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ON THE ISSUES OF THE DEVELOPMENT OF SOME ASPECTS OF THE MODERN INNOVATION SYSTEM

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Abstract
The article is devoted to the formation and development of the national innovation system of the Republic of Uzbekistan. The article examines and describes the reasons and factors influencing the formation and development of the national innovation system, problems and ways to solve them, as well as the model of the national innovation system.

Keywords: innovation, innovation economy, innovation model, national innovation system, innovation activity, technological progress, effective management.

Introduction

Innovation has become a key engine of development in the modern world. They determine the competitiveness of companies, countries and regions, contribute to economic growth and improve the quality of life. Ensuring economic stability, strengthening the economy and creating conditions for its further development is carried out by activating innovation activities. It is for this reason that the creation of conditions aimed at activating the innovative activity of industrial enterprises is one of the important factors of effective structural changes in the economy. In addition, the assessment of the level of innovative activity of industrial enterprises and the formation of a modern national innovation system aimed at achieving long-term strategic development goals based on this innovative activity and ensuring their stable income in the future are among the topical issues.

Analysis of the literature used

Until now, scientists have not given a single definition of the national innovation system. The national innovation systems of developed countries differ from each other. Already, different countries are setting and implementing different goals for the national innovation system. Yu. P. Surmin, the author of such a cited textbook, writes: "The separation and construction of systems is carried out as follows: A goal is set that the system should provide. The function or tasks that ensure the performance of functions are defined. The target is oriented in the direction of the object's movement. The goal usually arises from problematic situations that cannot be solved by existing means. And the system appears as a problem-solving tool. There is still no universally recognized single concept of "National Innovation System" among both foreign and Russian scientists. The lack of common views leads to different approaches to the methodology

of the formation of the national innovation system and its components. Based on the analysis of the literature, eight areas can be identified that support these areas:

• as a set of institutions: R. Nelson [2];

• * as a set of institutions and various elements and components: D.A. serpukhovitin [3];

• as a network of organizations (enterprise, content) and target types (directions) of activity: K. Freeman [4];

• * as interrelated activities, elements and content: B.O.Lundvall [5,6,7];

• as a sector (share) of the national innovation system:

• As a concept of the triple helix of knowledge production, formulated by L. Leydesdorff in 2000; university-state-business (enterprise, industry) [8];

• as a broad approach, including an interdisciplinary approach: R. Kahn (2008) [9];

• through social capital: the national innovation system "Social adaptability of the nation to technical changes".

In politics, the composition and description of institutions, various elements and components make it possible to identify the features of national innovation systems of each country. However, in our country, the issues of the formation and development of the national innovation system, as well as the interconnection of the national innovation system, have not been sufficiently studied. As the purpose of our research, we will consider some problems of the formation of a modern innovation system in the Republic of Uzbekistan. Based on the purpose of the study, the object of this study is the formation of a modern innovation system in the Republic of Uzbekistan, its condition, potential, contribution to economic development and competitiveness. Research methods. The instrumental and methodological apparatus of the research has become widely used in general scientific research methods based on logical and situational analysis, grouping, comparison within the framework of a systematic approach. Results and discussion. Within the framework of the Sustainable Development Goals established by United Nations General Assembly Resolution 70/1, countries have committed to significantly increase public and private spending on research and experimental construction work by 2030. According to Robert Merton Solow, an American economist, author of the Solow model and winner of the 1987 Nobel Prize, in 1908-1949, unique innovative products led to a 1.5% growth rate of the US economy [14]. At that time, it was half of the country's GDP. Another American scientist, Edward Denison, identified 23 factors that stimulate economic growth in a particular country, of which 14 were related to innovation, and 9 factors were related to capital, land and labor. According to the scientist, the invention of a new product and its subsequent market launch leads to an increase in the GDP of developed countries by about 60 percent [15]. Today, Uzbekistan is a major scientific center with a developed research base in Central Asia and a wide scientific history recognized in the world. However, the pace of innovative development in Uzbekistan and in Central Asia as a whole does not meet expectations. Uzbekistan was not included in the latest Global Innovation Index, although a few years ago we were ranked 127th among 144 countries included in this index [16,17]. However, as a result of the work done in the ranking of the Global Innovation Index, published on September 2, 2020, after a long break, Uzbekistan was evaluated by 43 input indicators and 22 output indicators, rising by 29 places with 80 indicators among 131 countries included in the ranking and ranked 93rd. That is, 81st place in the access subindex, the pillars of the rating

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are institutional development (Institutions, 95th place), human capital and research (Human Capital & Research, 77th place), infrastructure (Infrastructure, 72nd place), knowledge and technologies have achieved positive results in such indicators as productivity (Knowledge and technology results, 90th place) . In the top ten countries according to the following sub-indicators: ease of starting a business - 8th place, graduates in science and technology - 7th place and gross capital accumulation - 8th place. At the same time, according to 8 important indicators, he took 12-45 places. It also remains in the bottom places in the following indicators: Regulatory Quality - 127th place, Rule of Law - 124th place, export of ICT services - 129th place, foreign financing of scientific research and gross development costs (GERD, funded abroad) – 96 the place. Our country ranks 12th among 29 middle-income countries, 4th among 10 countries in Central and South Asia, and the first places are occupied by India-48, Iran-67 and Kazakhstan-77. If, according to the UNESCO Institute of Statistics, in 2015 the funds allocated to research and development in the world amounted to 1.7% of the average GDP, then for Central Asia this figure was 0.2% [18]. According to the World Bank, research and development expenditures in Uzbekistan and Kazakhstan are about the same – 0.13% of GDP, which is a very low indicator. For comparison: Egypt is about 0.72%, Brazil and the Russian Federation - 1.26% and 1.0%, QSh and Germany - 2.84% and 3.09%, Sweden and Japan - about 3.34% and 3 spend 0.26%. South Korea is considered the leader in this regard, and research and development costs amount to 4.81% of the country's GDP [19], the presence of world-class corporations such as Samsung, LG, SK Holdings, POSCO, Hyundai and others once again confirm this. In countries with intensive levels of R&D, most R&D investments are made by the private sector. About 80% of investments in Japan are made by the private sector. In China and South Korea, the private sector accounts for more than three quarters of all R&D investments. In Uzbekistan, on the contrary, the state finances more than 60% of total research and development costs. This indicates that the private sector of Uzbekistan does not yet have sufficient incentives to act in this direction and sufficient opportunities to independently develop innovative solutions. 80-90 percent of GDP growth in the countries of the Organization for Economic Cooperation and Development is realized through innovation. Our research shows that the transition of these countries to the path of national innovative development occurred as a result of the creation of a national innovation system. New developing countries are forming their own innovation system by importing innovative technologies. The innovative model they used shows that the rational use of imported scientific and technological achievements not only provides significant GDP growth, but also proves that they can help their economies rise to a qualitatively higher level of economically developed countries of the world. So, based on the above, based on our conclusion, we can define the term "national innovation system" as a set of organizational, legislative, structural and functional components that ensure the functional activity of the national innovation system of a given country and ensure innovative development. These structures are components that provide access to various resources and provide a certain type of support to participants in innovation activities. This system includes the interaction of knowledge and technology in all areas of the enterprise (organizations), the economy and society. In our opinion, an innovation system is a system that combines the principles of science, technology, economics, entrepreneurship and management in a certain point, as a result of which the period of transformation of scientific ideas and

projects into innovative products is accelerated. Therefore, the development of the innovation system is one of the most important priority strategies of developed and developing countries in world practice. Considering the above, the purpose of our proposed model of the national innovation system of the Republic of Uzbekistan, sources of financing, economic and organizational institutions, information support for innovation, staffing, legal framework, monitoring and coordination system. on the implementation of state scientific and technical programs and projects, relations between research organizations, subjects of innovation infrastructure and users of knowledge, the President of the Republic of Uzbekistan, the Cabinet of Ministers of the Republic of Uzbekistan, state organizations, subjects of innovation infrastructure and government structures at the levels of commercialization of innovative developments, the creation of a favorable institutional climate and innovation system, as well as a complex strategic directions of innovation activity, It consists in supporting the development of fundamental knowledge. The development of a mechanism for interaction of the model of the national innovation system is a large–scale and complex task, which can be realized only through thoughtful, mutually coordinated effective actions of the President of the Republic of Uzbekistan and the Cabinet of Ministers. Ministers of the Republic of Uzbekistan, government organizations, subjects of innovation and commercialization of innovative developments. The priority policy of the state aimed at the development of the national innovation system is one of the areas that are considered important for Uzbekistan today. The proposed model of the national innovation system is recommended to be used in the development of regulatory and legal documents of the Republic of Uzbekistan on innovation and innovation development strategies for the medium and long term, while effectively solving important innovative tasks. in promising areas, as well as in the development of regional innovative investment programs. According to the recommended model of the national innovation system, innovation policy in the Republic of Uzbekistan is determined by the President and the Cabinet of Ministers and implemented by republican and local government bodies within their powers.

The formation of the national innovation system and the creation of mechanisms for sustainable development can list a number of laws, regulations and decisions adopted in Uzbekistan. In particular, the Decrees of the President of the Republic of Uzbekistan dated July 8, 1992 "On state support for science and the development of innovative activities" [22], "On improving the organization of research activities", announced on February 20, 2002. [23] , August 7, 2006 "On measures to improve coordination and management of science and technology development" [24], July 15, 2008 "On additional measures to stimulate the implementation of innovative projects and technologies" [25], Resolution of May 24, 2011 "On the establishment of the Intellectual Property Agency of the Republic of Uzbekistan" [26] and the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated July 21, 1992 "On measures of state support for the development of science and innovation" [27], 1998 on January 19, 2004 "On the development of international scientific and technical relations, on state support for scientific programs and projects on grants from international and foreign organizations and foundations", September 7, 2004 " Measures to strengthen the scientific and logistical base of the Academy of Sciences of the Republic of Uzbekistan" on measures" [28] dated October 15, 2008 "On improving the activities of the State Unitary Enterprise "Technology Transfer

Agency " dated November 10, 2008 "On measures to strengthen the material and technical base of research institutions and organizations" Decisions [29] on the development of domestic science and innovation were based on a set of measures related to the modernization of sectors of our country's economy, expanding the scope of innovative products and services in the future based on technical requirements. Today, the foundations of the system of state regulation of innovation, support and development of scientific and technical activities, and increasing the competitiveness of the country's scientific potential are laid down in the Decree of the President of the Republic of Uzbekistan dated September 21, 2018. "On approval of the strategy of innovative development of the Republic of Uzbekistan for 2019-2021" No. PF5544 [30], PF-6097 dated October 29, 2020 "On approval of the concept of science development until 2030" [31] , PF-6198 dated April 1, 2021 "On improving the public administration system for the development of scientific and innovative activities" No. [32], as well as PF-3365 [33] of the President of the Republic of Uzbekistan dated November 2021. Resolution of the President of the Republic of Uzbekistan dated November 29, 2017 No. PQ-3416 "On the establishment of the Ministry of Innovative Development of the Republic of Uzbekistan" [34], dated April 27, 2018 "On measures to further improve the system of practical implementation of innovative ideas, technologies and projects" No. PQ-3682 [35] and on the basis of the Law of the Republic of Uzbekistan "On Innovation activity" dated July 24, 2020, No. ORQ-630 [36].

The above-mentioned laws, resolutions and resolutions contribute to the further improvement of the activities of research institutes, strengthening the material and technical and laboratory experimental base, creating conditions for the development of innovative activities, the revival and development of the Academy of Sciences, and the restoration of activities. 9 research institutes, the reorganization of a number of scientific institutions, the creation of 3 branches of the Academy of Sciences in scientific fields, including the Navoi branch, the Public Council for the New History of Uzbekistan, the Agency for Science and Technology. , organization of the activities of the Foundation for the support and development of scientific and technical activities.It will serve to further strengthen the basis of comprehensive systemic changes being implemented in the republic in order to increase its competitiveness and strengthen the material and technical base. , laboratory and experimental bases of scientific infrastructure in the near future . After the decision of the President of the Republic of Uzbekistan dated November 29, 2017 PQ3416 [37] on the establishment of the Ministry of Innovative Development of the Republic of Uzbekistan, attention to innovation in our country has increased. Now all scientific and innovative processes are implemented and coordinated by this ministry. The Ministry has become a public administration body implementing a unified state policy aimed at the comprehensive development of society and public life in the field of innovative and scientific and technical development of the Republic of Uzbekistan, increasing the intellectual and technological potential of the country. However, the mechanism of management of scientific and innovative activities carried out by the Ministry still does not meet the problems of innovative development:

There is no consistency in the creation of motivation and mechanisms for the implementation of innovative activities in Uzbekistan [38,39 ,40,41,42,43,44] ; • Coordination of innovative development in the republic is slow [45,46]; • Currently, the coordination of research activities

with the economic and social spheres is limited to assessing compliance with very widely established priorities of research activities [47,48,49,50];

Priorities are formulated in such a way that they can include any research in this area, regardless of practical application, and do not contribute to the development of specific strategies and programs [51,52,53,54]. The created regulatory environment also has the following disadvantages:

• the presence of legal gaps in attracting rights to economic turnover at the expense of budgetary funds or the results of intellectual activity created by state organizations; • the absence of norms, the inability to grant institutions exclusive rights to the results of intellectual activity created by them, including things created at the expense of budgetary funds, as well as income received from the use of these results;

• The lack of a regulatory framework aimed at developing economic cooperation between individual elements of the innovation infrastructure (innovation funds, technology implementation centers, engineering laboratories, technology parks, etc.); • the lack of a regulatory framework that ensures the solid integration of education, science and production, and the inefficiency of existing ones;

• The absence of an official procedure for the use of intellectual property rights. Conclusion So, in order to ensure the rapid development of Uzbekistan in the field of science, innovation and the digital economy, it is necessary to systematically and purposefully direct the institutions of the state, private business and civil society. At the same time, the experience of leading innovative countries, suitable for Uzbekistan, and successful methods of organizing an effective innovative economy, including the commercialization of scientific developments, are important. We propose the following priority areas for the advanced innovative development of our country, attracting investments, economic growth and the development of other spheres of state and public life:

• improvement of the management system in the field of science; • improvement of the system of financing science and scientific activities and diversification of funding sources;

• training of highly qualified scientific and engineering personnel and their referral to scientific activities;

• formation of a modern information environment supporting the development of science; • improvement of the implementation of knowledge and new technologies on the domestic and global markets;

• organization of scientific activities of scientific organizations, taking into account the prospects of socio-economic development of the country;

• formation of a competitive market and efficient use of resources, ensuring the transition of the economy to an innovative path of development; • it is necessary to develop competition in all areas and reduce administrative barriers. At the same time, it is necessary to solve a systemic problem based on the principle of concentrating budget resources on financing scientific research in the main areas of medium- and long-term priorities, as well as using the mechanism of public-private partnership. As a result of the implementation of the author's concept of the functioning of the innovation system in the Republic of Uzbekistan, an effective national innovation system will be created, including mechanisms for interaction between the state, business, science and education, which will increase the share of knowledge-intensive products

in GDP. Therefore, in exchange for the development of the national innovation system, our country will have opportunities for the formation and development of innovative potential, as well as further improving the competitiveness of the economy. At the same time, it has a positive impact on the development of the national economy. In short, as a result of the formation, development and effective management of the national innovation system, a new economy based on innovative knowledge will be formed in our country. This, of course, is the basis for improving the competitiveness of the national economy.

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