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COMPARATIVE ANALYSIS OF INNOVATION PROCESSES IN THE CIS COUNTRIES

Annotation

The article deals with the comparative analysis of innovation processes in the CIS countries. Also, there is a comprehensive analysis of ways of moving the CIS countries to innovative model of development, taking into account the scientific and technological development and fundamental mechanisms of development.

Keywords: Innovation, Innovational process, CIS countries.

Ключевые слова: Инновация, Инновационный процесс, страны СНГ.

Тірек сөздер: Инновация, Инновациялық үрдіс, ТМД мемлекеттері.

It was one of the most difficult but important challenges for the CIS countries to form the State policy, capable of innovative development of the national economy, the growing economic activity are worrying trends of continuing movement towards de-industrialization production and increasing technological backwardness in the recent years. Structural and technological changes in the economies of the CIS were largely spontaneous, under the influence of until recently macroeconomic competitive advantages. The basic mechanisms of growth too concentrated in a handful of industries whose success mainly depends not on innovation, but on exports of primary commodities. At the same time the share of innovation active enterprises continuously decreasing in the region: with 50% in the Soviet Union before its dissolution until current 13.0% in Belarus, 10.3% in Russia, 12.3% in Ukraine, 2.2%-in Kazakhstan, while in the developed countries of the West that today reaches 60 or even 80%. The total share of CIS countries doesn't exceed 0.5% in the world market of high-tech products.

It is clear CIS countries are unable to deal with the need to quickly overcome the technological gap and substantially increasing the competitiveness of the economy, without a sound structural transformation of the economy and especially its shift of energy raw material on innovation model of development.

Equally important is for the same purpose, strengthening the participation of the countries of the region in the international technology exchange. Also it must be found the way to increase the interest of the countries of the CIS to deepen the integration in this area, until the formation of a single scientific-technological and innovation space.

In other words, only a peer-reviewed scientific and technical policy aimed at deploying processes turning the scientific knowledge into innovation and production, will allow CIS countries to escape from the deadlock, to proceed with the modernization of the national economy and to become more closely involved in the global economic cooperation.

This is determined by the relevance of the study devoted to the analysis of the current status and prospects for intensification of science, technology and innovation policy of post-Soviet countries.

Nature and trends of global development, the need to quickly overcome the technological "breaks" with the highly developed countries, creating political and economic preconditions for accelerated growth led to the passage of the national economies of the CIS countries in an innovative way. Global patterns cannot be ignored in assessing the opportunities and prospects for innovation development of CIS countries. The emergence of the new economy is one of the most important among them, the strategic resources which are knowledge and information.

Problems of scientific and technical policy of the CIS countries and the prospects for their innovative development are still explored in a number of monographs and articles.

Guidance documents were used in the CIS countries in science technology and innovation policies with the aim of methodological and comparative analysis, analyses a number of foreign countries, the most successful in the development of national innovation systems, treatises on the economic transition and area expertise.

The scenario on this issue remains debatable, particularly concerning the choice of strategy for the transition to innovation model of the development. However, if the State does not have clear guidelines for further development, mechanisms for their implementation and real ways of predictable result, then this transition may not take place. Therefore there is a need for further research and methodological developments, based on a realistic assessment of the existing innovation potential in the CIS, as well as to forecast the innovation development of economy of post-Soviet countries in the context of the ongoing deployment of global and regional integration processes.

Transition in the post-Soviet space, which began after the collapse of the Soviet Union for more than 20 years ago, turned to the newly emerged on its territory and in the CIS States serious losses in economy, science and technology, resulting from the elimination of the previous centralized system and the destruction of the once unified economic area. The transformation in the countries of the post-Soviet space was more painful than, for example, in Central and Eastern Europe, which with the help of the EU and foreign direct investment was recovered relatively quickly. In the CIS countries the depth of the fall of most macroeconomic indicators was disastrous. Economic reforms undertaken here not only did not lead to a modernization challenge, as promised by their authors, but rather pushed the post-Soviet countries far behind in terms of their capacity to ensure the quality of economic growth.

Transformation of the economic relations in the former Soviet Union has been accompanied by a decline in production runs on high-tech products for technical and technological level of industry and, above all, machine-building, greatly narrowing the technological base to keep the machinery and equipment, the introduction of new technology, decreased demand for the production of results of intellectual work. This was the main cause of increased technological crisis in post-Soviet countries, the consequences of which have not been overcome yet.

The financial crisis also affected all countries, without exception, and the sharp drop in economic growth has led to a reduction in public expenditure on scientific research and experienced constructional working out (SRECW). The number of employed fell sharply in science, the number of academic institutions, weakened the material and technical base of science and decreased wages of scientific and engineering staff that contributed to the downfall of the prestige of intellectual work in science and in SRECW.

The greatest losses in transformational period suffered occupational science (CIS), which during the Soviet period mainly serves the military-industrial complex. Since 1991, it has lost almost all their sources of funding, as an independent operation on the market of scientific and technological products of civil or dual use. In this sector there have been the greatest reductions in government orders the release of highly competent professionals, resulting in the disintegration of the scientific-technical and production teams.

As a result, in the CIS countries, there has been a significant decline in UNFPA industry of new technologies and today, on average, only about 7 per cent of them are fundamental novelty, and 3.6% were supported by patents.

Low competitiveness explains the weak presence of the CIS countries on the world industrial market, which in the high-tech sector is controlled by the countries with economies in post-industrialized and in niches, predominantly traditional technologies, more and more Chinese enterprises is captured.

In this situation, the absolute priority in the economies of countries such as Russia, Ukraine, Kazakhstan, Turkmenistan, Azerbaijan, then proceeded to demand product on the world market and the extractive industry products of primary processing of raw materials, the export of which thanks to a favourable price movements provided in recent years, the success of the economic background of the exporting countries, as well as a number of other CIS countries (Belarus, Georgia, Armenia, Moldova), who until Russian hydrocarbons.

However, the continued one-sided orientation towards the development of the mining sector, even in spite of the current high revenues from the export of its products and a favourable medium-term price forecast, in the long term, clearly is futile in the light of the impending reduction of natural resources. The share of fuel and raw materials in world exports today is the downward trend and is projected to be less than 10% by 2020.

Thus, the countries of the CIS have a dilemma: either to move progressively on the innovation way of development of the economy and by harnessing the intellectual potential of their engineering and scientific and technical expertise to solve complicated socio-economic problems, or become an appendage of lead countries, with the opportunity to address their concerns directly on these countries in world commodity markets.

By the end of the 90s post-Soviet countries have become aware of the need to develop a strategy for the transition towards an innovative development, with the most effective model for the economic growth of commodity-exporting countries, including Russia, has recognized a

significant commodity economy and dynamically growing cluster of high-tech industry, including through technological spillovers of financial resources from the commodity sector.

It was also apparent that the transfer of the economy to the innovation way of development is not possible without increasing the State policy in the sphere of involvement in productive use of scientific and technological activities. The improved utilization of the intellectual resources and emerging scientific and technological outcomes for transition to a competitive, dynamic, knowledge-based economy is the purpose of this policy.

Most actively towards a new paradigm of scientific, technological and innovation development is still Russia, Ukraine, Belarus and Kazakhstan, who developed a scientific potential and highly motivational.

Today in these countries, the task of creating a national innovation systems, a variety of concepts and programs, as well as regulatory instruments in which, first, define the General principles and priorities of the science, technology and innovation policy; Secondly, the main tasks in the area of legal environment for innovative development and, thirdly, specific sources of financial support for innovation (see table 1).

Table 1 – Basic documents adopted in Russia, Belarus, Ukraine and Kazakhstan in the field of innovation

Russia	Belarus	Ukraine	Kazakhstan
1. The law "on Science and State scientific and technical policy" (1996).	1. The programme for the development of science and innovation (Decree of the Government of the Republic of Belarus, 1996).	1. "The creation of science parks and innovation structures of other types" (order of the President, 1996).	1. Program of innovation development of the Republic of Kazakhstan (Decree of the Government of the Republic of Kazakhstan, 2001).
2. basic policy of the Russian Federation in the field of science and technology for the period up to the year 2010 (approved by the President of the Russian Federation, 2002).	2. Conception and development of the industrial complex of Belarus for 1998-2015 timeframe (Decree of the President of Belarus, 1998).	2. the concept of scientific, technological and innovation development (adopted by the Higher Rada, 1999).	2. The law of the Republic of Kazakhstan about innovation (2002).
3. the main lines of State investment policy in the field of science and technology (The Government of the	3. The concept of innovation policy of the RF in the 2003-2007 periods (Resolution of the Government of the Republic of Belarus,	3. The law "on special regime of investment and innovation activity in technological parks (1999).	3. The strategy of industrial-innovative development of the Republic of Kazakhstan for 2003-2015 timeframe (Decree of the President of the

<p>Russian Federation, 2003).</p> <p>4. The principal policies of the Russian Federation in the field of development of innovation system for the period up to the year 2010 (approved by the Government of the Russian Federation, 2005).</p> <p>5. The strategy for development of science and innovation of the Russian Federation for the period up to the year 2015 (approved by the Interministerial Commission for science and innovation policy, 2006).</p>	<p>2003).</p> <p>4. The structural adjustment programme and the increasing competitiveness of the economy of Belarus until 2010 (resolution of the Government of the Republic of Belarus, 2003).</p> <p>5. The list of priority directions of fundamental and applied scientific research of RB for 2006-2010 (Resolution of the Government of the Republic of Belarus, 2005).</p>	<p>3. The law on innovation (2002).</p> <p>4. The law on innovation activity priorities in Ukraine (2003).</p> <p>5. "On the financial support of the innovation activity of enterprises, which are of strategic importance to the economy and security of the State" (Decree of the President, 2004).</p>	<p>Republic of Kazakhstan, 2003).</p> <p>4. The program on the formation and development of national innovation system in 2005-2015gody (Government decision, 2005).</p> <p>5. The law "on State support for innovation, (2006).</p>
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Although the process of formation of national systems is rather slow and while none of these countries really failed to intensify innovation across the State, we cannot fail to see that the individual position of the innovation systems gradually filled with practical content.

Thus, virtually all countries are priority areas for the development of science and technology in the long term, taking into account the global trends of scientific and technological progress, and the characteristics and potential for the development of specific areas in a particular country. Without this, it is simply impossible to set realistic direction and strategy of establishing their own breakthrough production niches in the global economy, as well as to develop adequate mechanisms to those tasks.

Among such areas: information and telecommunications systems, new materials and new sources of energy, biotechnology, environmental management. Key areas for the development of new technological order are also nanotechnology, artificial intelligence systems, the global information networks and high-speed transport systems, energy-saving technologies. Further development will be manufacturing automation, space technologies, production of constructional

materials with predefined properties and nuclear energy. Almost all of these positions in a given configuration are reflected in national lists of main directions.

Taken at the State level documents also defined that the implementation of the national science, technology and innovation policy reviews will be carried out within the framework of program-target method on the basis of the principles of public-private partnerships, direct and indirect support of innovative programmes and projects, the participation of the State in the development of innovation infrastructure and training.

In a number of documents was confirmed the intention of the countries to increase multiply spending on research and development in the coming years.

Unlike most countries in the world where two-thirds of financing science occurs through private funds, in the CIS countries, public funding over the medium term will prevail.

One of the ways of raising funds from private businesses in innovative sphere is the creation of public-private partnerships in the implementation of the most important innovation projects, including in the framework of the new infrastructure, such as business incubators, technology parks, technology transfer centers, the network which has been established in many countries of the CIS.

The challenge for our technological park is the commercialization of scientific ideas through the creation and development of small forms of ownership. Availability of infrastructure allows you to provide innovative enterprises located on the territory of the Park, a full range of services necessary for the establishment and development of a knowledge-based business.

However, you should recognize that most parks in CIS only passes phase and accumulates its innovation potential. For example, in Russia formally recorded nearly 80 parks, but most of them exist only on paper. In recent years, it is managed to take only 30 accreditation and international standards recognized by a little over ten. Also, it was created 8 techno-parks in Ukraine, and really works only 4. There are 5 techno parks in Belarus today and operates 15 parks in Kazakhstan.

One of the problems hindering the development of innovative business in the CIS countries is the slow development of small and medium-sized innovative enterprises. Hinder the development of legal and administrative barriers, limited access to finance, a weak research base, as well as the difficulty in providing legal protection and protection of intellectual property rights, a high level of offences in this area, as well as unfair competition in science and technology. Often the main sphere of activity of small business, trade (90%) becomes, while the proportion of small firms really relevant appearance of innovative enterprises is not more than 2% in Russia and Ukraine, and 1.4 per cent in Belarus.

It is still loosely used such an effective mechanism for financial support of small innovative business as private equity in the post-Soviet space. Talking about the causes of this, first note the impermeability of the economies of the countries of the post-Soviet space in a high risk venture investments. In the CIS countries is difficult to find a venture investment enterprises with a view to the rapid growth of capitalization. Instability of law does not allow investors to plan for the long term in the condition where venture capital investments have terms from 3 to 7 years. Weak

stock market, the existence of the shadow sector of Economics impeded the free exit of venture business of pro invested companies.

Nevertheless, the experience in venture activity is gradually accumulating, as evidenced by the positive dynamics of national venture capital funds, as well as the growth of venture investment in Russia, Kazakhstan and Ukraine.

Today, it can be only conditionally optimistic assessment of the development of Russian business venture. Despite the efforts undertaken by the State, the amount of venture capital remains very low, around 50-70 million dollars per year. Until recently, there were about 25 active managers who have worked with 60 venture capital funds in Russia.

A turning point could be the establishment of the State of the Russian venture company (RVC) with a network of 10 – 15 venture funds with aggregate capital in 30 billion rub. (1.2 billion). The total amount of State support will amount to 15 billion. rub. In fact, we are talking about that in the next few years the country should have full venture capital industry.

There are about 50 domestic formally and 8 foreign venture funds, a major investor in Ukrainian funds is the European Bank for reconstruction and development (EBRD) in Ukraine. As in Russia, in the national market, there are regional venture funds and direct investment of small enterprises, where the EBRD is almost 100% investor, as well as some funds direct financing where the EBRD operates as a co-investor.

However Ukrainian venture capital has invested in innovative projects. For a more attractive is to implement investment projects the average level of risk with the use of transactions in financial assets and real estate. There are about 40 per cent of the assets of venture funds posted in real estate, according to the Ukrainian Association of investment business. The most common form of venture investment in Ukraine has been providing investment loan-from specially released under project bonds to direct investment lending through venture capital funds.

Kazakhstan currently operates eight venture funds, including three with foreign capital participation. The total amount of venture capital reached 144 million dollars, 112 million \$ focused on the domestic market and 32mln. dollars invested in overseas venture capital funds from this amount.

The analysis of prospects of innovative development of the CIS countries shows that today the most difficult task of national science, technology and innovation policy is to encourage the active participation of the business sector at all stages of the innovation process. Equally important are clear and relevant rules and laws in the area of public-private partnerships, particularly in the area of intellectual property law.

In addition, rather than allocating public resources to numerous scattered small amount of innovative actions should, in our view, to focus on a limited number of key technologies that could be the basis for a new image of the innovation system.

So, the relatively strong position of the Russian Federation in such high-tech areas as nuclear energy, nanotechnology, software, materials, propulsion, superconductivity and etc. Unique Russian competitive resource is the rocket and space complex, featuring a highly knowledge-intensive and good return.

Ukraine has serious scientific and technical works and production experience in such priority sectors as defense, aerospace, shipbuilding, chemical, and energy engineering, information technology, agriculture, and transport infrastructure. From 22 basic space missile technologies 17 were mastered by national producers.

Today Belarus has large in the scale of the country scientific and technical potential and significant developments in the field of high-tech industries. At the enterprises of the Republic of new generation machine, new microelectronic components for the electronics industry, computer and fiber-optic technology, opto-electronic and measuring equipment, including dual use, new effective medicines and varieties of agricultural plants. Successful realization of competitive advantages with very limited own raw material and energy inputs and difficult environmental conditions, can stimulate technological upgrading and expansion of high-tech industry competitive in the world markets.

Unlike Ukraine and Belarus, Kazakhstan's transition to innovation model of development is associated not so with the high-tech industries, but with the desire to increase the share of value added in manufacturing products. So promising is deepening processing of oil and gas, which may provide an opportunity for the production of about 200 varieties of polymeric products used in virtually all sectors of the economy and in the home. Good prospects in this regard are also available in the steel industry. It is known that the production of non-ferrous metallurgy of Kazakhstan has been used effectively in a knowledge-based and high-tech products-spacecraft, weapons and electronics.

In Kazakhstan, the basic problems of low innovation activity of the domestic economy is commodity-oriented industries, the lack of highly qualified scientific and engineering personnel, lack of financial resources, a small number of organizations concerned with innovation, intellectual property protection and a low level of innovation management.

The results of the study give rise to the following conclusions and proposals:

1. The analysis of prospects of innovative development of the CIS countries shows that today the most difficult national science, technology and innovation policy is to encourage the active participation of the business sector at all stages of the innovation process. Equally important are clear and relevant rules and laws in the area of public-private partnerships, particularly in the area of intellectual property law.

2. Specific provisions of the conclusions and practical recommendations include:

-rationale that innovative path of development in the course of economic reforms in the CIS countries;

-the features of the innovation strategy in transitional economy and problem statement on strengthening the role of the State as the key link building a national innovation systems;

-assess the feasibility of adapting the foreign experience of the CIS countries and the science and technology policy;

-analysis of the dynamics of the development of science and technology capabilities and scale of resources science in the CIS region;

-experience of innovation infrastructure in the CIS countries, including techno parking and venture-capital structure;

3. The task of changing the economic model in the industry of CIS and focus on the innovation way of development, leads to the need for a certain organization of innovation, because you want to build an effective mechanism for generating and disseminating innovation. Emergence of a strong innovative sector in the economies of the countries of CIS requires innovation, increasing demand for scientific development. Therefore, appropriate institutional steps, which would encourage investment in new knowledge and technologies that contribute to the development of the innovation environment.

Formation of the State policy, capable of innovative development of the national economy, was one of the most difficult but important challenges for the CIS countries, the growing economic activity in recent years are worrying trends continuing movement towards de-industrialization production and increasing technological backwardness. Structural and technological changes in the economies of the CIS until recently were largely spontaneous, under the influence of current macroeconomic competitive advantages. The basic mechanisms of growth too concentrated in a handful of industries whose success mainly depends not on innovation, and on exports of primary commodities. At the same time continuously decreasing in the region the share of innovation active enterprises: with 50% in the Soviet Union before its dissolution until current 13.0% in Belarus, 10.3% in Russia, 12.3% in Ukraine, 2.2%-in Kazakhstan, while in the developed countries of the West that today reaches 60 or even 80%. In the world market for high-tech products total share of CIS countries now exceeds 0.5%.

It is clear that without a sound structural transformation of the economy and especially its shift of energetic on innovation model of development, CIS countries are unable to deal with the need to quickly overcome the technological gap and substantially increasing the competitiveness of the economy.

Equally important is for the same purpose, strengthening the participation of the countries of the region in international technology exchange. It must also be found to increase the interest of the countries of the CIS to deepen integration in this area, until the formation of a single scientific-technological and innovation space.

In other words, only a peer-reviewed scientific and technical policy aimed at deploying processes the translation of scientific knowledge in innovation and production, will allow CIS countries to emerge from the stalemate, to proceed with the modernization of the national economy and to become more closely involved in the world.

This is determined by the relevance of the study devoted to the analysis of the current status and prospects for intensification of science, technology and innovation policy of post-Soviet countries.

REFERENCES

1 Becker R. & Hellman T. 2003. The genesis of venture capital – lessons from the German experience. CESIFO Working Paper No. 883.

2 Branscomb L.M. and Philip E.A. 2002. *Between Invention and Innovation: An Analysis of Funding for Early Stage Technology Development*. Prepared for the Economic Assessment Office. Advanced Technology Program. National Institute of Standards and Technology.

3 Collection of Materials of the Twelfth International Scientific and Practical Conference *Problems of and Prospects for Innovation Development of the Economy* – Kiev: SPD Tsudzinovich T.I., 2007.

4 Ivanova N.I., *National Innovation Systems as a Self-Development Mechanism in the Global Economy*.

5 Nelson R., ed., *National Innovation Systems: A Comparative Analysis*, N.Y.: Oxford University Press, 1993.

6 Porter E.M., *Competitive Advantage: Creating and Sustaining Superior Advantage*/Translated from English, Moscow: Alpina Business Books, 2005.

7 Schumpeter J.A., *Theory of Economic Development*. Moscow: Progress, 1982.

8 Vlasenko S.N., Golovatyuk V.M., Yegorov S.A., Solovyev V.P., *Examination and Monitoring of Innovation Processes, Method-Related and Legal Aspects*: Ukrainian Vidavinci Center, Kiev, 2006.

9 World Bank, *The Innovation Policy: A Guide for Developing Countries*. Washington, D.C.: World Bank Publications, 2010.

10 World Bank, *The Getting Competitive, Staying Competitive: The Challenge of Managing Kazakhstan's Oil Boom*. World Bank Publications, 2005. Accessed March 3, 2011.

Н.Парманов. Т. Рысқұлов атындағы Қазақ экономикалық университетінің PhD докторанты

ТМД елдерінде инновациялық процесстерді салыстырмалы талдау.

Резюме

Мақала ТМД елдерінде инновациялық процесстерді салыстырмалы талдауға арналған. Сондай-ақ, мақалада ғылыми-техникалық дамытуды ескере отырып ТМД елдерін инновациялық даму үлгісіне көшіру жолдарының талдауы жан-жақты жүргізілді, сонымен қатар оны дамытудың негізгі ережелері мен тетіктері жасалды.

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Сравнительный анализ инновационных процессов в странах СНГ.

Резюме

Статья посвящена сравнительному анализу инновационных процессов в странах СНГ. Кроме того, в статье всесторонне произведен анализ путей перехода стран СНГ к

инновационной модели развития с учетом научно-технического развития, а также разработаны основные положения и механизмы его развития.

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