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**Ways to increase the efficiency of managing the innovative  
development of the economy through information systems**

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# Ways to increase the efficiency of managing the innovative development of the economy through information systems

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**Abstract.** The article examines some complications of the innovative development of the economy, and develops theoretical, methodological and practical proposals and recommendations on the directions of improving the organizational and economic mechanisms of growing the efficiency of the management of the infrastructure of innovative activities with the help of information technologies.

## INTRODUCTION

The development of market associations in our country leads to the sharpening of competition, and the formation of market mechanisms and methods of increasing competitiveness by local producers creates a need. Thus, increasing competitiveness in all sectors of our national economy remains one of the urgent issues. Consequently, in the process of liberalization and modernization of the economy of our republic, in order to ensure its systematic and continuous development, it is of great importance to accelerate the pace of innovation in all fields, to increase productivity based on the continuous introduction of modern information technologies.

As it happens, in 2017-2021, the Uzbek Republic's Action Strategy for the Five Goals of the Republic's Development states "... extending structural changes and continuous progression of agricultural production, strengthening the state's food and beverage protection and, in this respect, ecological The need to expand the production of clean products, to encouragingly increase the export level of the agricultural sector" is defined as the basic task of modernization and rapid development of agriculture<sup>[1]</sup>. Therefore, the implementation of these tasks entails the use of innovative, resource-saving technologies and the improvement of economic foundations with the help of IT-technologies in our republic.

Innovative actions are scientific, technological, institutional, financial, commercial, marketing actions that lead to the implementation of the innovation or designed to do so. Innovative activity comprises research and development related to the creation of a specific innovation.

Therefore, one of the economic categories based on the methodology, theory and practice of the innovative movement is its productivity, which shows the participation between the results obtained from the innovative processes and the results produced by the results. Productivity of innovative activity is a relatively complex and multi-meaningful concept, but in general, it means the ability to maintain a certain amount of labor, cultural and financial resources of one unit created by innovation<sup>[2]</sup>.

World experience realistically proves that innovative technologies have become the most important effective means and condition for the development of modern production as well as the economic potential of the state. They combine advanced scientific achievements, the possibility of implementing the latest engineering and technical solutions and modernization of production, mastering the production of new types of products, their mass distribution and market sales.

At the present stage of economic liberalization in Uzbekistan, the introduction and commercialization of innovations is becoming one of the key factors in increasing the competitiveness of economic sectors. "Today we are

moving to the path of innovative development aimed at deeply improving all spheres of life of the state and society. In addition, this is natural. In the end, who wins in today's rapidly developing world? Only the state that is based on a new thought, a new idea, innovation. Innovation means the future. If we initiate to build our great future today, we must do it mainly on the basis of innovative ideas, an innovative approach" [3].

Incidentally, the development of scientifically based recommendations and proposals for improving the efficiency of innovation infrastructure management with the development of theoretical justifications and practical mechanisms for methodological methods to increasing the efficiency of innovation development management and the competitiveness of the economy based on the concept of an innovation cluster is of current importance.

World experience reliably proves that innovative technologies have become the most significant effective tool and condition for the development of modern production and the economic potential of the state. They embody the achievements of advanced science, modern information systems, implementation of the latest engineering and technical solutions, and modernization of production, mastering the production of new types of products, their mass distribution and sale on the market.

At the current stage of economic liberalization in Uzbekistan, the introduction and commercialization of innovations over and done with modern information systems is becoming one of the main factors of increasing the competitiveness of economic sectors.

Nowadays, we are moving on the path of innovative development aimed at the fundamental improvement of all aspects of the life of the state and society. Moreover, that is natural. After all, who wins in today's fast-paced world? Only a new thought, a new idea, a state based on innovation. Innovation means the future. If we start building our great future from today, we should do it first of all on the basis of innovative ideas, innovative approach based on information systems" [4].

In this regard, based on the concept, development of scientifically based recommendations and suggestions on increasing the efficiency of innovative infrastructure management, developing the theoretical foundations and practical mechanisms of methodical approaches to increase the efficiency of innovative development management and the competitiveness of the economy. Creating an innovation cluster is important today.

## EXPERIMENTAL RESEARCH

In the context of increasing competition in the global economy, our country is taking consistent measures to create a modern, that is, innovative form of the economy. For these purposes, on the initiative of the President of the Republic of Uzbekistan Sh.M.Mirziyoyev, a strong mechanism for interaction between science and production is being gradually developed [5].

The priority strategic direction of innovative development of the economy of Uzbekistan is the creation of a national innovation mechanism, which is a system of organizational, economic and legal measures and the implementation of certain innovative projects.

It must confirm the process of producing new knowledge, the rapid implementation of research results in the real sector of the economy and the process of selling new products to consumers.

In this regard, the formation of an infrastructure for innovation activity and ensuring sustainable innovative development of the country's economy requires not only the presence of a number of research and innovation developments, but also their practical application.

One of the most promising areas in terms of developing infrastructure for innovation is the use of attractive models for the private sector and research organizations. These models confirm the distribution of investment risk in organizing innovative activities and saving public funds.

The mechanism for forming the infrastructure of innovation activity can be implemented based on the following succeeding stages: creation of conditions - organization of investment support - examination - creation of infrastructure facilities. Each stage requires different regulations aimed at ensuring their implementation.

## RESEARCH RESULTS

The main problems in the Republic of Uzbekistan related to further increasing the efficiency of science development, strengthening technology transfer and innovative developments are the following:

*Firstly*, today almost all large industrial enterprises are interested only in innovative developments that are ready for implementation. Nevertheless, very little attention is paid to most of the developments required to conduct

additional practical research for industrial testing of innovative developments, the creation, that is, the implementation of industrial experimental samples.

*Secondly*, the level of implementation of innovative developments and technologies in the related industries and areas of the economy is low, the main reason for this is not that the financial resources allocated for these purposes are limited, but that, first of all, experience and skills are lacking on the preparation of investment projects and the organization of work of innovation producers-scientists and specialists in post-innovation processes (study of consumer markets, introduction of innovation management methods, use of marketing technologies), on the other hand, in the fact that the feeling of interest of innovation consumers - industry enterprises from the implementation of innovative developments very low.

*Thirdly*, existing resources, opportunities and reserves for deepening the integration of science, education and production are not fully mobilized [6].

In order to create the necessary conditions for the development of innovation in our country, the state must do the following: create a favorable business environment for private initiative focused on innovative research and optimization of economic policy and structural reform policies; promote the development of innovation infrastructure at the micro-, meso- and regional levels. In the process of solving these problems, private entrepreneurs as well as commodity producers will be able to move from the traditional model of business organization to an innovative model.

Innovative development of the republic's economy in the near future can be achieved by increasing the capacity of investments in innovation activities and developing the structure of innovation clusters.

Innovation clusters serve not only as an effective mechanism for the development of innovation activities, but also generate conditions for effective communication between business, science and the state. Practice shows that thanks to the formation of innovation clusters, the highest level of economic competitiveness is achieved. The key to defining an innovation cluster is the presence of innovation synergy for all participants. Thanks to this synergy, the creation and implementation of innovations will be ensured.

The strategic implementation of the development of an innovation cluster involves the implementation of innovative projects that should play the role of a catalyst for the development of the socio-economic environment of the region.

Projects can be called innovation clusters if they have a substantial impact on the economic structure of the region, a long-term and strong impact on its scientific and technical possibility and will contribute to the positive development of the region and help attract investment. All at once, an important issue is to determine the criteria for inclusion in innovative projects that form an innovation cluster.

When ensuring the integration of the "science-education-production" chain, it is advisable to direct the main forces to the corporate sector, to the processes of creating large integrated structures that meet the general economic conditions and legal framework. The innovation cluster will make it possible to integrate the education, science and production systems that influence the development of the entire economy [7].

The mechanism for forming a targeted comprehensive scientific and technical innovation program within the framework of an innovation cluster should include:

- based on the principle of program-targeted financing for promising innovative projects of strategic importance, funds are allocated from the state budget (without competitive selection);
- financial resources are allocated to the main organization, participants are steadily distributed based on the approved budget in accordance with the calendar plan.

Upon achieving a scientific and technical result, serial production is organized based on the procedure for financing start-up projects and/or the Presidential Fund for the Commercialization of the Results of Scientific and Scientific-Technical Activities.

It should be noted that presently there is no unified methodology for analyzing key indicators and trends in the development of scientific, technological and innovation activities. The current methods are based on the method of numerical and economic analysis.

To create an innovation cluster aimed at creating an infrastructure for innovation, it is necessary to determine the following issues:

- improving the quality of professional education at all levels on the basis of higher educational institutions in accordance with recent labor market requirements;
- ensuring the adaptation of the complex of higher educational institutions to changes in the labor market and the needs of society with superior flexibility;
- implementation of the full cycle of the innovation complex (carrying out fundamental and practical research, commercialization of innovative developments);

- creating conditions for the implementation of programs and projects aimed at introducing innovative technologies.

The integration of science, education and production systems in order to strengthen the process should be formed as an actual economic mechanism in the innovation cluster.

The concession mechanism of public-private partnership can be used in the process of assimilating higher educational and scientific organizations, private and public structures by creating durable connections between them through complex processes such as financing, cross-guarantees and risk redistribution.

Financing of innovative projects that form an innovation cluster in the creation of high-tech companies is crucial; it must establish a flexible, rational and promising system of financing long-term public-private projects based on expected profits, that is, the concept of financing investment projects from the income created by a high-tech company, which can be brought during their work.

The modification between financing high-tech companies and other forms of financing is that there is no dependence on the attracted public-private projects, the amount of assets and interest rates, as well as the terms of the loan.

For participants in innovative projects, successful implementation in the financing of high-tech enterprises is important. They depend on the possibilities of project implementation and exposure to various negative and positive factors [8].

In addition, unlike a simple loan (borrower, investor or project organizer fully assumes all risks), the risk of financing high-tech enterprises is dispersed among all stakeholders of the project, that is, higher education and research institutions, private investors and the state.

In the process of financing the implementation of innovative projects, the main investors are the government, private enterprises, individuals and other interested parties. They have a direct impact on identifying promising innovations that are ready for financing by the information bank of existing innovations. In turn, the innovation information bank consists of developments presented by academic, higher educational institutions, industry and other scientific organizations.

Start-up projects that have received the most favorable assessment from potential investors are used in the activities of existing or recently created high-tech enterprises that are engaged in the commercialization of innovations and the production of the ultimate innovative product.

The state of innovation processes requires the formation of an interconnected system of innovation projects and an innovation cycle of financial institutions intended to finance the infrastructure of innovation activities [9].

When implementing this direction, it is necessary to resolve the following problems:

Firstly, improving the economic mechanism for stimulating innovation activity involves the following:

- changes in depreciation policy in order to assist organizations to increase depreciation charges as a source of investment;

- development of leasing of scientific and technical equipment;

- intensification of foreign economic activity with external associates, providing for the creation of conditions for the production of local high-tech products and the organization of their sales on the foreign marketplace;

- creation of a system of comprehensive support for innovations of scientific institutions with the aim of more fully introducing the scientific potential of the areas and solving scientific, technical, industrial and socio-economic problems;

- development of financial, economic and organizational mechanisms for financing innovative industrial complexes and cores, technology parks, innovative enterprises and individual innovative projects.

Secondly, enhancement of the mechanism for investment support of innovation activities. The priority areas in solving this issue should be innovative projects that can be extremely effective, taking on part of the risk on a joint basis, in cooperation with private investors. In this case, the following issues will be resolved:

- creation of a regulatory framework for the sustainable functioning of the system of financing scientific, technical and innovative projects;

- creating attractive conditions for domestic and foreign investors in order to implement innovative projects;

- introduction of an insurance system for financial risks associated with the implementation of innovative projects [9].

Thirdly, the formation of an innovation infrastructure is an important part of supporting and endorsing innovation. Work to create an effective infrastructure for innovation activities should organize the following systems:

a) the information support system for innovation activities requires the following work:

- implementation of a regional information and systematic scheme of innovation activity, which allows an enterprise to access databases in order to create a unified set of information as a tool for enhancing the production activities of innovation centers;
- development of a unified information system of innovative processes as well as their gradual implementation;
- assessment of the development, implementation also commercialization of the results of the inventory of intellectual property of innovative projects;

b) a certification system related to science requires solving the following enquiries:

- creation of joint bodies for certification of experimental laboratories and certification bodies in industry;
- full implementation of certification of the quality system of enterprises in accordance with international quality ethics;
- improvement of the activities of experimental laboratories.

With the effective development of innovative activities of subjects of innovative activities, it is compulsory to introduce methods for the production of new products and services, develop new production processes, as well as new methods of innovative marketing and management.

## CONCLUSIONS

At the present stage of liberalization of the economy of Uzbekistan based on the development of innovation, one of the main promising directions for increasing the competitiveness of the economy is the organization and development of innovation clusters based on the rational use of innovative prospective and financial resources.

To ensure the efficient operation and effectiveness of promising innovation clusters, it is necessary to introduce a mechanism for the formation of targeted comprehensive state scientific and technical innovation programs in the context of each innovation cluster.

To increase the efficiency of state innovation policy, it is necessary completely to form the national innovation system of the republic by creating and improving existing elements of the financial substructure of the innovation sphere, as well as developing new types of them.

The introduction of an organizational and economic mechanism for managing the infrastructure of innovation activities will allow us to update the main sectors of the economy with massive and intensive features of innovation, create a modern information technological level of production and create conditions for increasing competitiveness in world markets.

When evaluating the results of the use of innovative technologies, the calculation of indicators in the group of innovative environment allows to better classify the factors that affect the productivity of the activities of product manufacturers and how important are the favorable conditions created for productive and efficient producers.

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