

Important Issues Of Innovative Economic Development in Uzbekistan

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Abstract: This article discusses the development of scientific proposals and practical recommendations aimed at increasing the efficiency of mechanisms for implementing innovation policy in Uzbekistan, financing innovation activities mainly from the state budget and, unfortunately, a very low share of the private sector. In world practice, for the private sector this is 64.1-74.7%, in this regard, much attention is paid here to improving the efficiency of innovative development of the country's economy. And also studied the methods and tools for the development of mechanisms for the implementation of innovative activities in the country.

Key words: Innovation activity, competitiveness, world division of labor, economic modernization, intellectual potential, employment, entrepreneurs, strategy, models, modernization.

Introduction

Relevance of the research topic. In modern conditions, the basis for the dynamic sustainable development of the economic system is innovation activity, which ensures a high level of its competitiveness. The degree of development of the national innovation sphere forms the basis for sustainable economic growth and is a necessary condition for the country's effective participation in the global division of labor.

One of the most pressing problems of modernizing the economy of Uzbekistan is increasing the competitiveness of the industry through its technological re-equipment and the growth of high-tech industries that create high added value. In this regard, Uzbekistan attaches particular importance to the development and implementation of its own state scientific, technical and innovation policy.

Uzbekistan, today, has all the necessary resources, conditions and prerequisites for the transition to a modern model of an innovative type of development based on the expansion and effective use of intellectual potential, constant updating and improvement of the scientific and technological, organizational and socio-economic spheres. The effective use of the available scientific and technical potential is possible only with the help of a consistent and steadily implemented scientific and innovation policy, corresponding to the real socio-economic conditions of the republic and aimed at solving urgent problems of its development.

The degree of knowledge of the problem. The study of the theory of innovation policy began relatively recently in the 70s-80s of the XX century. But, despite this, a wide range of theoretical and practical aspects of this topic have been studied in the works of CIS economists. Among them, the works of Anishchik V.M., Rusetsky A.V., Tolochko N.K., Kiryakov A.G., Maksimov V.A., Stepanenko D., Vinokurov V.I., Folomeev A.M.³. 1 Their publications cover both the very interpretation of the concept of innovation policy, and its essence and implementation mechanisms. A certain contribution to the development of the study of the development of innovation policy was made by Audkuech D.B., Feldman M.P., Kantwell J., Yamarino S., Furman J.L., Porter M.E., Stern S., Sonn J.V., Storper M.

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³ Anishchik V.M., Rusetsky A.V., Tolochko N.K. "Innovation activity and initial technological development". Textbook, Minsk: Ed. center of BSU, 2005, 151 p. ; Kiryakov A.G., Maksimov V.A. "Fundamentals of Innovative Entrepreneurship". - Rostov on Don: Phoenix, 2002, 60 p. ; Stepanenko D. Innovation Policy: Normative-Legal Approach ". Economist, No. 12, 2010, p. 51-57; Vinokurov V.I. "Basic terms and definitions in the field of innovation." Innovations No. 4 (81), 2005, p. 6-22; Folomeeva A.M. "An innovative type of economic development." Textbook. Ed. 2nd, add. and revised M-2008, 712 p.

A great contribution to the study and analysis of the state of innovation policy and the development of innovative activity in the Republic of Uzbekistan was made by economists of our country: S. Chepel, G. Fedyasheva, H. Abulkosimov, T. Rasulov, O. Parpiev, M. Makhkamova and others.

An analysis of the works of the above authors shows that, despite the presence of a large number of studies, a variety of approaches and theoretical developments, many questions of a practical nature remain open. However, fundamental works devoted to the feasibility of introducing the successful experience of innovative development of foreign countries into the economy of the Republic of Uzbekistan have not been sufficiently considered.

The aim of the work is to develop scientific proposals and practical recommendations aimed at increasing the effectiveness of mechanisms for implementing innovation policy in Uzbekistan.

The object of the research is innovation policy and mechanisms for its implementation in the Republic of Uzbekistan.

The subject of the research is a set of methods and tools for the development of mechanisms for the implementation of innovative activities in Uzbekistan.

Over the past years, Uzbekistan has undergone major reforms to develop a market economy, create favorable conditions to support private entrepreneurship and small business, improve the legal framework, and radically reform the education sector. Today, great attention is paid to the widespread introduction of elements of innovative economy in the national economy, comprehensive support of innovative activities, bringing research to a qualitatively new level, expanding corporate cooperation between science and industry. A number of achievements have been made in this direction: for example, about 10-12 percent of GDP is directed to education, which is twice the level recommended by UNESCO. Research is being conducted in more than 400 research centers, universities, design organizations and industrial enterprises. However, more than 90% of research, including 99.9% of fundamental projects, and 3/4 of practical projects are accounted for by the research institutes of the Academy of Sciences of Uzbekistan, the Ministry of Economy, Innovation, Education and Health (mainly state-owned organizations).

It is known that the development of any industry depends on the development of its legal and regulatory framework. After independence, the government has implemented a number of reforms to improve the organization of research activities. After the Resolution of the President of the Republic of Uzbekistan dated June 15, 2008 No PP-916 "On additional measures to encourage the introduction of innovative projects and technologies in production", special attention was paid to the development of innovative activities in the country. Decree of President ShavkatMirziyoyev No. PF-4947 of February 7, 2017 "On the Strategy of Actions for the Development of the Republic of Uzbekistan" and Decree No. PF-5264 "On the establishment of the Ministry of Innovative Development of the Republic of Uzbekistan" signed on November 29, 2017 After the announcement of 2018 as the Year of Active Entrepreneurship, Support of Innovative Ideas and Technologies by the President of our country, the issue of development of innovative activities in our country was on the agenda. Among the legal and regulatory documents adopted in recent years on the development of innovative activities in Uzbekistan are:

- Resolution of the President of the Republic of Uzbekistan "On additional measures to create conditions for the development of active entrepreneurship and innovative activity" dated 05.05.2018. Resolution No. PQ-3597 (according to which in the structure of the Ministry of Innovative Development of the Republic of Uzbekistan the Department of Development of Science and Scientific and Technical Research, the Fund for Support of Innovative Development and Innovative Ideas was established);
- Decree of the President of the Republic of Uzbekistan "On measures to further improve the activities of the Academy of Sciences, the organization, management and financing of research" dated 17.02.2017. Resolution PQ-2789;
- Resolution of the President of the Republic of Uzbekistan "On radical improvement of conditions for the development of information technology in the Republic" dated 30.06.2017. Decree No. PF-5099;
- Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On further improving the system of postgraduate education" dated 22.05.2017. Resolution No. 304;
- Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On the implementation of measures to improve the organization, management and financing of research activities" dated 19.05.2017. Resolution 302 and others;

- Decree of the President of the Republic of Uzbekistan PF-5544 dated September 21, 2018 "On approval of the Strategy of innovative development of the Republic of Uzbekistan for 2019-2021";
- Decree of the President of the Republic of Uzbekistan PF-5847 of October 8, 2019 "On approval of the Concept of development of the higher education system of the Republic of Uzbekistan until 2030";
- Decree of the President of the Republic of Uzbekistan dated October 29, 2020 No PF-5097 "On approval of the Concept of Science Development until 2030" and others.

The main organization conducting R&D in Uzbekistan is the Academy of Sciences of the Republic of Uzbekistan, the Ministry of Innovation Development, Higher and Secondary Special Education of the Republic of Uzbekistan can leave the ministry. The Ministry of Innovative Development is a public administration body implementing a single state policy in the field of innovation and scientific and technical development of the Republic of Uzbekistan, aimed at the comprehensive development of public and state life, increasing the intellectual and technological potential of the country.

The number of organizations engaged in research and development in the country in 2000 was 418, in 2010 - 301, in 2018 - 668, in 2019 their number decreased sharply to 304 (see Table 1).

From the data in this table, it can be seen that the number of organizations performing ITTKI in all types of scientific work is declining from 2019 onwards. Also, most of the organizations that do research are engaged in fundamental research.

Table 1.

Scientific research and experimental development by types of scientific work⁴

	2010 y	2016 y	2017 y	2018 y	2019 y
Number of organizations engaged in research and development, units	301	437	389	668	304
Including :					
Scientific research works	237	313	284	456	195
Fundamental of these	111	133	118	188	113
Design work	25	31	31	54	28
Experimental preparation of samples, batches, items (products)	13	20	19	33	16
Project works of construction	4	10	8	33	6
Scientific and technical services	63	143	118	219	126

The number of people employed in ITTKI increased from 35.6 thousand in 2010 to 37.2 thousand in 2018, while in 2019 their number decreased to 31.1 thousand. Accordingly, the number of researchers is 30; 32.1; 26.3 thousand people (see Table)

Table 2.

Number of employees employed by ITTKI, thousand people⁵

Staff	2010y	2016y	2017y	2018y	2019y
Total	35,6	37	36,8	37,2	31,1
Including:					
Researchers	30	32	31,9	32,1	26,3
Technicians	1,8	2	1,5	1,6	1,5
Auxiliary staff	1,9	1,7	2	1,9	1,7

⁴ Scientific research and experimental design developments on the types of scientific works // <http://stat.uz> structured on the basis of data

⁵ Number of employees engaged in scientific research and experimental design development // <http://stat.uz> structured on the basis of data.

Other staff	1,9	1,3	1,4	1,6	1,6
Those of them have higher education					
Total	30,9	33,4	33,4	33,5	27,8
Including:					
Researchers	29,5	31,7	31,6	31,7	25,8
Technicians	0,3	0,6	0,4	0,4	0,4
Auxiliary staff	0,7	0,6	0,4	0,4	0,4
Other staff	0,4	0,3	0,5	0,6	0,9

The share of higher education in the total number of employees employed by ITTKI increased from 86.8% in 2010 to 89.4% in 2019. The share of higher education in the total number of researchers decreased from 98.3% to 98.1% during the same period. The share of higher education in the number of technical staff increased from 16.7% in 2010 to 26.7% in 2019. Accordingly, the share of higher education in the total number of support staff decreased from 36.8% to 23.5%.

The volume of scientific research and development in 2010-2019 increased by 6.7 times, including scientific research by 6.2 times, design work by 16.3 times, the volume of production of prototypes, batches, products (products) by 8 times. Increased by 1 time (see Table 3).

Table 3.

The volume of scientific research and experimental development, million soums⁶

	2010y	2017y	2018y	2019y	2019% Compared to 2010%
The volume of scientific research and experimental development, total	127992,0	449905,4	680038,0	853404,0	6,7M
Including :					
Scientific research works	86130,5	300254,5	336482,5	535208,9	6,2M
Fundamental	15399,0	82276,3	89254,2	162804,0	10,5 M
Constructions for building works	5988,2	36888,4	38714,0	97641,2	16,3M
Experimental preparation of samples, batches, items (products)	771,9	4025,6	7677,9	6318,8	8,1M
Constructions for building works	15401,7	31166,0	77687,2	54628,9	3,5M
Scientific and technical services	19700,1	77570,9	221205,1	160512,1	8,1M

The table shows that the volume of all types of scientific research and development has increased during the analysis period. However, in 2019, compared to 2018, the volume of production of prototypes, batches, items (products) decreased by 17.3%, design work for construction by 29.7%, the volume of scientific and technical services by 27.5%.

It should be noted that in recent years, the number of enterprises and organizations that have introduced innovations and the number of innovations that have been introduced is growing. In particular, the enterprises that introduced technological innovations in 2010-2019 increased by 10.4 times, and in 2017-2019 - by 155.3%, respectively, those who introduced marketing innovations - by 28 times and 127.3%, those who introduced organizational innovations - by 15 times and 173.1%. increased. The number of

⁶ Scientific research and experimental design developments on the types of scientific works // <http://stat.uz> structured on the basis of data

introduced technological innovations in 2019 increased by 9.6 times compared to 2010, marketing innovations by 4 times, organizational innovations by 22.3 times (see Table 4)

Table 4.
Innovative activity of enterprises and organizations⁷

	2010 y	2017 y	2018 y	2019 y	2019 y compared to 2010%	2019 y compared to 2010%
Number of enterprises and organizations that have introduced innovations						
Technological	145	975	982	1514	1044,1	155,3
Marketing	1	22	17	28	2800	127,3
Organizations	3	26	25	45	1500	173,1
Number of innovations introduced						
Technological	462	1946	2482	4427	958	227,5
Marketing	32	62	42	128	400	206,4
Organizations	6	38	34	134	2233,3	352,6
Volume of innovative products (goods, works and services) produced, bln. sum	1849	18543,3	28871,5	26811,4	1450	144,6
Expenditures on innovations, billion soums	264,4	4162,3	4707,2	6603,5	2497,5	158,6

According to the analysis, the share of R&D expenditures in GDP in Uzbekistan is slightly lower than in 2012. But in 2020, compared to 2019, this figure has a tendency to increase. The share of employees performing ITTKI in relation to the total employed population has been declining in 2012-2019 and increased slightly in 2020 compared to 2019 (see Table 5).

Table 5.
Costs of ITTKI in Uzbekistan and indicators of production of high-tech, science-intensive industries⁸

Indicators	2012y	2017y	2018y	2019y	2020y
Expenditures on ITTKI (as a percentage of GDP)	0,16	0,15	0,12	0,11	0,14
Employees who performed ITTKI (as a percentage of the total employed population)	0,0832	0,0744	0,0720	0,0701	0,0734
The share of high-tech and science-intensive industries in GDP (in percent)	18,1	18,8	19,3	21,1	22,8
The share of high-tech products in total exports (in percent)	2,7	1,7	1,7	1,7	2

⁷ Innovative activities of enterprises and organizations // <http://stat.uz> structured on the basis of data

⁸ Innovative activities of enterprises and organizations // <http://stat.uz> structured on the basis of data

The share of high-tech and science-intensive industries in GDP increased from 18.1% in 2012 to 22.8% in 2020. However, their share in exports decreased from 2.7% in 2012 to 1.7% in 2019 and amounted to 2% in 2020.

According to the Global Innovation Index of the Republic of Uzbekistan for 2030 in the "Strategy for Innovative Development of the Republic of Uzbekistan for 2019-2021", approved by the Decree of the President of the Republic of Uzbekistan dated September 21, 2018 No PF-5544 "On approval of the Strategy of Innovative Development of the Republic of Uzbekistan for 2019-2021" aims to become one of the 50 most advanced countries in the world.

To this end, increase government spending on research and development and increase this figure to 0.8% of GDP by 2021, the share of exports of services in the field of information and communication technologies to 4% of their total, complete digitization of state cadastre. simplification of the procedure for supply and registration of property, increase the share of electricity generation using renewable and alternative energy sources to more than 20% by 2025.

From the above analysis, we can see that a lot of work and projects are being implemented in Uzbekistan in the field of innovation, science and technology. This is evidenced by the growing number of enterprises engaged in ITTKI, the production of innovative goods and services. However, there are a number of problems with the further development of these sectors, which will become an important factor in determining the competitiveness of our economy. These include:

- Insufficient funding for research and development and technological development. Among the developed countries of the world, the United States, Germany, Finland account for 2.8-2.9% of GDP, Israel for 4.3%, Japan for 3.4%, the Republic of Korea for developing countries for 4.2%, China for 2% and Russia for 1.1%. directed to. In Uzbekistan, this is projected to increase to 1.1% by 2030;

- Innovation activities are mainly funded by the state budget and the share of the private sector is low. According to the world experience, 77.8% of the total expenditures on ITTKI in Japan are financed by business representatives, in China - 74.7%, in the Republic of Korea - 74.5%, in the UAE - 74.2%, in Germany - 65.8%, in the USA and 64.1 percent. That is, the bulk of ITTKI is financed by the private sector, not the state budget¹⁸.

- The low level of cooperation between education, science and industry. According to GII 2017, while countries such as the United States, Israel, Switzerland, Germany, and Malaysia have established a high level of cooperation between higher education and industry (above 7 out of 5), neighboring Tajikistan and Kazakhstan have also performed well on this indicator (7 who scored 4.3 and 3.4 points respectively)¹⁹. Unfortunately, Uzbekistan was not included in the GII 2017, and was mentioned only in some issues²⁰.

- Inadequate monthly salaries in the field of ITTKI, education, health care, and the outflow of young professionals ("brain drain").

- Lack of highly qualified personnel, the presence of complex problems in the education system, the low level of coverage with higher education (9.6% in 2018²¹ and now 15%).

- Implementation of start-up projects, lack of information about the innovation market.

- Lack of innovative approaches (alternative energy use, drip irrigation, etc.) in solving the problems of economically irrational development of the country's regions, lack of gas, water, electricity;

- The level of modernization of industries related to innovation is not high.

- Underdevelopment of the two most important factors that are important for the development of innovative activities: 1) low speed of the Internet; 2) underdevelopment of human capital, etc.

In order to overcome the existing problems, the main directions of innovative development in the country have been identified, which include⁹:

- creation of a strategic planning system that will allow to form future models of innovative development of priority sectors and industries on the basis of long-term scenarios of increasing the intellectual and technological potential of the country;

- introduction of innovative forms of public administration, providing optimization and simplification of procedures for the provision of public services, increasing the efficiency of public administration;

⁹ www.lex.uz/docs/3431993 decree of the president of the Republic of Uzbekistan on measures to ensure more effective organization of the process of acquisition of rights over land parcels and other immovable property as part of the South Caucasus pipeline expansion project more ..

• formation of a modern infrastructure for the development of science and innovation, capable of providing the necessary conditions for sustainable growth of socio-economic potential of the regions, as well as improving the living standards and welfare of the population;

• wide attraction of investments in the field of development and introduction of innovative ideas and technologies, improvement of the regulatory framework ensuring their further development;

• comprehensive support and encouragement of research and innovation activities, especially the creative ideas and developments of the younger generation, as well as the creation of favorable conditions for the active participation of talented youth in these activities;

• creation of effective mechanisms for promotion and implementation of promising achievements of research and innovation in the country, including the establishment of scientific and experimental specialized laboratories, high technology centers, technology parks and other innovation-oriented structures, in particular with the participation of foreign investors and strengthening the material base;

• active introduction of nature protection, resource and energy saving technologies, including alternative energy sources, water purification and desalination, through the widespread use of modern forms of its rational use;

• wide introduction of advanced technologies in the field of health early detection and prevention of diseases, timely and effective treatment, as well as the creation of a comprehensive system aimed at shaping a healthy lifestyle in society and educating a healthy generation;

• promotion of innovative ideas, developments and technologies in the agricultural sector, including new selection varieties of agricultural crops, which will help increase production efficiency and export potential of agricultural producers, strengthen food security of the country;

• Accelerated introduction of modern information and communication, industrial and other innovative technologies that ensure the comprehensive development of the real sector of the economy;

• Expanding cooperation with leading foreign (international) organizations in the field of innovation, including by involving them in the domestic market for the production of know-how, nanotechnology and high-tech goods (works, services). In this regard, cooperation with CIS countries, the United States, the People's Republic of China, European countries, Turkey and other joint projects are being implemented¹⁰.

Thus, it can be said that today Uzbekistan pays great attention to the comprehensive support and development of innovative activities, the introduction of scientific achievements into production, the integration of science, education and industry, and many reforms, major projects and programs. However, it should be noted that this process is not an immediate process in a few years and will take a long time. At the present stage, it is necessary to develop well-thought-out, comprehensive measures aimed at timely identification of existing problems and their solution.

We believe that in ensuring the development of innovative activities in Uzbekistan, it is necessary to pay attention to the following:

- strengthening the legal framework for innovation security;
- modernization of the economy, development of science to increase scientific and technical potential, increase the cost of R&D; encouragement of researchers, researchers;
- implementation of equal, mutually beneficial cooperation in the field of innovative security;
- provide the system with a sufficient amount of financial investment to stimulate its further growth;
- optimization of the sectoral and regional structure of targeted investments;
- most effective implementation of planned investment processes;
- further development of investment mechanisms and institutions;
- Information and analytical support of innovative and investment design procedures;
- continuous analysis and forecasting of the socio-political and general economic situation and prospects for its development;
- study of markets for raw materials, raw materials and materials and forecast their dynamics;

¹⁰ http://www.uzscience.uz/uz/activities_04.html information on the activities of the agency within the framework of international scientific and technical cooperation

- Analysis of the main parameters of ongoing investment projects in accordance with the real characteristics of the industry and the company, assessment of project feasibility;
- Analysis and forecasting of the financial situation in the process of innovation, management of financial flows. To do this, create infrastructure and logistics that ensure the security of financial and material flows to manage financial flows;
- Assess the reliability of partners and create a system to combat the impact of criminal structures, check the sources of directed investments;
- Collection, processing and analysis of data necessary for the assessment of economic activity and economic development under the influence of foreign investment;
- to get acquainted with specific foreign firms and companies that want to invest in the economy, as well as partners of entities involved in the implementation of investment projects;
- identify various manifestations of the negative impact of foreign investment on various aspects of economic development, check their compliance with national interests;
- take the necessary decisions and measures to prevent or neutralize the negative trends of economic development under the influence of foreign investment, etc.

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