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THE NATIONAL INNOVATION SYSTEM IN RUSSIA: CONDITIONS OF FUNCTIONING

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Abstract: *The article covers the problem actuality of creating the national innovation system in Russia. The national innovation system is considered as a factor in international competitiveness and a basis for effective economic development. The authors examine the genesis of the concept of the national innovation system and its structure. We consider a comprehensive approach to the creation of the national innovation system in the research of some Russian authors. We present statistics on the level of innovation activity in Russia and compare them with those in developed economies. We describe several approaches to establish an effective national innovation system. We describe a well-known in world practice types of innovation development: innovation and imitation. The author conclude that in Russia may create a national innovation system of mixed type.*

Key word: scientific and technical potential, national innovation system, the types of innovative development.

Introduction: Countries with developed economies have been focused for a long time their public policy on scientific and technological potential and special attention is paid on innovative development plans and support of the innovations commercialization. Many authors agree that the value of innovative capacity is commensurate with the value of the product realization of scientific and technological potential. Innovative potential can be formed by the information resources and specially by scientific and technical information in the form of fundamental researches results, inventions, research and development works. [Balatsky 2006, sec. 130]

The application of the innovation as the bridge between science and industry is the main component of the society technical-economic development. The main problem in this sphere is the motivation of innovative activities and innovative product creation. It is necessary to admit that in the public way of thinking innovation activity is associated first of all with the profitable use of the innovations.

The principles of formation system relations in the field of innovations creation have been developed in many countries. Their core principles depend on the their goals: for France it is the creation of the additional work places, for Germany – the development of the modern technologies. For Russia it is the increasing of the economic efficiency and increase competitiveness in the global market.

The role of innovation in Russia is particularly great because the goals of the innovation activities are defined by the necessity to survive in the global economy.

1. Main aspects of the national innovation system theory

The necessity of use in solving this problem complex approach has lead to the formation of single system of regional innovative potential.
It is believed that the founder of the theory of national innovation system (NIS), which examines and analyzes the development of innovative activity in different regions, was K. Freeman (Institute for the Study of Science Policy University of Sussex, UK), B.-A. Lundvall (University of Uppsala, Sweden) and R. Nelson (Columbia University, USA).

The basis of modern scientific research of the NIS were formed by J. Schumpeter works (the theory of economic dynamics), F. Hayek (the concept of dispersed knowledge), D. Norton (institutional theory), Robert Solow (scientific-and-technological advance role in economic growth), P . Romer and Robert Lucas (new growth theory).

Among Russian scientists, for example, E.V. Pilipenko and I.G. Pavlenko national innovation system is considered as a process of interaction and feedback between the full complex of economic, social, political, institutional and other factors that determine the creation of innovation. [Pilipenko, Pavlenko. 28].

In the general case, innovative system is the complex of innovation activity objects and subjects which interact in the process of creation and implementation of innovative products and carry out their activities under the state policy of innovation [Balatsky 2006, c. 321].

But this definition does not allow to characterize the national innovative system in legal terms, as it does not describe the concept of objects and subjects of innovation, but also does not explain the mechanism of their

interaction in the unite system. In addition, national innovative system is considered by its function, that does not give a clear understanding of its institutional structure.

Many scientists think that the so-called human potential is the center of the national innovative system. Human knowledge is an important factor of the intellectual and economic development of the society. Knowledge has become the main factor which determines the leadership of regions and countries. The basis of the competitiveness can be characterized by possibility to search, process, transform, transfer and apply knowledge in different fields. Every day more and more people are involved in this process so in future every person will take part in the process of work with the knowledge and information for the creation of new knowledge.

Education is the basis for the formation of human resources of society as an important element of the national innovative system. Educational potential can be regarded as a complex of quantitative and qualitative characteristics of social and economic parameters of the education system in combination with the accumulated generations of the volume and quality of knowledge and professional experience, which internalized the public and are reproduced through the education system. [I.N. Molchanov]

Innovative youth-oriented has a special place in this process. According public opinion polls and statistics, the average age of innovator today is 27-29 years, while in 2009 this figure was at 30-33 years, and in 2008 was 35-38 years.

The complex approach to the problem of peopleware in the innovation economy is very important and requires the full development of human capital. In this situation, a man and a favorable environment for its development have become a major government priority. Youth is part of human capital, capable of improvement and development, and capable of dynamic response to changing economic conditions, so youth is the main target group of this approach.

2. The characteristics of national innovative system functioning

By applying the concept of a systematic approach such countries as Germany, France, USA etc. have succeeded in formation an effective national innovation system in a short time through the mechanism of interaction between government, business, science and education, which has resulted in significant results - according to experts in 10 years the volume of product innovation in the GDP of developed countries will reach 50%. Russia lags behind the world leaders in this indicator and one of the main reasons for the low share of innovative products in the country's GDP is the lack of an effective national innovative system.

An insufficient level of national innovative system in recent years results is the fall of country competitiveness: in 2009, Russia was on the 51st place of global competitiveness, and in 2010 - 63 place. International organizations consider corruption, lack of companies financing, weak protection of property rights and tax regulations to be the main problems for the development of Russian national innovative system.

Klochkova N.V. in her article "The development of innovation activity in Russia" [Klochkova 2010, c.11] writes that: "There are six main factors which have influence on the innovation activity of the country and its economic subjects: the talents, the commercialization of innovative ideas, demand, infrastructure, protection of intellectual ownership and availability of technical regulations, as well as the efficiency of public administration."

Unfortunately, despite great intellectual potential (talents), the other factors in our country are not developed. We can say that Russia has not yet established national innovative system and innovation activities can be characterized by structural deformation, institutional gaps, inconsistencies and imbalances, technological, economic and social aspects. For example, if we investigate the ratio of researches and financial resources for this researches, than we can vividly see the significant lag of Russia from the economically developed countries. Netesova M.S. in her article about the innovative development of Russia has concluded that in our country, R & D spending are in 45 times lower than in the USA and in 2 times lower than in Japan and 7.5 times lower than in Germany. It is also written in the article that in Russia are sold only 8-10% of innovation projects, whereas in USA - 62% and in Japan - 95% [Balatsky 2006 s.317]. At the economically developed countries 60-70% of all businesses have innovations. In these countries have developed such parts of national innovative system as guarantee of financing, technology and information infrastructure for innovations.

Indeed, in Russia the share of innovations that are commercialized, that is, become innovations in the form of innovation projects is very small. And the cost of time required for innovation that has passed all stages of the innovation (development, marketing and production), are very large. This leads to the fact that some innovations are losing relevance and novelty before the implementation stage of production and market sales: many inventions, technology, are simply out of date in implementing the innovation project. Russia's share in world market of high technology products is about 0.3%, which is very small, if we'll take into the account enormous scientific, technological and human resources of our country. According to statistics, in Russia, only 5% of registered inventions and efficient models become objects of commercial transactions.

3. Current conditions for the development of the innovation system in Russia

In Russia, the share of innovative enterprises in the total number of industrial enterprises is only 10%, while in other developed countries the figure is much higher. The world leader in this ranking is Ireland, where almost 90% of companies have in innovation activities, in Canada and Germany (70%), Australia (60%). In France, the share of innovation active enterprises accounts for almost 50% in Italy - 40% in England and Spain - about 35%, in Japan - 30%. It's important to admit that in this case we are talking about innovation and not the so-called "False" innovations, which include updating equipment, improving the range of manufactured goods, technology optimization, etc. While in Russia, almost 70% of all innovations are made for the maintenance or not significant improvement of the equipment and technology.

World experience shows that innovations are not equally spread, and placed in some regions of different countries. Nowadays, during the formation of a national innovation system in Russia special attention is paid on innovation centers in the most favorable which are not always situated in one region. The so-called point of innovation activity can be a university, free or special economic zone, clusters or individual enterprise. Each of these subjects has its own model of innovative development.

For example, the basis of the cluster functioning as the main element of the national innovative system is to bring together in one technological chain economic objects which are involved in the process of obtaining, processing, production of knowledge in various fields. Clusters can have different scales, but the binding condition is that they work on the principle of creation-distribution-materialization of knowledge, the building of this chain is the goal of creating a cluster.

The begging of the XXI century can be described as a phase of development a model version of the territorial innovation center type formation. An example of it can be the creation of the modern scientific and technological innovation in complex Skolkovo. Russian President Dmitry Medvedev said in his speech March 18, 2010 has defined the future of innovation centers in Skolkovo as the prototype of the future, a major testing ground for the new economy. The project is based on the creation of Skolkovo municipality includes the construction of housing, recreational facilities, infrastructure and new institutions.

4. Prospects of the development national innovative system in Russia

Many researchers identify two types of innovation systems operating today - innovative (England, Germany, USA and USSR during the period of its existence) and imitation (Japan in the postwar years, "the young tigers of Southeast Asia"). So now the economists put forward two main hypotheses about the future way of innovative development of Russia - the so-called inertial way and technological breakthrough way. In the first case business will be the main driving force for innovation development in the second case – the role of the government in the formation of a national innovation system will be bigger [Klochkova, 2010, p.13].

Russia now faces the choice of national innovative system development way. In these conditions the analysis of advantages and disadvantages for both ways is very actual. First of all it is necessary to pay attention that imitation model can seem more economic. But in reality for example Japan since the early 70-s to the present time has spent on research and development more money than the United States and Great Britain, the national innovative system of them has an innovative type. Japan attracts foreign specialist and pays special attention on the preparation of national scientists and also on various information systems for the selection of technologies, including analysis of technical papers published in various publications, research reports, proceedings of scientific conferences, patents.

Conclusion

In Russia, the formation of national innovation system can be started from the formation of territorial systems, taking into account the resources in each region and factors in the development of innovation. These subsystems will be elements of a single national economy integrated into the national system that will provide future innovative development of the regions and the country as a whole. The necessity of creating regional sub-systems of innovation economy lies in the significant difference in the level of economic and social development of regions - for example, the gross product regions have up to 64 times, the volume of investment per capita - up to 2000 times, the level of unemployment is almost 24 times. Therefore, in the near future the main goal should be to create the national innovative system, which will improve the development of regions, the vast majority of which is now in depression and rely on subsidies. This mechanism can create a common innovation space, which will ensure the establishment of knowledge-based economy.

We believe that the most reasonable in this case would be a combination of two types of strategies for innovative development - innovation and imitation. It is possible to buy and use some technologies of the world leaders. But at the same time, it is important to develop own innovation system because Russia has all basis for its construction - basic science, which is the sector of knowledge generation, as well as scientific and technological and human potential to create new ideas which will have demand in the goods and services market.

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