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МУНДАРИЖА / СОДЕРЖАНИЕ / CONTENT

SUSTAINABLE ECONOMIC GROWTH AND NATIONAL INNOVATION SYSTEM IN THE REPUBLIC OF UZBEKISTAN

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Abstract. *Nowadays, the country's role and place in the world economy increasingly depend on the competitiveness of the national economy and sustainable economic growth, building on the sufficient development results of the national innovation system. The main goal of the article is to analyze the potential of the the possibilities of artificial intelligence in the future, which is an important factor and condition for the development of the future economy – the economy of knowledge and innovations.*

Keywords: *Sustainable economic growth, national innovation system, factors of innovative development, innovations, innovative development, scientific technological sphere, AI.*

BARQAROR IQTISODIY O‘SISH VA MILLIY INNOVATSION TIZIM O'ZBEKISTON RESPUBLIKASIDA

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Annotatsiya. *Hozirgi kunda mamlakatning jahon iqtisodiyotidagi roli va o'rni tobora ko'proq milliy iqtisodiyotning raqobatbardoshligiga va barqaror iqtisodiy o'sishga, milliy innovatsion tizimning yetarlicha rivojlanish natijalariga bog'liq bo'lib bormoqda. Maqolaning asosiy maqsadi kelajakda sun’iy intellekt imkoniyatlaridan foydalanish salohiyatini tahlil qilishdir, bu esa kelajakdagi*

iqtisodiyotni - bilim va innovatsiyalar iqtisodiyotini rivojlantirishning muhim omili va shartidir.

Kalit so‘zlar: *Barqaror iqtisodiy o'sish, milliy innovatsion tizim, innovatsion rivojlanish omillari, innovatsiyalar, innovatsion rivojlanish, ilmiy-texnologik soha, AI.*

УСТОЙЧИВЫЙ ЭКОНОМИЧЕСКИЙ РОСТ И НАЦИОНАЛЬНАЯ ИННОВАЦИОННАЯ СИСТЕМА В РЕСПУБЛИКЕ УЗБЕКИСТАН

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Аннотация. *В настоящее время роль и место страны в мировой экономике все больше зависят от конкурентоспособности национальной экономики и устойчивого экономического роста, основанного на достаточно развитых результатах национальной инновационной системы. Главная цель статьи – анализ потенциала использования возможностей искусственного интеллекта в будущем, который является важным фактором и условием развития экономики будущего – экономики знаний и инноваций.*

Ключевые слова: *Устойчивый экономический рост, национальная инновационная система, факторы инновационного развития, инновации, инновационное развитие, научно-техническая сфера, ИИ.*

INTODUCTION

The developed processes of globalization have led to the comprehension that the pledge of successful modernization of the economy is constant innovative updating. As is known, innovation is a result of innovative activity; innovation introduction (new goods, services, new technologies) reduces costs per unit of utility and leads to structural shifts. Problems and difficulties which stood on a way of innovative development of the country have been connected by a certain isolation of scientific Research & Development from the needs of manufacturing, absence of effective mechanisms of stimulation of the innovative process.

There is a certain innovative potential in Uzbekistan for which it is necessary to have high levels of developed innovative infrastructure, an efficient technological policy of the state, a competitive market of innovations, and substantial investments. There is a need for intensive and coordinated efforts of the state, scientific and technical, and enterprise structures to make up for lost time and leave on level of modern technologies. Nowadays, the main and sharpest problems are the enhancement of efficiency of use of research and development projects, manufacturing application of results of fundamental and applied research, i.e., it is necessary to establish one's own innovative centers of the national innovative system (NIS).

MATERIALS AND METHODS.

Nowadays, this topic has not been sufficiently researched in the republic. The authors were among the first to begin research in this area, together with the Institute of Economics of the Uzbek Academy of Sciences. In addition, the authors conducted the exploring in the aspect of developing the potential of public-private partnerships in the innovation sphere. Leading economists, such as D.V.Trostyanskiy and Rasulev A.F., were involved in various aspects of studying the potential for innovative development in the republic.

The article uses quantitative (statistical) and qualitative research methods (comparative analysis) of conditions and factors for innovative development and the formation of NIS in the country.

RESULTS DISCUSSION

The most important result of the article is that the potential, conditions, and factors for the formation of a national innovation system have not been fully used over the past two decades, which gives reason to say that the processes of innovative development are overlaid on the still unfinished process of industrialization in the republic.

FACTORS AND CONDITIONS OF INNOVATIVE DEVELOPMENT FOR SEG

For the estimation of innovative potential following indicators are considered: 1) the personnel occupied with research and development (R&D), and the number of scientific institutions; 2) expenses for technological innovations; 3) the number of higher educational institutions and students in them; 4) the number of inventions and patented register; 5) the number of post-graduate students and an expenses for research and development; 6) using the potential of AI.

Table 1

Trends in the development of innovative indicators in the

Republic of Uzbekistan

	2018	2019	2020	2021	2022	2023
Personnel occupied with R&D (people)	37185	31099	30275	34614	34614	37 164
Internal expenses on R&D(billion, sums), In %	2869428,3 82,9	3342825, 7 50,6	4764543, 1 69,8	15777059, 8 89,2	...	1066569.0
Expenses for the technological Innovations (billion, sums) In % (2018=100)	4707211,8 100	6603474, 9 140,3	6829968, 6 145,1	17680789, 0 375,6	1946700 0,0 413,6	.....
Coefficient of invention activity(number of subject domestic claims for 1000000 population)	480 14,5	456 13,6	379 10,9	428 12.4	475 13,5	553 15,4 (3599 - в Южной Корее; 1770 - в Японии; 1010 – в Китае); 791 - в Германии)

Source: The Basic indicators of scientific and technical potential. Bulletin of the State Committee of the Republic of Uzbekistan on statistics for corresponding years; WIPO Statistics database 12/2023

The table of the number of people involved in research and development is significant for patents, exports, and enterprise activity. As some researchers have proven, an increase in internal expenses for research and development of one percent leads to growth of industrial production on average by 1.21 percent [1]. As can be seen from the table, state assignments for development in the scientific-technological sphere in the Republic have risen considerably and are directed, first of all, towards the elimination of negative tendencies in personnel preparation and material bases of innovative development. If the number of researchers and developers is taken for 1 000 000 population as it is accepted in international statistics, the following will appear: in the USA – 3,984 persons, Great Britain – 4,108, Germany – 4,355, Japan – 5,195 persons, and in Uzbekistan - 495 persons [2]. This must be due to several institutional imbalances, low return on investment in the system’s «input - output».

There are low demand for innovations, the lack of market orientation and customer needs, focusing on local markets with lower competitive terms, with a predominance of non-economic barriers to entry into these markets and with a corresponding limited initiative for long-term investments in innovations and technologies, and, therefore, more than 70% of innovation’s expenditures fall on machines and equipment [3].

Today, artificial intelligence is of great importance for the innovative development of the republic. The average IQ in Uzbekistan is about 96.98. According to data as of the beginning of 2025, the country ranks 70th out of 127 countries in the world. This means that the average indicator is higher than in previous years (94.81 in 2024), but still slightly below the world average (100).

It is among the top 3 fastest-growing economies in Europe and Central Asia in 2024. According to forecasts for 2025, Uzbekistan can become the leader in economic growth in the region with an expected increase in GDP by 5.8%, and by 5.9% in 2026 [4]. By 2030, strong AI will begin to develop, equal in capabilities to human intelligence and capable of understanding all aspects of human thoughts and emotions. AI acts as a driver of technological progress, as it facilitates the development of other digital technologies. It was planned that by 2030, the volume of AI-based services would reach $1.5 billion, but foreign experts estimate Uzbekistan’s potential at $10 billion. For example, companies in various industries have digitalized business processes, reducing costs by up to 10 percent [5].

As part of the ongoing programs of economic modernization in the country, sectoral and local polarization is decreasing according to the changes in innovative activity. To achieve success, it is necessary to ensure the coordination of innovative strategies of state corporations, budget research institutes, universities, and government agencies. Regular monitoring and evaluation of innovative initiatives are necessary, while identifying and disseminating good practices. Revise the taxation system of emerging start-up enterprises and the conditions for the transfer of intellectual property rights are necessary, taking into account the innovative costs (costs for the development of related technologies, design, engineering, and training) of exporters of innovative products and services.

A special incentive regime for public-private partnerships should reduce the unfavorable business area in combination with high commercial risks associated with innovation and become an important tool to ease the conditions for interaction in innovation activities [6].

To promote links in the university-production chain, it is necessary to widely develop an innovative structure - business incubators, technology parks, engineering centers, and centers for the collective use of scientific and technological equipment

and scientific and technical information. The state, as the practice of foreign countries shows, should do this on a competitive basis through subsidy programs.

It is important to create a network for the promotion of the results of scientific and technical activities in production. Technology platforms based on partnership focus on encouraging communication and pre-competitive cooperation among leading manufacturers, suppliers, research institutes, universities, and engineering companies [7]. These platforms operate on the principles of selection among numerous initiative proposals that meet the criteria of clarity of the goals of cooperation, market prospects, and the involvement of key participants in R&D and business.

It is necessary to improve the system of selection and provision of innovative grants, which are given for development work and/or risk research, the preparation of a feasibility study for an innovative project, the patenting of intellectual property abroad and/or in international patent organizations, and the purchase of new technologies. Grants are designed to stimulate the development of innovation, based on the introduction and use of high technologies.

CONCLUSION

The analysis of factors and conditions for innovative development shows that in the Republic, there is a certain innovative and technological potential, for the use of which a high level of development of an innovative infrastructure and the skillful technological policy of the state, a free market of competition of innovations, and considerable investments are necessary.

In various directions, Uzbekistan does not lag behind the world level, which facilitates today the science to successfully cooperate with the world community in microelectronics, in the sphere of nanotechnologies and nanomaterials, biotechnologies, and others. However, working in an intensive mode at the level of world samples demands both qualitative and quantitatively to improve major factors of maintenance of scientifically-innovative processes: volumes and forms of financing, the organization of science, its personnel structure, material base, information, and patenting-technical systems, and also orientation of R&D to the market of innovations.

Therefore, now for progress in the technical and technological fields, definition at the state level of priorities of innovative development, also formation of trust funds for supporting corresponding research and development, is very important. The great value for activation of innovative processes in the republic would also have wider use for financing scientific and technical projects from off-budget sources.

Thus, it should be noted that in order to support a scientific technological potential, it is necessary for a country to be integrated into a formed global economic-technological space that will also promote the reduction of expenses.

As the technological infrastructure, the major segment of modern NIS, in the country develops, technoparks should play a considerable role. As it was already noted, there is no present venture financing of innovative activity in the Republic; there is no mechanism of reinsurance of investments. Modern mechanisms of commercialization of technological innovations are insufficiently extended; the market of innovative production has been established recently. In the development and realization of a scientifically innovative policy, the branch approach prevails. The regional, territorial aspect, while insufficiently studied within the limits of a state policy in scientific, scientific and technical, and innovative spheres, especially regarding overcoming the non-equal distribution of scientific and technical potentials across the country's regions.

Thus, despite the existence of separate potentially significant perspectives for the formation of NIS in the republic, they yet do not address the major problem – maintenance of innovative development in the economy as a whole. As the made analysis shows, at present, there is no accurate communication between innovations and economic growth in the country, that is, it substantially remains extensive type and depends on the volumes involved in the turnover material and work force, and investments into the industrial economy. Therefore, the major problem now is the integration of science and manufacturing in addition to the adaptation of the economy to an industrially innovative model of economic growth.

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