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TRENDS OF INNOVATION DEVELOPMENT OF THE RUSSIAN ECONOMY

Abstract: The article provides brief characteristics of key areas of development of the information society in the United States, Japan, and France. A strategic analysis of the Russian innovative economy is conducted, key problems of formation and development of scientific and technological macro-environment are specified, the prospects for implementing the Strategy of scientific and technological development of Russia until 2035 are evaluated and compared to another countries' documents of such a purpose (USA, Japan, China). The aim of the paper is to explore the possibilities of increase in innovative activity of market agents of Russia. To do this, the following methods were used: system analysis, comparative analysis, PEST-analysis. As a result, the proposals on better understanding and implementation of research and economic development were worked out by the authors.

Keywords: innovation, economic development, public policy.

JEL Classification: F63, O11, O30, O38

Introduction

The demand for new quality of life, already established in the global community, requires for science and industry to develop and implement new methods of ensuring human longevity, formation of personalized medicine, receiving of remote medical services, enhancing of population mobility, cheapening of goods and services with their quality improvement, establishment of mechanisms and devices ("gadgets") for the convenience of human activity. And the scientific community is successfully working to address these problems.

Innovative macroeconomic environment of the state is the driving force, a "driver" of business activity of all institutions of society. The degree of thoroughness, transparency, clarity and certainty of interpretation of organizational - economic and legal norms directly affect the quality of business processes of economic entities.

The current rates of growth of the world economic system result in transforming the structure and content of the competitiveness in the international market. To maintain the image of an economically developed country it is not enough to "exploit" available natural resources and the production potential formed in the XX century, it is necessary to increase the possibility of innovative development of the state as a whole and the separate branches of the national economy in particular. The scale of the transformation of the economy based on innovation depends in direct ratio on the innovative activity of the state, private business, academic community and public institutions. Transition of Russian economy to an innovative way requires all economic entities to have a clear understanding of the essence of the ongoing changes and awareness of their role in the transformation of economic relations.

Brief Literature Review

In the innovative economy, traditional spheres of material production transform and radically change their technological base under the influence of scientific and technological knowledge, because the manufacture, not based on new knowledge and innovations, in the end is unsustainable (Vorotnikov, Kotelnikova, Tretyak, 2015).

Globalization of the economy contributes to the dominance of the international business environment and international business (Kuzmišin, Kuzmišinová, 2015). For decades the European countries improve the mechanism of innovative activity, specify the vectors of technological breakthroughs and form appropriate behavior models in conditions of transition to the sixth technological mode (Soskin, Matviychuk-Soskina, 2013). In conditions of global economic environment it is important for any innovation-active state to concentrate efforts on the production of competitive innovations (Markatoua, Stournaras, 2012). International

competition in the innovative environment must obey to the members of the society, focused on a responsible attitude to the future and the reduction of civilization risks (Soskin, 2016). Automation of the processes of reproduction brings a wide range of new technical trends into the business and significant economic and social changes in society (Kuzmišin, 2016).

To ensure the quality growth of innovative activity of market actors the methodological basis of policy making in the field of science, technology and innovation in the form of scientific and technological foresight is being developed and constantly improved (Sokolov, 2012). An effective tool to reduce the risk of uncertainty is a preliminary analysis of the external environment (Gollay, etc., 2016).

State regulation of innovative activities has a direct impact on the economic growth of the state and the particular region. Innovation sphere allows providing technical upgrading of production, improving the competitiveness of domestically produced products (Gudkova, Turko, 2015). Russia, despite sufficient scientific potential, is characterized by low performance of innovative activities both in production and in the development of new market niches (Belousov, Solntsev and Khromov, 2008). Gudkova, A. A. and T. I. Turko (2015) believe that innovative activity of Russian enterprises in 2009-2013 was characterized by a lack of stable dynamics and unevenness across regions. In their opinion, the future prospects of innovation development are connected with spatial transformation of the country in accordance with the objectives of socio-economic growth. According to the authors, this proposition requires further study and clarification.

The objective

The aim of the paper is to explore the possibilities of increase in innovative activity of market entities of Russia.

Results

Currently, scientists are developing the indicators of body aging, tests for determining life expectancy, predisposition to chronic diseases. Information-communication systems have appeared in our lives relatively recently, but have already become an integral part of our everyday life, work and leisure. Their development is expected to be directed primarily to the development of "cloud" technologies that provide the user services for storage and processing of information as the Internet service. The development of nanotechnology (working with substances at the level of individual molecules and atoms) has made it possible to produce products with fundamentally new characteristics. The improvement of transport and construction technologies will lead to a significant growth of human mobility, one of the main indicators of the development of modern socie-

ty. The construction of roads and railways in the regions with adverse or severe conditions (mountains, swamps, ravines, permafrost) will optimize the routing of freights and passengers significantly improving transport logistics.

Mass introduction of energy saving technologies and technical regulations on the use of new technologies allowed European countries to create a stable demand for resource-saving products. These trends are reflected in strategies of development of innovative economy of the countries-leaders.

The USA has fundamentally revised the existing doctrine of development with the purpose of both the rise in the gross national product and the reduction of structural unemployment that accompanies the beginning of each technological cycle, plan to stop the transfer of innovative technologies to the countries of "catching-up development" and actively stimulate high-tech production within the country. Significant attention will be devoted to convergent technologies, reduction of import and use of energy resources through the development of closing technologies and provision of national security.

The program of technological development of Japan has also undergone significant adjustments. In the 3rd General (basic) plan for scientific and technological development of Japan for 2006-2010, four priority areas were identified:

- life sciences;
- information-communication technologies;
- ecology;
- nanotechnologies in the field of material science.

The 4th General (basic) plan suggests that the focus will be on two priority areas: life sciences and ecology. It is connected with change in the strategy of country development. As you know, since the 1960s Japan has changed the "path" of its development three times. "The first path" meant the development of institutions of public sector of economy, in this period the country has implemented a full-scale infrastructure development (roads, transport, international seaports and airports). The policy of "second path" was aimed at stimulating the increase in effectiveness in the economy. Today's "third path" of development takes into account the unfolding situation and threats inside the country and abroad.

France intends to develop new markets for bio - and nanotechnology, programming arenas and sensors in information and communication technologies.

China has set ambitious goals for itself in new concept of development of the country:

- independence of the national production potential from the technologies of the countries-leaders in the innovation process;

- creation of a universal mechanical engineering base,
- formation of the basis of the world's technological leader.

Currently in Russia a set of documents that form the basis for strategic development of scientific and technological activities is also formed. Forecast of scientific and technological development of the Russian Federation until 2030 and the Strategy for scientific and technological development of the Russian Federation till 2035 are specified as such documents in the Federal law from 28.06.2014 No.172 (ed. from 03.07.2016) "On strategic planning in the Russian Federation". Long-term forecast is generated in the context of priority areas of development of science, technology and engineering in the following fields: information and communication technologies; life sciences (biotechnology, medicine and healthcare); new materials and nanotechnology; efficient environmental management; transport and space systems; energy efficiency and energy saving. Challenges and opportunities for each priority area were identified, ranking according to their degree of influence on Russia was made, innovative markets and promising groups of products and services were analyzed, characteristics of the priorities of the prospective research was given.

The Strategy for scientific and technological development of the Russian Federation until 2035 (Strategy-2035) was adopted by the Decree of the President of the Russian Federation from 01.12.2016 No. 642. In 2014, Russia ranked ninth in the world in terms of domestic spending on research and development; the fourth in the world in the volume of budget appropriations for science; according to the number of researchers it was included in the second group of countries-leaders. With that there is a problem of immunity of economy and society to innovation, which hinders the practical application of the results of research and development (the share of innovative products in total output is only 8-9%; investments in intangible assets 3-10 times lower than in leading countries; the share of export of Russian high-tech products in world export is about 0.4%).

In the next 10-15 years, the trends of scientific and technological development of Russia are the areas that will provide:

- transition to intelligent production technologies, development of machine learning technologies and artificial intelligence;
- transition to environmentally friendly and resource-saving power engineering, improving the efficiency of extraction and deep processing of hydrocarbon raw materials, development of new methods of transportation and energy storage;
- transition to personalized medicine, high-tech healthcare;
- transition to environmentally friendly agriculture and aquaculture, manufacturing of safe and quality food products;

- countermeasures to technogenic, biogenic, social and cultural threats, terrorism and ideological extremism;
- creation of intelligent transport and telecommunication systems, exploration and utilization of outer space and air space, global ocean, Arctic and Antarctic;
- possibility of effective response of the Russian society to large great challenges with account of interaction of man and nature, man and technology, social institutions on the modern stage of global development, including using methods of the Humanities and social sciences.

Conclusion

According to scientists, state and public men, the main trend of the world innovative economy is the accelerated development of the closing and convergent technologies that will change the "form" of traditional sectors of the world socio-economic system (power engineering, transport, road, industrial and residential construction, production of goods, medicine and other fields). As already noted, currently the main method of production of goods is mechanical, thermal and other processing. Quite often up to 80% of raw materials go into wastes and a large amount of energy is used inefficiently. Quite a different situation will emerge when closing and convergent technologies are used. The advantages of new technologies are not subject to doubt: the most efficient use of raw materials, cost effectiveness and efficiency, production rate, ability to produce complicated mechanisms with almost no human intervention.

Implementation of the Strategy - 2035 should change the role of science in the development of Russian society, economy and the state. It is expected to obtain the following results:

- increasing the life quality of the population, security of the country and strengthening of Russia's position in the global ranking of living standard;
- technological updating of Russia's traditional branches of the economy and increasing the share of products of new high-tech and knowledge-intensive industries in the gross domestic product;
- promotion of Russian technologies and innovative products into new markets, growth of revenue from export of high-tech products and services;
- creation of effective system of organization of research and development, increasing the share of private investment in research and development;
- increasing the influence of science on technological culture in Russia, increasing the degree of organization of social relations and contributing to the prevention of social conflicts.

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