ECONOSCITECH INTEGRATION

ISSUE 6

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

TASHKENT STATE UNIVERSITY OF ECONOMICS

American University of Technology
Powered by Arizona State University®

ISSN: 3060-5075

Acceptance of articles
PUBLISHED MONTHLY

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PROFESSORS, SCHOLARS, SPECIALISTS, AND RESEARCHERS

Google Scholar
Academic Resource Index ResearchBib
BASE
OpenAIRE
doi Digital Object Identifier
OPEN ACCESS

CONTACT: +998 94 3540880 https://econoscitech-integration-journal.uz 2026

THE SCIENTIFIC-POPULAR ELECTRONIC JOURNAL **"ECONOSCITECH-INTEGRATION"** HAS BEEN REGISTERED UNDER THE NUMBER C-5669651 BY THE AGENCY FOR INFORMATION AND MASS COMMUNICATIONS (AOKA) OF THE REPUBLIC OF UZBEKISTAN, EFFECTIVE FROM OCTOBER 9, 2024.

In accordance with Resolution No. 384/6 dated April 10, 2026, issued by the Presidium of the Supreme Attestation Commission under the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, this journal is included in the list of recommended international scientific publications for publishing the primary research findings of doctoral dissertations in the field of Economic Sciences.

Partners: Tashkent State University of Economics / American University of Technology in Tashkent (AUT)

Electronic publication, Issue 5. 374 pages.
Approved for publication on Iyun, 2026.

Editorial Board Members:

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GOVERNMENT FUNDING AND THE DEVELOPMENT OF INNOVATIVE ACTIVITIES: FINANCIAL PROMOTION MECHANISMS

Bahriddinov Nodirbek Zamirdinovich
PhD, Associate Professor, Faculty of Economics
Namangan State Technical University
E-mail: nbahriddinov@lincolnucasf.edu
Tel.: +998 90 554 71 47

Abstract. The article examines methods of state financial stimulation of innovative activity in industrial enterprises. Various approaches to financial stimulation in this area are studied, and the possibilities of their application in industrial enterprises are identified and assessed. The article develops proposals for the use of different methods of state financial stimulation to enhance innovative activity.

Keywords: innovative activity, incentives, industrial enterprises, financial incentives, efficiency, foreign experience, socio-economic development, globalization, economic growth, social infrastructure.

Annotatsiya. Maqolada sanoat korxonalarining innovatsion faoliyatini davlat tomonidan moliyaviy rag‘batlantirish usullari o‘rganilgan. Mazkur yo‘nalishdagi turli moliyaviy rag‘batlantirish mexanizmlari tahlil qilinib, ularni sanoat korxonalarida qo‘llash imkoniyatlari aniqlangan va baholangan. Shuningdek, innovatsion faoliyatni faollashtirishda davlat tomonidan moliyaviy rag‘batlantirishning turli usullaridan foydalanish bo‘yicha takliflar ishlab chiqilgan.

Kalit so‘zlar: innovatsion faoliyat, rag‘batlantirish, sanoat korxonalari, moliyaviy rag‘batlantirish, samaradorlik, xorijiy tajriba, ijtimoiy-iqtisodiy rivojlanish, globallashuv, iqtisodiy o‘sish, ijtimoiy infratuzilma.

Аннотация. В статье исследованы методы государственного финансового стимулирования инновационной деятельности промышленных предприятий. Изучены различные подходы к финансовому стимулированию в данной сфере, определены и оценены возможности их применения на промышленных предприятиях. Разработаны предложения по использованию различных методов государственного финансового стимулирования для активизации инновационной деятельности.

Ключевые слова: инновационная деятельность, стимулирование, промышленные предприятия, финансовое стимулирование, эффективность, зарубежный опыт, социально-экономическое развитие, глобализация, экономический рост, социальная инфраструктура.

INTRODUCTION

The functions of state bodies in the field of innovation include regulating innovative activities, identifying priority areas for the accumulation and mobilization of funds for innovation, providing material, financial and moral incentives for innovation, creating a competitive environment in this area, ensuring the operation of mechanisms for protection against innovation risks, establishing a legal framework for innovative processes, including the protection of copyright and intellectual property rights of innovators, providing qualified personnel for innovative activities, forming innovation infrastructure, regulating innovative processes in the regions, and developing international cooperation in innovative activities.

These functions are reflected in the development of a legislative framework, the implementation of relevant state programs, the provision of financial support, and the creation of preferential conditions for innovative development.

LITERATURE REVIEW

The term “innovation”, which is closely associated with innovative activity, was first introduced by the Austrian economist Y. Schumpeter in his seminal work *The Theory of Economic Development* (1912)[1]. The fundamental principles of innovation theory were comprehensively substantiated in this work.

American management scholar P. Drucker developed a broader interpretation of innovation, stating that “innovation is a systematic process through which ideas and inventions are transformed into commercial reality for the first time. It involves bringing new products or services to the market and successfully integrating them into economic activity”[2].

1 Schumpeter Y. “Teoriya ekonomicheskogo razvitiya”. - M. , Progress , 1982. -455 p .
2 P. Druker Novyy bizness.- M.: Ekonomika, 1993, p

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According to the Russian economist A.I. Anchishkin[3], the concept of innovation should not be limited solely to technical and technological changes. He attributed a broader social significance to innovation, viewing it as an important instrument for societal development. In his opinion, technical and technological innovations generate economic effects, strengthen market competitiveness, influence the competitive environment, and contribute to socio-economic progress.

Another definition states that "innovation is the process of creating, disseminating, and applying new solutions, products, or practical tools aimed at meeting the evolving needs of society under the influence of socio-economic development." E.A. Utkin[4] defines innovation as an object introduced into production as a result of scientific research or discovery and possessing qualitative advantages over its predecessor.

Many researchers emphasize that, in developing economies and during periods of economic transformation, state financial stimulation of innovative activity can play a significant role in supporting innovation processes. According to L.E. Mindeli, the importance of indirect methods of state support is primarily determined by the fact that they require considerably lower budget expenditures than direct financing while simultaneously covering a much wider range of innovation actors[5]. V.R. Tugusheva and R.R. Yunyaeva similarly argue that indirect stimulation mechanisms are generally less burdensome on public finances than direct funding instruments[6].

Conducting a more detailed analysis of direct and indirect support measures, N.Yu. Krivoruchko classifies initiatives aimed at improving infrastructure and the regulatory framework as indirect support measures. In contrast, L.E. Mindeli considers the formation and development of state innovation infrastructure to be a form of direct support[7].

Overall, the studies conducted by these scholars on innovation and innovative activity highlight the importance of further research into methods of state financial stimulation of innovative activity in business enterprises. This, in turn, confirms the relevance and practical significance of the selected research topic.

RESEARCH METHODOLOGY

The article examines scientific and theoretical approaches related to the scope of the research topic. General scientific methods, including analysis and synthesis, were used to identify and summarize approaches to the state financial stimulation of innovative activity in Uzbekistan during the period of economic reforms. The research direction was selected in accordance with the stated objective. The research strategy was aimed at a thorough study and substantiation of primary and secondary sources of information.

ANALYSIS AND RESULTS

In our opinion, the formation and development of an integrated system of innovative activity in our country includes the following areas from the perspective of financial and economic relations:

1. Expansion of enterprises and organizations producing innovative products, works and services.
2. Increase in the volume and variety of innovative products, works and services.
3. Growth in expenditures on innovative products, works and services produced through enterprises' own efforts, as well as improvement of their content and quality.
4. Increase in the number, scope and cost of scientific research and experimental design work, along with the expansion of funding sources.

The development of processes in these areas, which characterize innovative activity, is becoming increasingly important for both macroeconomic and microeconomic development. At the same time, the competitiveness of the national economy is largely determined by the rational mobilization and effective use of financial resources in these areas.

In this regard, the indicators of innovative activity of enterprises in Namangan region are presented below:[8]

In 2019, the number of innovation-active enterprises and organizations in Namangan region amounted to 184, of which 89 enterprises introduced innovations for the first time during the year.

In the same year, 177 small business entities in Namangan region independently produced innovative products and services.

The total value of innovative products and services created in Uzbekistan in 2019 (excluding VAT and excise taxes) amounted to 26,811.4 billion soums, of which 8,255.6 billion soums represented products and services introduced for the first time in 2019.

3 Anchishkin A. I. Science - technology - economics.- M.: Ekonomika, 1986, -35 p .
4 Utkin E.A., Morozova G.I. Innovative management. - M., Akalis, 1996. -208 p.
5 World Economic Forum: official website. Access mode: http://www.weforum.org/. (Access date: 01/12/24).
6 Tugusheva VR, Yunyaeva RR State incentives for crediting innovative activities in the agro-industrial complex // Izvestia of Perm State Pedagogical University. VG Belinsky. – 2011. – No. 24. – P. 469–474.
7 Fundamentals of innovation management / Ed. Zavlina PN, Kazantseva AK, Mindeli LE – M.: "Economics", 2006. – 518 p.
8 Information from the Namangan Regional Statistics Department .

In Namangan region, these indicators amounted to 843.1 billion soums and 133.5 billion soums, respectively.

In Uzbekistan, innovative products and services worth 8,455.4 billion soums were created by small enterprises and microfirms through their own efforts in 2019.

A total of 3,753 small enterprises and microfirms produced innovative products and services during the year. Given that the total number of innovation-active enterprises was 3,916, small enterprises accounted for 95.8 percent of all innovative enterprises.

These indicators demonstrate that large enterprises possess broader technical and technological capabilities, enabling them to introduce new products on a larger scale. At the same time, small enterprises also make a significant contribution to the development and dissemination of innovative products and services.

In Namangan region, small businesses and microfirms produced innovative products and services worth 727.7 billion soums in 2019, accounting for 86.2 percent of the total volume. This high share reflects the substantial role of small businesses in the regional economy.

During 2019, a total of 39 scientific and research projects were carried out in Namangan region, including 26 scientific research projects, 2 design and technological projects, and 11 scientific and technical service projects. The total value of completed work amounted to 12.4 billion soums, of which 10.7 billion soums were related to scientific research and 1.4 billion soums to scientific and technical services.

Expenditures on scientific research and experimental design work in Namangan region reached 8.4 billion soums in 2019. Of this amount, 2.2 billion soums were allocated to natural sciences, 2.3 billion soums to technical sciences, 0.5 billion soums to medical sciences, 0.9 billion soums to agricultural sciences, 0.4 billion soums to social sciences, and 2.0 billion soums to the humanities. All expenditures were current expenditures, of which 7.9 billion soums were directed toward salaries and related costs.

In 2019, total research and development (R&D) expenditures in Uzbekistan amounted to 602.3 billion soums. Of this amount, 304.4 billion soums were allocated to the public sector, 191.0 billion soums to the business sector, and 104.1 billion soums to the higher education sector. By field of science, expenditures were distributed as follows: 266.4 billion soums for natural sciences, 150.5 billion soums for technical sciences, 41.7 billion soums for medical sciences, 65.0 billion soums for agricultural sciences, 54.2 billion soums for social sciences, and 54.5 billion soums for the humanities.

In 2019, organizations spent 589.6 billion soums on scientific research conducted through their own resources. Of this amount, 581.6 billion soums represented current expenditures, while approximately 8.0 billion soums were directed toward capital expenditures. This expenditure structure indicates that research activities were primarily financed through current operating resources. At the same time, increasing investments in research infrastructure and modern equipment could further strengthen the innovative capacity and long-term effectiveness of research activities. Salaries and related expenses accounted for 439.3 billion soums, representing nearly 70 percent of total current expenditures (Table 1).

Table 1

Types of innovation activity (technological, marketing and organizational innovation costs)[9] (million soums)

	2017	2018	2019	2020	2021	2022
Total technologist, marketing and organization for innovations .	4162.3	4707.2	6603.5	6829.9	17680.7	19130.6
From this:						
Technological innovation	3951.6 -94.9%	3522.8 -74.8%	5621.5 -85%	5337.5- 78%	16831.9- 95.2%	17412.9- 91%
Marketing innovations	90.5 -2.1%	219.1 -4.6%	82.4 -1.2%	221.5- 3.2%	318.3-1.8%	493.4-2.6%
To organizational innovation	120.2 -2.8%	1017.9 -21.6%	899.6 -13.6%	1270.3- 18.5%	530.4-3%	1224.3- 6.4%
Technological innovations types expenses for:						
a) by products	1626.1	1684.3	2543.3	2068.8	6416.1	6468.6
b) by processes	2325.5	1838.5	3078.2	3268.7	10415.8	10944.3

9 Republic of Uzbekistan. State Stat. Committee.// Science and Innovation in Uzbekistan. Tashkent 2021/2022/2023. 81- 83-page

According to Table 1, expenditures on innovation activities in the country have increased since 2017 and reached 19,130.6 million soums in 2022. The major share of these expenditures was directed toward technological innovations, the value of which increased to 17,412.9 million soums in 2022. Technological innovations play an important role in addressing a number of economic priorities, including improving energy efficiency, ensuring the effective use and recycling of local resources, and creating higher value-added chains.

This trend is directly related to the acceleration of modernization processes in the economy and the strengthening of the financial capacity of national economic entities.

According to the State Statistics Committee, in 2019, respondents in Uzbekistan assessed the factors hindering innovative activity as follows: lack of financial resources — 23.1 percent; low demand for products, works and services — 8.0 percent; high cost of innovations — 12.9 percent; high economic risk — 9.3 percent; shortage of qualified personnel — 11.0 percent; lack of information about new technologies — 7.2 percent; lack of information about sales markets — 6.5 percent; insufficient development of innovation infrastructure — 7.2 percent; and absence of the need for innovations due to their previous implementation — 14.7 percent.

In Namangan region, these indicators were as follows: lack of financial resources — 30.0 percent; low demand for products, works and services — 20.0 percent; high cost of innovations — 10.0 percent; high economic risk — 5.0 percent; shortage of qualified personnel — 15.0 percent; lack of information about new technologies — 5.0 percent; lack of information about sales markets — 5.0 percent; insufficient development of innovation infrastructure — 5.0 percent; and absence of the need for innovations due to their previous implementation — 5.0 percent.

These data show that one of the main factors limiting innovative activity in the country is the availability of financial resources. The perception of innovation as a high-cost process is also closely related to this factor. Together, these two factors accounted for 36.0 percent in Uzbekistan and 40.0 percent in Namangan region. Therefore, the further development of innovative activity largely depends on improving access to financial resources and expanding market-based financing mechanisms. When innovations are implemented on the basis of market principles, they can provide faster and more effective results.

The fact that the level of economic risk in Namangan region was assessed as twice lower than the national average indicates that business entities in the region demonstrate a relatively positive attitude toward market activity and are more inclined to take entrepreneurial initiative.

The creation of an effective mechanism for stimulating innovative activity in industrial enterprises is an important condition for strengthening their competitiveness and ensuring sustainable development. In particular, the development of new products that meet market requirements through innovative activity can serve as an effective tool for improving enterprise performance.

One of the most important components of the sustainable development of New Uzbekistan is the creation of the necessary conditions for increasing the intellectual potential of society. The modernization policy of the economy, which became one of the priority areas of economic reforms after 2006, and the new stage of reforms aimed at modernizing production since 2017 have contributed to the further expansion of state and corporate financing sources for the national innovation system (Table 2).

Table 2
Sources of financing for innovative projects[10] (billion soums)

No.	Funding Sources/Years	2016	2017	2018	2019	2020	Growth in 2020 compared to 2016, in %
1	Private funds of enterprises	213.4	2501.5	1381.5	1251.8	1180	553.0
2	Foreign investment loans	39.9	1228.7	32.3	156.6	314.9	789.2
3	Commercial banks investment loans	26.8	26.8	262.5	280.1	157.3	586.9
4	State budget and trust funds	31.7	370.6	2081	3839.7	919.1	2899.4
	Total	311.8	4634.3	3757.3	5528.2	2571.3	824.7

10 Compiled by the author.

In general, the sources of innovation financing by institutional investors can be presented in the table below.

According to the data presented in Table 2.3, enterprises' own funds play an important role in the system of financial incentives for innovative activity. These funds are closely related to the modernization of production, the development of new products, and the financing of innovative projects. In 2016, enterprises' own funds amounted to 213.4 billion soums, while by 2017 this figure had increased to 2,501.5 billion soums.

In particular, during this period, reforms aimed at the accelerated development of high-tech processing industries, the production of high value-added goods and services based on local raw materials, and the wider use of domestic resources in industry and services contributed to the expansion of innovative financing. These processes were also directed toward strengthening the competitiveness of local production and increasing the efficiency of industrial development.

As an important measure for ensuring the country's economic stability, the national innovation system is implementing a policy focused on the development of new products and technological modernization. This policy contributes to strengthening the global competitive position of the national economy. At the same time, these measures require a high level of mobilization of internal financial resources for the further development of innovative activity among industrial enterprises operating in various sectors of the economy.

Since 2017, the Ministry of Innovative Development of the Republic of Uzbekistan has played an important role in the systematic organization of innovative activity among business entities operating in all sectors of the national economy. As a public authority responsible for implementing a comprehensive state policy aimed at identifying Uzbekistan's intellectual and technological potential and expanding opportunities for its development, the Ministry has been assigned a number of important tasks.

In particular, its activities include supporting the creation of innovations in regions and enterprises, promoting scientific developments and their commercialization, increasing enterprises' economic benefits from research results, organizing high-level scientific research, ensuring the effective implementation of investment policy in the context of innovative development, and carrying out other related measures.

In 2017, the second most significant source of financing for innovative projects was foreign investment and loans, which amounted to 1,228.7 billion soums. During 2016–2020, this strategic source of innovative development showed certain fluctuations, which can be explained by the dynamics of expenditures on projects included in the target lists of adopted investment programs for innovative development.

During the analyzed period, the largest source of financing for innovative projects was the financial resources of the state budget and targeted funds. In 2019, this source amounted to 3,839.7 billion soums. Overall, systematic measures are being implemented in the country to expand and improve the financing mechanisms for innovative projects (Table 3).

Table 3

Sources of financing of innovative projects in Uzbekistan, as a percentage of the total[11]

No.	Funding Sources/Years	2016	2017	2018	2019	2020
1	Private funds of enterprises	68.4	54.0	36.8	22.6	45, 8
2	Foreign investment loans	12.8	26.5	0.9	2.8	12.2
3	Commercial banks investment loans	8.6	11.5	7.0	5.1	6, 3
4	State budget and trust funds	10.2	8.0	55.4	69.5	35.7
	Total	100	100	100	100	100

If we consider the relative indicators presented in Table 3, enterprises' own financial resources accounted for 68.4 percent of the total financing of innovative projects in 2016, while by 2020 the share of the state budget and state targeted funds had reached 35.7 percent.

In the financing structure of innovative projects, investment loans provided by commercial banks accounted for 8.6 percent in 2016 and 6.1 percent in 2020, indicating a gradual decline over the period. This trend may

11 Compiled by the author based on data from the State Statistics Committee of the Republic of Uzbekistan.

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be explained by the specific characteristics of innovative projects, including their relatively long payback period and higher level of uncertainty compared to traditional investment projects.

Based on the statistical data presented above, the following conclusions can be drawn:

Firstly, opportunities exist for the commercialization of scientific ideas in enterprises where favorable conditions for innovative activity have been created.

Secondly, the relatively high socio-economic efficiency and investment attractiveness of innovative activity encourage the active participation of corporate financing sources. In this regard, a significant portion of the private financial resources of business entities is directed toward innovation-oriented investments rather than current consumption.

Thirdly, over the past five years, as a result of state policies aimed at supporting innovative activity, the share of public financial resources in the overall structure of innovation financing has increased.

Fourthly, within the framework of state policy aimed at attracting large-scale foreign investment, particular attention has been paid to the modernization of production capacities, the introduction of advanced technologies, and the development of value-added production chains that contribute to sustainable economic growth.

Uzbekistan is actively developing its innovation ecosystem in sectors that play a key role in economic development. At the same time, international technologies and advanced foreign experience are widely utilized to accelerate innovative development. In a number of sectors, particularly traditional industries, significant efforts are being made to create, adapt, and develop new technologies.

The following measures have been implemented in Uzbekistan to stimulate innovative activity:

– modernization and expansion of telecommunications infrastructure, including broadband communication networks;

– introduction of mechanisms for the development and support of fundamental scientific research and the modernization of the higher education system;

– encouragement of private financing in the education sector, including targeted scholarship programs and endowment funds;

– expansion of research and development (R&D) financing, including the development of venture financing mechanisms for startups with the participation of international investment funds;

– attraction of leading foreign companies, including Korean, Japanese, and German firms, to establish research and development centers and strengthen domestic technological competencies;

– development of private education, particularly higher education institutions, and attraction of internationally recognized specialists to improve the quality of technical education;

– strengthening the protection of intellectual property rights and improving mechanisms for safeguarding innovation outcomes;

– development and modernization of innovation infrastructure across all regions of Uzbekistan, including technoparks, business incubators, and free economic zones;

– provision of tax and customs incentives for innovation centers and long-term investment projects;

– creation and development of technology transfer mechanisms;

– promotion of science and scientific education, including support for learning and conducting research in English.

These measures contribute to strengthening the national innovation system, expanding financing opportunities for innovative projects, and enhancing the competitiveness of the economy in the context of technological transformation.

CONCLUSIONS AND RECOMMENDATIONS

As a result of the research, it was concluded that the development of innovative activity requires the mobilization of substantial internal financial resources. In this regard, it is advisable to establish special state support funds to form a stable source of financing for innovation.

These funds may be formed by allocating 2 percent of the profit tax paid to the state budget by large industrial enterprises. Such an approach would contribute to expanding financial opportunities for innovative projects and strengthening the innovation capacity of industrial enterprises.

Therefore, innovation plays a key role in the development of the national economy in any country. In this process, the state should play an active role in stimulating innovation, creating favorable conditions for investment, and supporting mechanisms that promote innovative development.

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INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

Proofreader: Xondamir Ismoilov

Layout and Designer: Hasan Maqsudov

2026. № 6

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