The OSCAR PUBLISHING Services
International Journal Of Management And Economics Fundamental

VOLUME Vol.06 Issue 03 2026
PAGE NO. 55-59
DOI 10.37547/ijmef/Volume06Issue03-12

Ways to Improve the Mechanism for Developing Innovation Processes in Industrial Enterprises

A.M. Nurmatov

Listener, Higher School of Business and Entrepreneurship under the Cabinet of Ministers of the Republic of Uzbekistan, Uzbekistan

D.Kh. Suyunov

Doctor of Philosophy in Economics, prof., Higher School of Business and Entrepreneurship under the Cabinet of Ministers of the Republic of Uzbekistan, Uzbekistan

Received: 12 February 2026; **Accepted:** 10 March 2026; **Published:** 31 March 2026

Abstract: This article studies the theoretical and methodological foundations of the formation and improvement of the mechanism for the development of innovative processes at industrial enterprises. The main concepts, essence and structure of the innovative process are considered, the main obstacles to the effective implementation of innovations are analyzed. Based on a systematic analysis of domestic and foreign experience, specific ways to improve the mechanism for organizational and economic innovative development of industrial enterprises are proposed. Particular attention is paid to digital transformation, strategic cooperation with scientific institutions and the improvement of financial instruments. The experience of the Republic of Uzbekistan within the framework of the Innovation Development Strategy for 2022–2026 is considered.

Keywords: Innovative process, industrial enterprise, innovative development mechanism, innovative potential, digitalization, R&D, strategic planning, Uzbekistan.

Introduction: In the conditions of ever-increasing global competition, the acceleration of technological progress and the transformation of the world economy, the innovative activity of industrial enterprises has become a necessary condition for survival and growth from arbitrary advantage. It is innovations that ensure increased competitiveness, increased labor productivity and long-term stability of economic entities.

At the same time, the practice of the industrial sector of many developing countries, including the Republic of Uzbekistan, shows that innovation processes are not sufficiently effective. The vast majority of industrial enterprises operate in conditions of a morally outdated technological base, a low level of R&D, and weak integration of scientific and research organizations with the production sector. This makes it urgent to develop a comprehensive, systemically based mechanism that can ensure the sustainable innovative development of industrial enterprises.

The purpose of this article is to substantiate and systematize ways to improve the mechanism for developing innovative processes in industrial enterprises based on the study of theoretical foundations and analysis of practical problems.

The methodological basis of the study was the work of domestic and foreign scientists in the field of innovation management, systematic analysis and strategic management: the works of Y. Schumpeter, P. Drucker, B. Tviss, V.P. Barancheyev, T.V. Grin'ko, as well as the normative and legal documents of the Republic of Uzbekistan in the field of innovative development.

THEORETICAL FOUNDATIONS OF INNOVATION PROCESSES IN INDUSTRIAL ENTERPRISES

The concept of "innovation process" is the central concept of the theory of innovation management. The founder of the modern theory of innovation is the

Austrian economist Y. Schumpeter, who defined innovation as the "implementation of new combinations" of production factors - this includes the creation of new products, new production methods, the development of new markets and the introduction of new organizational forms.

In modern economic literature, the innovation process is interpreted as a chain of sequential events that occur from the moment an idea is transformed into a product, technology or service and its dissemination in economic practice. According to the accepted classification, the innovation process includes two main stages:

The first stage is scientific research and design development (SRD), as well as technological preparation for production;

The second stage is serial production and commercialization of innovations, including marketing and sales of innovative products.

The main structural element of the innovation process is the innovative potential of the enterprise. T.V. Grin'ko (2011) proposes a differential assessment of innovative potential in three areas: product innovations, production innovations and marketing innovations, since each area requires its own set of resources and competencies.

For the purposes of this study, the following classification of innovations by the object of influence on the activities of an industrial enterprise is of great importance:

Type of innovation	Content	Examples
Product innovation	Creating new or improved products	New materials, electronics
Process (technological)	New production methods and technologies	Automation, robotics
Organizational	Change the management system	Lean manufacturing, Agile
Marketing	New promotion and sales methods	E-commerce, personalized approach
Social	Improving working conditions and skills	Corporate learning

ANALYSIS OF THE INNOVATIVE DEVELOPMENT MECHANISM OF INDUSTRIAL ENTERPRISES

The innovative development mechanism of an industrial enterprise is a systematically organized set of methods, tools and procedures that ensure the planning, financing, implementation and control of innovative activities. This mechanism includes the following interrelated subsystems:

[Goal setting] → [Capability assessment] → [Strategic planning] → [Implementation of R&D] → [Commercialization] → [Monitoring and evaluation of effectiveness]

According to the research of T.V. Grin'ko, the innovative development mechanism of an enterprise is based on three fundamental stages: goal setting, assessment of innovative development potential and development of a strategic plan. It is recommended to formalize the strategic plan in the form of a graph of the interrelationship of the main and alternative innovative activities - this significantly increases the adaptability of the plan to the influence of the external environment.

The full cycle of the innovation process at an industrial enterprise includes the following stages:

Stage 1: Idea generation. Formation and selection of promising innovative ideas based on market monitoring, needs analysis and technological foresight.

Stage 2: Research and development (R&D). Conducting fundamental and applied research, studying the scientific and technical base. At this stage, the enterprise's cooperation with higher education institutions and research institutes is of crucial importance.

Stage 3: Experimental and design work (E&D). Creating experimental samples, conducting tests, developing technical documentation. This stage is the most capital-

intensive and risky stage.

Stage 4: Technological preparation of production. Designing and mastering new technological processes, preparing production facilities, training personnel.

Stage 5: Serial production. Mastering the release of a new product or the introduction of a new technology into the production process.

Stage 6: Commercialization and dissemination of innovations. Market launch of innovative products, expansion, technology transfer.

PROBLEMS IN DEVELOPING INNOVATION PROCESSES IN INDUSTRIAL ENTERPRISES

Analysis of the state of innovation activity in the industrial sector allows us to identify a number of systemic problems that significantly limit the development of innovation processes in enterprises:

1. Lack of financial resources. Studies show that more than 80 percent of enterprises use their own funds as the main source of financing for innovations, while access to external sources (venture financing, preferential bank loans, state grants) remains limited.

2. Underdevelopment of the technological base. At many enterprises, the moral and physical obsolescence of production equipment has reached critical values, making it extremely difficult to implement technological innovations without large-scale modernization.

3. The gap between science and production. The low level of commercialization of scientific developments, weak integration of scientific research organizations with industrial enterprises creates an "innovation gap" - potentially valuable developments remain unimplemented in the real economy.

4. Personnel shortage. The lack of qualified specialists in the field of engineering, information technology and innovation management significantly limits the ability of enterprises to carry out independent R&D.

5. High level of uncertainty and risk. Innovative activity, by its very nature, is associated with a high probability of technical and commercial failures, which reduces the tendency of management to make risky innovative decisions.

6. Weakness of the institutional environment. Insufficient development of the market infrastructure of innovation support (technoparks, business incubators, innovation clusters), ineffectiveness of the intellectual property protection system dampen innovative activity.

Despite significant achievements in recent years in the Republic of Uzbekistan, the industrial sector faces a number of specific obstacles: insufficient activity of local industrial enterprises in the field of R&D&I, a low share of innovatively active enterprises in the total number of industrial entities, as well as limited integration into international technological chains. The Strategy for Innovative Development of the Republic of Uzbekistan for 2022–2026, adopted in 2022, aims to significantly improve the country's position in international innovation rankings and provides for systematic measures to eliminate these obstacles.

WAYS TO IMPROVE THE MECHANISM FOR DEVELOPING INNOVATION PROCESSES

Based on the analysis conducted, the main areas for improving the mechanism for innovative development of industrial enterprises were systematized.

Limited financial resources are the most acute problem of innovative development. To eliminate it, it is necessary to:

— Diversify sources of financing: develop venture financing mechanisms, create special innovation funds, attract investments through public-private partnerships (PPP);

— Form a system of tax incentives for enterprises investing in R&D and introducing new technologies;

— Introduce a “resource reserve” mechanism: include mandatory financial reserves and alternative measures in the strategic innovation development plan — this ensures the “passive adaptation” of the innovation plan to external influences;

— Support the practice of co-financing R&D by state and industrial enterprises — this reduces the burden on a separate entity and diversifies risks.

Increasing the efficiency of management of innovation processes involves:

— Creation of specialized innovation units (R&D centers, laboratories, project offices) within enterprises — they should be given appropriate authority and resources;

— Implementation of innovation activities based on project management: use of Agile, Scrum, Stage-Gate methodologies — this increases flexibility and speed in the implementation of innovation projects;

— Strategic planning in graphical models: presentation of the strategic plan for the innovative development of the enterprise in the form of a graph with innovative activities reflected as vertices and edges — this allows you to show their interdependence;

— Introduction of a balanced scorecard (BSC): assessment of innovation activities, taking into account non-financial indicators (customer, process, personnel).

Bridging the "innovation gap" between research

organizations and industrial enterprises is a key condition for increasing the efficiency of innovation activities. To this end, the following are proposed:

— Creation of production and scientific clusters and technoparks that unite enterprises, universities and research institutes into a single innovative ecosystem;

— Development of technology transfer mechanisms: creation of centers for the commercialization of developments, patent offices, platforms for the exchange of innovative solutions;

— Organization of competitions and grants for the development and implementation of innovations aimed at solving specific technological problems of the industrial sector.

In modern conditions, digitalization is one of the means of activating innovative processes in industrial enterprises. The introduction of digital technologies opens up fundamentally new opportunities for improving innovative activities:

— Industry 4.0 technologies (Internet of Things — IoT, artificial intelligence — AI, big data — Big Data, cloud computing, 3D printing) allow to radically change production processes, reduce the cost of experimental and design work, and shorten the cycle from idea to market product;

— Digital Twins of the enterprise — virtual models of production processes — allow testing innovative solutions without stopping real production, which significantly reduces risks and costs;

— Platform technologies and open innovation (Open Innovation) allow enterprises to involve external participants in the innovation process — startups, researchers, consumers — thereby radically expanding the innovative potential;

— Development of R&D in the field of digital engineering: the sharp increase in demand for specialists in the field of digital engineering is the main factor in increasing corporate R&D costs, which is a key trend in global industrial development.

A sustainable innovation process is impossible without the formation of an appropriate organizational culture and human capital:

— Creation of a system of continuous corporate training and advanced training of employees in the field of new technologies, digital competencies and innovation management;

— Introduction of a system of stimulating innovative activity of employees: material incentives for authors of rationalization proposals, non-material recognition, elements of internal competition between departments;

— Foster a culture of risk-taking and failure: One of the main barriers to innovation is the fear of failure. Organizations that achieve high results in innovation have a culture that views failure as valuable experience;

— Attract and retain highly qualified specialists through competitive working conditions, research grants, and career prospects.

STRATEGIC CONTEXT: EXPERIENCE OF THE REPUBLIC OF UZBEKISTAN

In recent years, the Republic of Uzbekistan has been making systematic efforts to form a national innovation system and stimulate the innovative activity of industrial enterprises. In accordance with the Presidential Decree of July 6, 2022, the Strategy for Innovative Development of the Republic of Uzbekistan for 2022–2026 was approved, which defines the main priorities and tasks of the country's innovative development.

In 2024, the Cabinet of Ministers adopted a resolution on measures to implement this Strategy in 2024–2025. A specific action plan (“roadmap”) was attached to the resolution, which includes the development of innovative infrastructure, stimulation of industrial R&D, and expansion of international scientific and technological cooperation.

The New Uzbekistan Development Strategy 2022–2026 sets the goal of “widely introducing innovations into the economy, developing cooperative relations between industrial enterprises and scientific institutions, and mastering production technologies.” This creates a regulatory, legal and institutional framework for the ways to improve the innovative development mechanism of industrial enterprises proposed in this article.

At the same time, the successful implementation of the state innovation strategy requires the active participation of industrial enterprises themselves, their readiness to form their own innovation strategies, invest in R&D, and establish cooperation with scientific organizations.

CONCLUSION

The conducted research allows us to draw the following main conclusions:

Firstly, the innovation process in an industrial enterprise represents a complex, multi-stage system, the effective management of which requires the use of a comprehensive, flexible mechanism that includes financial, organizational, personnel, and technological components.

Secondly, the main obstacles to the innovative development of industrial enterprises are: lack of

financial resources, the gap between science and production, technological backwardness, personnel shortage and the weakness of the institutional environment. Eliminating these obstacles requires coordinated efforts of the state and enterprises themselves.

Thirdly, the main directions for improving the mechanism of innovative development: diversification of financial instruments, development of production-scientific cooperation, flexible strategic planning using graphic models with resource reserves, digital transformation of production, as well as the formation of an innovative culture at the enterprise.

Fourthly, the implementation of these directions in the conditions of the Republic of Uzbekistan organically fits into the logic of the Innovative Development Strategy for 2022–2026 and can be seen as a specific instrumental mechanism for its implementation at the level of an individual economic entity.

It is advisable to focus further research in this area on developing quantitative methods for assessing the effectiveness of the innovative development mechanism in relation to the sectoral nature of industrial enterprises, as well as on studying advanced international experience (in particular, South Korea, Germany, and China) adapted to the conditions of the Uzbek economy.

REFERENCES

1. Shumpeter Y. A. Iqtisodiy rivojlanish nazariyasi / Y. A. Shumpeter. — M.: Progress, 1982. — 455 b.
2. Druker P. F. Innovatsiyalar va tadbirkorlik / P. F. Druker. — M.: Vil'yams, 2007. — 432 b.
3. Tviss B. Ilmiy-texnik yangiliklarga boshqarish / B. Tviss. — M.: Ekonomika, 1989. — 271 b.
4. Grin'ko T. V. Korxonaning innovatsion rivojlanish mexanizmini shakllantirish // Investitsiyalar: amaliyot va tajriba. — 2011. — № 7. — B. 14–18.
5. Nikityuk L. G. Sanoat korxonalarining innovatsion faoliyatini rag'batlantirish mexanizmini shakllantirish // Iqtisodiyot axborotnomasi. — 2018. — № 4. — B. 55–63.
6. Barancheyev V. P. Innovatsiyalarni boshqarish / V. P. Barancheyev, N. P. Maslennikova, V. M. Mishin. — M.: Yurayt, 2012. — 711 b.
7. O'zbekiston Respublikasining 2022–2026 yillarga mo'ljallangan Innovatsion rivojlanish strategiyasi. O'zbekiston Respublikasi Prezidentining 2022 yil 6 iyuldagi UP-165-son Farmoni. — https://lex.uz/docs/6102464
8. O'zbekiston Respublikasi Vazirlar Mahkamasining «O'zbekiston Respublikasining 2024–2025 yillarga mo'ljallangan Innovatsion rivojlanish strategiyasini amalga oshirish chora-tadbirlari to'g'risida»gi Qarori. — 2024 yil 13 mart, PQM-128-son.
9. UNCTAD. Technology and Innovation Report 2025. — New York: United Nations, 2025. https://unctad.org/publication/technology-and-innovation-report-2025
10. Abdug'aniyev I. Innovatsion usulda sanoat korxonalarining samaradorligini oshirish. — Nordic Publishing House, 2023.
11. Sanoat korxonalarida innovatsion jarayonlarni rivojlanishining nazariy jihatlari // ResearchGate, 2024.
12. 2022–2026 yillarda Yangi O'zbekiston Rivojlanish Strategiyasi. — https://reu.uz/wp-content/uploads/2023/08/strategy_2022_2026_uzbekistan.pdf