

Tendency of transition to the innovative way of the economy of Uzbekistan

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ANNOTATION

The article demonstrates the relevance of the state's role in forming an innovative economy through close interaction of the state, scientific and educational institutions with the real sector of the economy. Based on the study of the experience of foreign countries, the mechanism and fundamental directions of state regulation of innovative activity revealed. Analysis of Research and Development (R&D) by sectors of the economy and branches of science, enterprises and organizations that produced innovative goods, works and services made it possible to identify trends in the innovative development of the economy of Uzbekistan.

Keywords: Uzbekistan, Research and Development, State Politics, Economy, Innovation, State Support.

INTRODUCTION

Since President Shavkat Mirziyoyev took over for Islom Karimov in December 2016, Uzbekistan has portrayed itself as a state in transition. Initial reservations about the new leader's ability to steer the country out of post-Soviet stagnation have been dispelled. Following two decades of economic and political isolation under Karimov, Mirziyoyev immediately launched reforms aimed at preparing the ground for economic liberation, attracting outside investment to develop untapped economic potential, and bringing Uzbekistan up to the level of developed countries. The state development program's overarching aims are to transition to a market economy, modernize administration, and liberalize society. President Mirziyoyev, who portrays himself as the personification of change, relentlessly emphasizes the strategic importance of the changes and rallies support for the cause. In every way, the transition in Uzbekistan is a first in the post-Soviet space: the scenario of a peaceful succession by a regime insider promising major political change was previously thought to be exceedingly implausible. Power conflicts among elites and public discontent were seen to be more likely (as in the "color revolutions" in Georgia

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in 2003, Kyrgyzstan in 2005, and Ukraine's "Euromaidan" in 2013), or a new leader following the previous political route (Azerbaijan 2003, Turkmenistan 2006 and Kazakhstan 2019).

In the first quarter of the XXI century, the formation of global market space is taking place rapidly, intensifying international competition for markets and strategic raw materials, sales markets for innovative products, technologies, and services with a high degree of added value. Competition for advanced innovative, primarily digital technologies also intensifying and, as a result, the negative global trend continues to grow - the deficit of foreign direct investment (Mirziyoyev, 2019).

The open market dictates the need to improve product quality, reduce costs, attract new technologies, and promote market reforms. Consequently, the world economic system undoubtedly recognizes the importance of innovations in the economic development of each country, as well as the irreplaceable role of state support, which based on the individuality of the economic system, since each state focused on the formation of an innovative economy, has its innovation strategy and its understanding of methods her achievements.

State support for innovation can be understood as a set of tools and mechanisms of state policy adopted by public authorities within the framework of established legislation to create the necessary legal, economic and organizational conditions and incentives for legal entities and individuals engaged in innovative activities.

However, as the world experience shows, the goal of building an innovative economy cannot be achieved only through state support. Efficiency would be achieved only based on the close interaction of the state, scientific, educational institutions with the real sector of the economy. Furthermore, the state's role should be determined by using particular measures of state incentives: state guarantees, state orders, improving the regulatory framework, etc.

MATERIALS AND METHODS

Based on a comparative, systemic and retrospective analysis, trends in the transition to an innovative economy in Uzbekistan identified; recommendations for creating effective mechanisms for implementing scientific research and development results into practice substantiated.

RESULTS

President Mirziyoyev had made it apparent even before entering office that change was on the way. It was the second, considerably more difficult component of his programmatic oxymoron that aroused eyebrows in Uzbekistan and much more so overseas. Nevertheless, in order to comprehend Mirziyoyev's reform program, the techniques he has pursued to accomplish it, and the general direction of the transformation process, we must first look back to Karimov's tenure.

Uzbekistan carried out large-scale reforms and comprehensive measures to form a modern multi-structured economy based on new technologies and market relations during the years of independence. The significant economic, infrastructural, industrial and social potential formed to improve further the country's population (Mirziyoyeva, 2019).

In order to radically increase the efficiency of ongoing reforms, created conditions for ensuring the comprehensive and accelerated development of the state and society, modernized the country and liberalized all spheres of life, the Decree of the President of the Republic of Uzbekistan dated February 7, 2017, DP-4947 "On the Strategy of Actions for the Further

Development of the Republic of Uzbekistan". Action strategy for five priority areas of development of the Republic of Uzbekistan in 2017-2021.

In the economic part of the Action Strategy, priority tasks were identified, the development and liberalization of the economy, aimed at further strengthening macroeconomic stability and maintaining high economic growth rates, increasing its competitiveness, modernizing and intensive development of agriculture, continuing institutional and structural reforms to reduce the presence of the state in the economy, further strengthening the protection of rights and the priority role of private property, stimulating the development of small business and private entrepreneurship, actively attracting foreign investment in the economy and regions of the country by improving the investment climate.

In order to form an integrated approach to solving the tasks set in the Action Strategy, one of the priority areas is the issues of the country's innovative development. As noted by the President of the Republic of Uzbekistan, Sh.M. Mirziyoyev: "We have set ourselves to join some developed states, and we can achieve it only by carrying out accelerated reforms, relying on science, education and innovation" (<https://uza.uz/ru/posts/poslanie-prezidenta-respubliki-uzbekistan-shavkata-mirziyeev-25-01-2020>, 2020).

It is known that, in addition to state financial support for research and development, it was essential to create effective mechanisms for the implementation of the results of scientific research, in particular the use of mechanisms of indirect support of all participants of the process. In this regard, the State Program in the "Year of Support of Active Entrepreneurship, Innovative Ideas and Technologies" (<https://lex.uz/docs/3516841>) for the period up to January 1, 2023, exempted from paying all types of taxes and mandatory payments, except for the single social payment:

- Venture funds with high-technology business start-up projects;
- High-tech start-up projects financed from venture funds;
- Research and development institutions, innovation centers and design bureaus for revenues generated from the sale (transfer for use) of their new technologies to entrepreneurs;
- Organizations for the transfer of new technologies to domestic entrepreneurs for the income from those activities.

An analysis of the experience of some developed countries in the formation of the state regulation of innovation activity showed that the mechanisms of state regulation of innovation activity included various measures, in some cases, direct participation in innovative companies, or measured to support innovation activity and the development of innovative infrastructure indirectly. In some countries, the focus was on active government support for the research and development itself, and in some countries, tax incentives for intellectual developers and many others come to the fore.

Nevertheless, based on the study results on the state's role in forming an innovative economy, it was essential to note that the innovation process at all stages of development was in immediate need of government regulation. At the same time, the state acted as the main initiator and coordinator of the formation of an innovative economy.

Public support for innovation based on a mix of public policy tools and mechanisms, thus creating the crucial role in forming the necessary infrastructure, without which innovation would not be fully effective.

It was essential to emphasize that the state's science, technology and innovation policy in the country formed the basis of the country's national innovation system, which largely depended

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on such factors as the market orientation of research and development, the system of training of scientific and educational personnel, a favorable investment and business environment, etc. Thus, a comprehensive analysis of the leading indicators of the development of scientific and technical potential and innovation of Uzbekistan, covering the total number of organizations carrying out research and development (R&D), the dynamics of changes in the number of research specialists involved in R&D in the sectors of the economy and the branches of science, revealed the general trends of the country's transition to an innovative economy.

An analysis of official statistics of the State Committee of the Republic of Uzbekistan on Statistics showed that 304 organizations performed R&D in 2019, which was the same number since 2013, although the analyzed period witnessed the phases of active growth of this indicator (Table-1).

Table-1

Number of organizations performing research and development by sector in 2013-2019 (unit) (Stat, 2013-2019)

	2013 year	2014 year	2015 year	2016 year	2017 year	2018 year	2019 year
Total	304	306	323	437	389	668	304
As well as							
State sector	142	177	183	191	181	289	118
Business sector	72	34	39	152	121	220	121
Tertiary education	85	92	92	85	78	146	64
Private non-profit sector	5	3	9	9	9	13	1

Since 2017, there was a steady decline in the number of research specialists by industry. For example, while 30,012 people worked in R&D in 2013, the number was 25,495 (or 4,517 less) in 2019, with a sharp decline in 2019. (Figure 1).

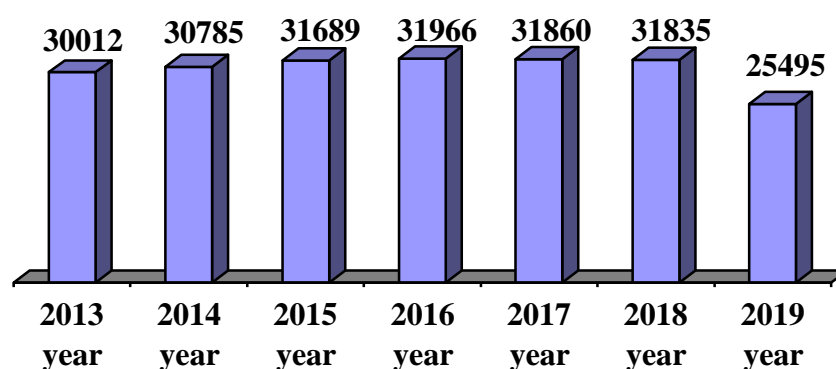


Figure 1. Number of research specialists, without co-workers and working under civil contracts in 2013-2019 (People) (Statistics, 2013-2019)

In this regard, it was essential to note that the decline in the number of R&D specialists occurred in many sectors of the economy and branches of science (Table 2).

Table-2

Distribution of research specialists by sectors and branches of sciences, without co-workers and working under civil contracts in the context of sectors in 2013-2019 (People) (Statistics, 2013-2019)

	2013 year	2014 year	2015 year	2016 year	2017 year	2018 year	2019 year	P.P.
By sector								
State sector	15,8	15,4	14,6	12,9	13,1	11,7	12,6	- 3,2
Business sector	6,5	5,0	5,05	6,7	6,5	6,3	6,0	- 0,5
Tertiary education	77,6	79,3	80,0	80,1	80,0	81,8	81,2	+ 3,6
Private non-profit sector	0,2	0,3	0,4	0,3	0,4	0,2	0,1	- 0,1
By branch of science								
Natural	22,7	23,6	23,8	26,2	24,5	28,1	28,5	+ 5,8
Technical	19,2	19,3	18,9	16,0	18,0	16,5	16,5	- 2,7
Medical	12,1	12,0	12,0	12,1	12,2	12,6	15,7	+ 3,6
Agricultural	7,7	6,9	6,6	7,2	7,3	7,1	5,4	- 2,3
Public	18,2	17,3	18,1	18,3	17,3	16,3	16,2	- 2,0
Humanitarian	20,1	20,9	20,7	20,2	20,6	19,4	17,6	- 2,5

One of the main results of innovation activity was the growth of introduced innovations in the country. According to the statistics, the innovations implemented divided into technological innovations, organizational and marketing innovations. Thus, 15,035 technological innovations implemented in the analyzed period, which grew from year to year, the sharp increase due to 2017-2019, the growth amounted to 3,165 units. (Figure 2).

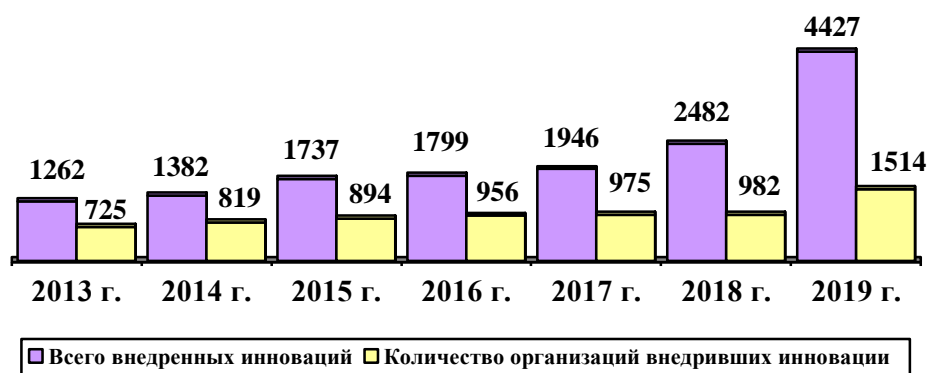


Figure 2. Number of technological innovations implemented by organizations in economic sectors in 2013-2019 (units) (Statistics, 2013-2019)

As the number of technology innovations implemented grows, the number of organizations that implemented innovations grew steadily (Figure 2). This indicator showed that the necessary conditions created to develop enterprises and organizations involved in innovative activities.

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According to World Bank Group research, the factors holding back productivity and employment growth in Uzbekistan's manufacturing sector related to searching for and purchasing advanced technology and innovation. The study found that about 34% of small and 29% of large enterprises opened new products in Uzbekistan between 2014 and 2016. However, at least 1/3 of products from large and small manufacturing enterprises in Uzbekistan potentially violated intellectual property rights since these "new" products copied from competitors free. Only 5 percent of the total innovation and innovation in large enterprises resulted from R&D by enterprises or research centers commissioned by enterprises, and none of the large enterprises acquired patents or licenses (World Bank, 2018).

About 3% of small businesses bought product patents or licenses, and only 1% of small businesses that innovated or mastered technology ran R&D on their own or commissioned R&D at some research center.

Competition for market share stimulated innovation by 65% of small enterprises and 51% of large enterprises. Reducing costs and improving the quality of products, design, and packaging were the main benefits of technology and innovation in large and small enterprises. However, small businesses paid more attention to product quality, design and packaging, while large enterprises focused more on saving energy, fuel and wage costs. Small enterprises were generally in line with large enterprises in introducing simple organizational and managerial innovations, such as automated accounting or improved warehouse and sales management in 2016. Small businesses had higher capacity utilization (69%) than large enterprises (65%).

In 2016, larger enterprises replaced more old equipment and machinery than smaller enterprises. In addition, in 2016, a higher proportion of large enterprises replaced old equipment than in 2014, which was a positive trend. About three-quarters of large enterprises and slightly more than half (56%) of small enterprises tried to find (or had incentives to find) foreign markets for products in 2016 (World Bank, 2018).

DISCUSSION

The World Bank Group developed proposals to promote innovation by creating tax deductions or tax credits for research and development and increasing public spending on research and development in product innovation (World Bank, 2018).

It should be noted that research and development (R&D) played a central role in generating economic growth and job creation, would increase the competitiveness of industry, energy, agriculture, transport, environmental protection and the creation of an innovative economy. Since 2000, total global R&D spending had tripled, from \$676 billion to \$2.0 trillion in 2018 (Global Research and Development Expenditures: Fact Sheet., 2020). At the same time, R&D intensity (R&D expenditure as a percentage of GDP) in the OECD area increased from 2.34% in 2017 to 2.38% in 2018 (Main Science and Technology Indicators. <https://www.oecd.org/sti/msti.htm>, 2020).

According to the 2020 Global Innovation Index (GII), the COVID-19 crisis had significantly affected global innovation processes (GII 2020, 2020). For example, in 2015, Uzbekistan ranked 122 out of more than 140 countries globally, while in 2020, Uzbekistan ranked 93rd in the Global Innovation Index 2020.

A work of A. Isadjanov (2019) featured ecological-innovative development of Uzbekistan's mineral raw material complex.

In this regard, we believe that, in addition to increasing government spending on product innovation, there was a need for parallel attention to both marketing innovation, process and organizational innovation, as they are highly interconnected.

CONCLUSION

Based on the study of the trends of the transition to the innovative path of development of the national economy, it was essential to note that public policy and innovation activities formed a single system and were inseparable since all interactions based on the state's national interests.

In determining the role of the state in the transition to an innovative way of development of the economy, the analysis of an experience of some foreign countries allowed us to conclude that in most of them they were identical and based on several fundamental directions:

1. Formation and continuous support of regulatory and legal support: legislative consolidation of innovative development; creation of legislative bases of copyright and intellectual property protection, the legislative framework of incentives of authors of inventions;

2. Financial support: Direct financing: expenses of the state budget; compensation of the interest rate on credits of commercial banks; Indirect financing: tax incentives and preferences; tax exemption; gratuitous transfer of state property;

3. Institutional arrangements: the formation of innovative infrastructure, including the information support system, the system of expertise, the financial and economic system, production and technological support, the system of certification and promotion of developments, the system of training and retraining of personnel; development of small innovative entrepreneurship by creating favorable conditions for the education and successful operation of small high-tech organizations and providing them with state support at the initial stage of activity.

4. Creation of a favorable environment for the emergence of economic entities of different forms of ownership (enterprises of different forms, innovative and investment funds, small investment business, etc.), including support of start-ups and venture projects.

This implied creating and preserving a comfortable environment (primarily financial and economic conditions) for the growth of innovation activity, the development of venture entrepreneurship, and investment activity.

However, given the considerable risks and high capital costs, private organizations were not always ready to innovate. In that case, the government could encourage entrepreneurs by offering additional benefits and subsidies and reducing taxes and customs duties, minimizing risks by issuing state guarantees, developing an insurance system and reinsurance projects against innovative risks.

5. Promoting investment in basic research preserving and supporting basic science, increasing its production and technological potential.

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

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