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PROBLEMS OF DEVELOPMENT OF SCIENTIFIC INNOVATION CLUSTER IN UZBEKISTAN



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Abstract. Today, important investment programs aimed at rapid implementation of economic reforms are being consistently implemented in Uzbekistan. This, in turn, shows that the measures taken to fully demonstrate the investment potential of our country in order to attract foreign investments to the national economy are of particular importance. In this process, a positive result will be achieved only if investment projects for regions and industries are carefully formulated and favorable conditions are created for investors who are trying to introduce foreign investments into the country's economy. It is necessary to increase the efficiency of scientific and innovative clusters and technological parks. Summarizing the foreign experience of the development of clusters and technological platforms and taking into account national characteristics, determining the directions of interaction that can support the effectiveness of these network tools in the future, taking into account the preferences of businesses ready to make innovative decisions on competitive products in the national and world markets within the framework of the activities of technological platforms, state and it is necessary to ensure the direction of private funds to promising scientific research from the point of view of commercialization. This article describes the experience of advanced foreign countries in the organization and development of scientific and innovative clusters, the possibilities of creative use of them in Uzbekistan, as well as the solid legal framework created for the operation of clusters in our country.

Keywords: scientific and innovative cluster, technological platform, foreign investments, investment environment.

1. Introduction.

Important investment programs aimed at accelerating economic reforms are being implemented in Uzbekistan. In particular, measures taken to fully demonstrate the investment potential of our country in order to attract foreign investments are of great importance. It is possible to achieve a positive result in this matter if we can carefully formulate investment projects by regions and sectors for investors who want to invest in our economy.

The President of the Republic of Uzbekistan Sh.M. Mirziyoyev noted the issue of conducting an active investment policy as a priority, "In this regard, it is necessary to organize and legally regulate the placement of business entities in free economic zones

and small industrial zones, as well as giving them privileges and preferences." First of all, it is necessary to create such opportunities for entrepreneurs and foreign investors who produce products for export, who have established innovative and high-tech production (Sh.M. Mirziyoev, 2018).

In the following year, a decision was made to establish 48 cotton-textile clusters in order to increase cotton cultivation to at least 52%. At the same time, it is necessary to comprehensively develop the activity of grain and fruit-vegetable clusters, state support for this sector, including simplification of the credit system, cost subsidization, and revision of procedures related to land allocation. In order to create original varieties in seed breeding, it is necessary to fundamentally revive the experimental selection work, for this purpose, to improve the material and technical base of the institutes engaged in seed breeding and selection, to organize seed breeding clusters on the basis of public-private partnership. Today, only 35 percent of the annual livestock feed needs of farms are covered by local resources.

For this reason, the issue of increasing the volume of food products due to the development of fisheries and poultry farming, as well as the strengthening of the feed base of livestock in exchange for the expansion of arable land through the development of new lands, is being raised.

2. Literature Review

It should be noted that the author of the economic concept of "cluster" is Professor Michael Porter of Harvard Business School. The scientist imagined it as a group of interrelated companies, specialized suppliers (including services), firms of related industries and other organizations (for example, universities, standardization agencies and trade associations), which compete with each other in certain fields, concentrated on a geographical basis. at the same time, they also work together. According to M. Porter, currently more competitive industries are developing according to the cluster principle, and supporting the formation of clusters will help to increase the competitiveness of countries' economies in general (M.Porter, 1993).

According to the results of a special study of 200 cluster initiatives in different regions of the world, conducted by the authors of "The Cluster Initiative GreenBook" studies, the dissemination of innovative activities and technologies is one of the important goals of cluster formation and activity. It was implemented by 75% of the studied cluster initiatives. This allows us to conclude that regional clustering leads to an increase in the innovative activity of economic entities (Solvell O., Lindqvist G., Ketels C., 2003).

An important goal of the organization of technological platforms is usually defined as a promising area for the commercialization of the results of scientific activity in high-tech systems. This means of developing cooperation and harmonizing the interests of the main participants of the platform is not financial, but communicative (between the state, science and business). Also, in the "Concept of Innovative Development" of the Republic of Uzbekistan prepared in 2014, technological platforms are interpreted as one of the important mechanisms for coordinating the efforts of the state, science and business on innovative development, and within it, it develops general views on the future development of the relevant industry (direction), necessary forms and implements a

strategy of actions. Here, the technological platform "uses communication tools aimed at creating promising technologies, new products, attracting additional resources to conduct research and development based on the participation of all interested parties, and improving the regulatory and legal framework in the field of scientific, technological and innovative development" embodies in itself (Concept of innovative development. 2014).

Thus, the emergence and development of clusters in the United States occurs under the influence of a complex system of regional factors - territorial location, a complex system of inter-participant relations, inter-industry relations, highly qualified labor and government support (S.F. Pyatinkin, 2018).

3. Methodology

The study used methods of analysis and synthesis, generalization, social survey, comparative analysis, as well as the principles of historicity, interconnection and consistency.

4. Results

According to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 53 of January 25, 2018 "On measures to introduce modern forms of organization of cotton-textile production", textile industry enterprises, as well as the organization of cotton-textile production in the regions and this production It is envisaged to establish a direct contracting agreement between enterprises and farms for the cultivation and supply of raw cotton.

According to the decision of the President of the Republic of Uzbekistan No. PF-5388 dated March 29, 2018 "On additional measures for the rapid development of fruit and vegetable growing in the Republic of Uzbekistan", in 2018, 1-2 fruit and vegetable clusters will be organized in each region and the following expected to increase:

- attraction of credit lines of international financial organizations and institutions, including the right to purchase these contributions to the authorized capital of fruit and vegetable clusters by the founders - residents of the Republic of Uzbekistan;
- opening credit lines in commercial banks for export financing of fruit and vegetable clusters, producers and exporters of other fruit and vegetable products;
- to expand the volume of credit lines of international financial institutions for financing projects on the organization of nurseries, fruit and vegetable cluster logistics centers, construction of greenhouses and establishment of intensive gardens;
- attract grant funds and technical assistance funds from international organizations to send agronomists and other employees of fruit and vegetable clusters, modern intensive gardens and greenhouses to leading specialized foreign companies for training and internship for a period of up to one year.

A number of strategic and project documents prepared in the last two-three years in order to increase the efficiency of the scientific field and turn the results of research and development into intellectual products required by the economy and society envisage the implementation of the cluster principle of organizing scientific and innovative activities and the idea of a technological platform in the republic. Clusters, which are one of the flexible forms of interdepartmental and interdisciplinary cooperation

on the network principle, were proposed (G. Yasheva, 2012) as an effective means of organizing the modern scientific-technological and innovative process.

At the same time, the implementation of both forms is strongly different from "model" visions, and from this point of view, scientific-innovative clusters and technological platforms are independent isolated tools that are still in an uncertain position in relation to each other. The research findings available today offer different answers to the question of what "model" clusters and the government measures to support them should be. Even the concept of cluster itself is very different. It is intended to form clusters from completely different innovation systems to the chain of added value creation (Table 1).

Table 1

The concept of clusters in some European countries (Boosting Innovation, 1999)

Countries	Cluster concept
Austria	Production networks, innovation networks, interaction networks
Belgium	Production chains and networks, innovation and cooperation
Great Britain	Regional innovation systems
Germany	Homogeneous firms and innovation systems
Denmark	Resource zones
Spain	Innovative systems
Italy	Cross-industry knowledge flow
Netherlands yes	Value added chain and production networks
Norway	Value added chain and production networks
Finland and India	A combination of firms linked to each other through knowledge transfer
Switzerland	Innovative networks
Sweden	A system of interconnected firms and different industries

From the point of view of economic theory, a cluster is understood as "a set of regionally localized legal entities and individual entrepreneurs who interact and participate in the process of creating added value on the basis of a contract". Cluster initiative means "the goal of the organization (individual entrepreneurs) to support the formation of a cluster in a documented area and become its participant". Innovative-industrial cluster is a cluster whose participants provide and implement innovative activities aimed at the production of innovative and high-tech (science-intensive) products.

This approach is almost the same as in Europe and Russia. The standard algorithm for the formation and operation of technological platforms, as shown by the European experience, embodies three main stages. At the first stage, the strategic priority directions of scientific and technological development are determined, which in fact gives

the theme of the platform; in the second, "roadmaps" are created, and in the third, the implementation of projects, including scientific research and development, takes place, which are financed from various sources. The third stage is just beginning in the republic. It represents the process of coordinating the measures and financial conditions to support the implementation of technological platforms by the state. This process is aimed at developing various partnerships based on the composition of the participants. Three types of such connections are distinguished: between scientific institutions and universities, universities and industrial enterprises; between different industrial enterprises (Table 2).

Table 2

Network connections in technological platforms of individual European countries (OECD Science. 2012.)

Types of network connections	Countries
Internal scientific relations (moving joint research centers and projects, centers of scientific excellence)	Belgium, Spain, Norway, France, Switzerland
"Science - industry" connection (movement of public - private partnership)	Belgium, Germany, Denmark, Italy, Norway, Poland, Portugal, Finland and France
Industrial Communications (Moving Network Systems)	Belgium, Germany, Denmark, Spain, Poland, Portugal
"Smart" specialization of clusters	Austria, Belgium, Great Britain, Germany, Ireland, Spain, Turkey , Finland , Czech Republic, Estonia

It should be noted that for the development of a cluster of economic entities, there should be three types of partnership relations: between producers, suppliers, consumers and their supporting and service organizations - scientific institutions, universities, financial institutions, venture companies.

Within the framework of the activity of technological platforms, it is necessary to ensure the direction of public and private funds to promising scientific research from the point of view of commercialization, taking into account the preferences of businesses ready to transfer innovative solutions to competitive products on the national and world markets.

One of the main tasks of techplatforms is the coordination of research carried out at the pre-competitive stage, including in the framework of technological forecasting, which includes:

- determining the package of technologies, including the main production technologies, the competitiveness of national economy sectors in the world market;
- identification of thematic areas of research of fundamental and practical problems, the solution of which is necessary for the formation of compatible packages of technologies;
- assessment of the necessary resource provision and personnel competence requirements for conducting research and infrastructure decisions.

For example, the financing of R&D in the republic provides preferential loans within the framework of projects that meet the priorities set by them and have passed the expertise of tech platforms. This means of communication promotion is very relevant for our country. As international comparisons show, it has significantly lagged behind, first of all, in terms of indicators that describe interactions between science and business. In foreign and national literature, more studies are devoted to scientific and innovative clusters than to technological platforms. Therefore, it began to form much earlier, both naturally and through appropriate state or regional policy.

Thus, researchers have studied and are studying clusters both as a unique economic phenomenon and as a result of external influence measures (for example, incentives from the state). If such structural structures are created by an external initiative, their priorities, goals and tasks are usually given by the initiators of their creation. Clusters formed as a result of the influence of unifying market forces are understood as naturally formed. In this situation, the state usually acts as a soft regulator of their development.

In the world, the organization of clusters and management of cluster policy were first successfully implemented in the USA. The United States pursues a liberal policy on the creation and development of clusters. At the same time, the creation and management of clusters is implemented using various methods and approaches. Currently, there are a number of clusters such as industrial or innovation centers operating in the United States. The most famous of them is Silicon Valley, where most high-tech companies operate. The cities of Pittsburgh, Akron and Cleveland in Ohio and Pennsylvania in the USA specialize in clean energy technologies, Boston in Massachusetts specializes in biotechnology, and companies in the cities of Austin and Dallas in Texas specialize in semiconductor production.

In 1991, 9 clusters successfully operated in the United States, and today there are more than 20 cluster groups providing intensive intersectoral connections. This indicates that clusters in the United States have entered a new stage of development, as well as the fact that intersectoral diversification is taking place. In the US, most clusters are independent and have created their own "technology network" to collect and disseminate knowledge and technology. In it, all cluster members are united into one scientific base, which provides the possibility of their internal specialization and standardization. A feature of the US innovation and industrial centers is a flexible small business system that allows the creation of "innovative growth points" within the cluster. Support and development of clusters in America is one of the main directions of state economic policy. For this purpose:

- In 2011, the country passed the "Creating Opportunities for Technology, Education and Science in America" Act.
- Innovation support programs have been developed, and issues of forming clusters in the regions have begun to be explored.
- A commission has been created in the country for the formation and development of innovation clusters. This means that the initial capital of the cluster will be allocated from the state budget, and then funds from private companies will be raised.

- Taxes, purchase of raw materials and rental of state equipment and scientific laboratories are provided to participants in promising clusters created by the state. Benefits are distributed by announcing various projects and grants.

In Europe and the USA, the most successful clusters are naturally formed clusters. Analysts attribute the creation of cluster policy at the federal level in the United States to the response of the American government to the global economic crisis in 2008-2009. In contrast to the USA, European countries paid sufficient attention to this policy. Since the 1980s, innovative development strategies have been actively developed, including measures to encourage the creation of new clusters. Over the past years, a large amount of successful practice has been accumulated in this field, and the effectiveness of such structures has found practical recognition as a means of increasing the competitiveness of the economy. This made it possible to classify the factors that lead to successful clustering and evaluate the advantages it gives to its participants.

These advantages include:

- the possibility of using various resources;
- ease of communication (including horizontal);
- various forms of research and development outsourcing;
- increase in mutual trust as a level of entrepreneurial culture;
- chain and network of creation of new products, services and technologies.

Among the factors necessary for the formation of successful clusters created by external initiative, the following should be noted:

- certain the interest of the local authorities in the development of the cluster;
- availability of modern organization technologies;
- scientific laboratories or universities that can work with local firms;
- exchange of information between small and medium-sized enterprises and scientific institutions;
- participation of the entrepreneurial spirit in the local environment;
- provision of strong connections between skilled personnel and employment sectors due to their mobility;
- a variety of financial resources, including venture investments ;
- presence of regional leading companies;
- development of inter-firm cooperation;
- thoroughness of local government's structural - industrial policy;
- traditions and historical conditions of socio - economic development.

According to the research of the Australian scientist Mark Wickham, the state adapted to the needs of the cluster in time, taking into account the entrepreneurial, geographical and historical aspects; able to strengthen the role of the main factors of clustering; aimed at supporting different stages of its life cycle; The success of the state support for the formation of clusters will be ensured in cases where the state provides the necessary infrastructure and emphasizes the support of the leading companies and the cluster base, rather than following the business direction (M.Wickham, 2005). In this case, it is necessary for the state to ensure security of supply, to support the emergence of new suppliers and buyers around the leader, and the creation of new leading companies. The main goal of the support is declared to be innovative development, and for this reason,

the active involvement of higher educational institutions and scientific institutions in them should be encouraged.

In an economy with modern market relations, a cluster is a more integrated and efficient system that ensures sustainable development. Therefore, the more open his working system is, the more he will be able to develop and develop. The modern and fundamental basis of agricultural clusters is determined by the fact that there is interaction between all economic categories. It is possible and advisable to strengthen relationships in any agricultural sector. A cluster is a structure based on innovative technologies and multi-level technological connections. It should not consist of traditional mutual cooperation based on the division of labor. Because it should be seen as a self-governing and organizationally integrated structure, governed by small resonance effects. The management system in clusters determines the mutual behavior of subjects not through the administrative apparatus of cluster management, but through their economic interests. Also, the state of self-organization is manifested in clusters at the highest level, which, in turn, needs to include the administrative resource of the cluster to prevent crisis situations.

5. Conclusion.

Thus, the need to apply to these structures should increase the efficiency of scientific-innovative clusters and technological parks. Summarizing the foreign experience of developing clusters and technological platforms and taking into account national characteristics, it is possible to determine the directions of interaction that can support the effectiveness of these network tools in the future. For clusters, the introduction of technological parks as a kind of "community of experts" that defines promising directions of scientific research and development is effective.

It is possible to reduce the cost of production, increase production volume and increase the selling price of products through the use of innovations in production processes. This result must be achieved by increasing labor productivity, labor productivity and product quality. Also in the development of cluster activities, placement of production forces, ensuring their specialization and joint concentration, selection of highly efficient varieties of products, irrigation, fertilization, compliance with agrotechnical rules, processing and storage of products, increasing wages of workers, efficient use of resources, personnel qualifications need to be improved and take other factors into account.

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