average about 85% of the cost of fixed assets on research and development is accounted for by government research organizations. Thus, the state ownership of the Russian Federation accounts for about 80% of the country's scientific and technical potential¹⁴.

The state as an entity, possessing significant authority and substantial resources, has a great opportunity to participate in development of an innovative economy, and acts as a regulator and coordinator in the functioning of the institutional environment of innovative development of the economy.

The state supports innovation activity in order to modernize the Russian economy, to provide competitiveness of domestic goods, works and services on Russian and global markets, as well as to improve the population's living standards. State support of innovative activity in the Russian Federation is carried out based on the following principles: 1. Program-based approach and measurability of targets when planning and implementing of state support measures; 2. The availability of state support at all stages of innovative activity; 3. Advancing development of innovation infrastructure; 4. The priority given to the further development of innovative activity outcomes; 5. Prioritized use of market instruments and instruments of state-private partnerships to encourage innovation activities; 6. Ensuring the effectiveness of state support of innovative activities for socio-economic development of Russia and entities of the Russian Federation; 7. The targeted use of budget funds for state support of innovative activity^{15,16}.

Since the process of creating any innovative product results from the intense interactions between different actors, it essentially depends on intra-firm transactions and relations of the firm with the institutional environment. The institutional environment refers to the totality of formal and informal institutions currently operating and defining the main avenues of the society development. Institutional environment, on the one hand, creates conditions for building up the interaction of companies with other actors in terms of information retrieval, searching for technologies, knowledge, experience, and other resources. Changing in time,

institutional environment determines the behaviour of innovative firms, creating the institutional and regulatory framework that affect the decision-making process¹⁷⁻¹⁹.

A favourable institutional environment is a necessary and essential condition for the development of private innovative businesses in the regions. The number of established small enterprises is one of the indicators of the institutional environment in Russian regions. When comparing Russian regions in terms of the development level of the institutional environment, we can use the growth rate of the number of small businesses. The availability of competitive innovation projects and institutional environment, favourable to their implementation, jointly contribute to the modernization of the regional economy⁸.

In accordance with the Concept of long-term socio-economic development of the Russian Federation for the period till 2020 and the Forecast of the long-term socio-economic development of the Russian Federation for the period up to 2030, the formation of the contemporary system of institutions is an essential prerequisite for the achievement of strategic goals of innovative development of the Russian Federation^{15,16}.

Within this concept it is necessary to ensure consistent and effective development of institutions that govern political, social and economic aspects of the country's development.

The institutional environment is required for innovative socially oriented type of development. In the long run it will be formed in the following areas: 1. Political and legal institutions aimed at ensuring civil and political rights of citizens and enforcement of legislation (the protection of basic rights, security of person and property, independence of the judiciary, the effectiveness of law enforcement, and freedom of the mass media); 2. The institutions that ensure the development of human capital (education, health care, pension system and provision of housing); 3. Economic institutions, i.e. legislation that ensures sustainable functioning and development of the national economy; 4. Development institutions, aimed at addressing specific systemic problems of economic growth; 5. Strategic management system aimed at harmonizing fiscal, monetary, structural, regional and social policy in addressing systemic internal problems of development and response to external challenges (including institutional transformation programs, long-term and medium-term development forecasts

of economy, science and technology, strategies and development programs of the key economy sectors and regions, long-term financial plan and the performance-based budgeting system)¹⁶.

Certain proposals on improving the institutional environment can be emphasized to ensure the innovative development of the regions.

For example, the creation of institutional conditions to ensure the knowledge transfer from the higher educational institutions into industry is an important issue²⁰. It is necessary to provide intercommunication between academic teaching staff, researchers at industrial enterprises and entrepreneurship.

To solve these problems on the basis of higher education institutions of the Russian Federation it is necessary to establish technology transfer and commercialization centers, venture funds, innovation centers, etc. These centers would facilitate the commercialization of developed innovative technical solutions and provide services on intellectual property protection, business planning and market analysis, creation of small innovative companies, legal and support services of innovative projects at the stages of preparation for grant support, etc.

Besides, various innovation forums and competitions in the regions (similar to the "Open Innovations" forum, the "Zvorykin Project" competition, etc.) can contribute to the advancement of institutional environment. These events will provide favorable conditions for interactions between researchers, representatives of industrial enterprises and the business community. Also, these events will contribute to involvement of young people in innovative activities.

Creation of technological platforms can also contribute to improvement of state regulation of innovative activity. Technology platforms are a mechanism of public-private partnership in the field of scientific and technological development in several sectors.

4. Conclusion

Currently one of the key problems hindering the development of innovation processes is the lack of a balanced innovation policy that would take into account the mutual interests of the Russian Federation, regions and municipalities, as well as state – society – business interests. The research conducted gives grounds for the following conclusions:

- The innovative development of the regions requires constant improvement of the institutional environment;
- Innovative orientation of the Russian economy will ensure the achievement of its competitive position.

We have studied some peculiarities of innovative development of Russian regions and proposed some recommendations to improve the institutional environment in order to ensure the innovative development of the regions.

In our view, the study of innovative regional clusters of the Russian Federation, as well as the priority development territories and the national technology initiative may become a promising avenue for further research.

5. Acknowledgements

The work is performed under the grant Russian Foundation for Humanities No 15-12-59008 "Institutional environment of innovative economy".

The work is performed at Perm National Research Polytechnic University in the framework of the task No 2014/152 on conducting state works in the field of scientific activity within the base part of the state assignment of the Ministry of Education and Science of the Russian Federation (topic No 1487 "Innovative development of the territory and the solution of key problems of urban planning").

6. References

1. Hudson R. The learning economy, the learning firm and the learning region: Asympathetic critique of the limits to learning. *European Urban and Regional Studies*. 1999; 6:59–72.
2. Crevoisier O. Innovation and the City. In: Malecki E, Oina P, editors. *Making Connections – Technological Learning and Regional Economic Change*. UK: Ashgate; 1998.
3. Camagni R. *Innovation Networks: Spatial Perspectives*. N. Y.: John Wiley; 1991.
4. Strel'tsov SA. Analiz institutsional'noi sredy innovatsionnoi sfery. *Sotsial'no-Ekonomicheskie Yavleniya i Protsessy*. 2011; 8.
5. Yushkova NG. Infrastruktura sotsial'no-ekonomicheskogo prostranstva regiona i protsessy innovatsionnogo razvitiya territorii (na primere Volgogradskoi oblasti). *Ekonomicheskie Issledovaniya*. 2012. p. 2
6. Gataullina AA, Mingaleva ZhA. *Institutsional'nye aspekty innovatsionnoi deyatel'nosti*. Rossiiskoe Predprinimatel'stvo, Kreativnaya Ekonomika, Moskva, 2012;18:60-5.
7. Gokhberg L, Polyakova V. *Innovative Activities and Skills*. The Global Innovation Index. The Human Factor in Innovation. Geneva, Fontainebleau, Ithaca. NY: Cornell University, INSEAD and WIPO; 2014.
8. Leonid G. *Razvitie Innovatsii v Regionakh — Bezal'ternativnyi Faktor Ekonomicheskogo Rosta Strany*. Moscow; 2015.
9. Kuznetsova TE, Gokhberg LM. *Strategiya 2020: Novye kontury rossiiskoi innovatsionnoi politiki*. Forsait. 2011; 5(4):8-30.
10. Bufetova LP, Lapteva YO. *Institutsional'nyi aspekt razvitiya innovatsionnoi sistemy v rossii: Sushchestvuyushchie i novye formy posrednichestva*. *Vestnik NGU. Seriya: Sotsial'no-Ekonomicheskie Nauki*. 2009; 9(4).
11. Gokhberg L, Roud V. *Structural changes in the national innovation system: Longitudinal study of innovation modes in the Russian industry*. *Economic Change and Restructuring*. 2015; 3. doi no:10.1007/s10644-015-9164-8
12. *Innovatsii v Rossii: Klyucheveye Tsifry i Zadachi*. McKinsey & Company; 2011.
13. *Federal'nyi zakon ot 28.09.2010 N 244-FZ (red. ot 29.06.2015) Ob innovatsionnom tsentre*. Skolkovo. 2010. Available from: https://www.consultant.ru/document/cons_doc_LAW_105168/
14. Chereshnev VA. *Institutsional'nye i organizatsionno-pravovye usloviya formirovaniya innovatsionnoi sredy dlya modernizatsii ekonomiki*. *Innovatsii*. 2010; 5.
15. *Kontseptsiya dolgosrochnogo sotsial'no-ekonomicheskogo razvitiya Rossiiskoi Federatsii na period do 2020 goda*. Rasporyazhenie ot 17 Noyabrya 2008 g. N 1662-r. Moscow; 2008.
16. *Federal'nyi zakon ot 23 avgusta 1996 g. N 127-FZ O Nauke i Gosudarstvennoi Nauchno-Tekhnicheskoi Politike*. 1996. Available from: <http://base.garant.ru/135919/5/>
17. Bagrinovskii KA, Isaeva MK. *Bazovaya model mekhanizma upravleniya tekhnologicheskimi razvitiem*. *Ekonomicheskaya Nauka Sovremennoi Rossii*. 2002; 3:31–9.
18. Dinkina AA, Ivanova NI. *Innovatsionnaya Ekonomika*. Moscow: Nauka; 2004.
19. Shelyubskaya N. *Novye napravleniya innovatsionnoi politiki ES*. 2011. Available from: http://vasilievaa.narod.ru/ptpu/12_4_03.htm
20. Mingaleva Z, Gataullina A. *Structural modernization of economy and aspects of economic security of territory*. *Middle East Journal of Scientific Research*. 2012; 12(11S):1535-40.