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Foreign Experience in Innovation Infrastructure in Uzbekistan

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A B S T R A C T
The article discusses foreign experience in the formation and development of innovation infrastructure in the region and the possibility of applying it in Uzbekistan. The main trends in the development of innovative infrastructure in foreign countries are highlighted.

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Today the innovative development of Uzbekistan represents the accelerated introduction of modern innovative technologies in all areas of activity. The development of innovative activity strengthens the economic position of Uzbekistan in the world and ensures high-quality economic development and the production of competitive high-tech products.

As is known, foreign experience shows: that providing support to business entities engaged in innovative activities and creating conditions for the development and implementation of public and private innovation projects contribute to innovative development that can provide a technological breakthrough in certain industries.

In this regard, the article examines foreign experience in the formation and development of innovation infrastructure at the regional level.

The goal of forming the innovation infrastructure of Uzbekistan is the integration of republican and local government bodies, scientific and technical organizations, and entrepreneurs. The formation of regional innovation infrastructure is considered an important task of regional government bodies.

As a result of considering foreign experience, the following conclusions can be drawn regarding the results of the development of innovation infrastructure abroad:

1. In many developed countries, such as the USA, France, Sweden, Great Britain, and Germany, there is no single approach to the formation and development of the region's innovation infrastructure, the main directions of which are increasing the innovative activity of business entities, transferring high technologies to the real sector of the economy, stimulating interaction between research institutes, entrepreneurs and regional authorities.
2. The formation and development of innovation infrastructure facilities contribute to the accelerated development of the innovation economy.
3. A common model for the formation and development of the region's innovation infrastructure is the system of generation and transfer of knowledge, government support, infrastructure, and the

production of high-tech innovative products as components of the innovation infrastructure.

4. Entrepreneurs who create science-intensive and high-tech products are provided with a multi-level degree of state support.
5. The generation of relationships between regional enterprises, research institutes, and government agencies contributes to the creation of high-tech products and the achievement of their commercialization in international markets.

The analysis shows the features of creating innovation infrastructure in various foreign countries. For example, in France, experience has been formed in pursuing a targeted policy for the development of the regional economy.

The innovation infrastructure of the region of foreign countries is dominated by scientific and innovation parks, where companies conduct research and development, create startups, locate their research facilities, and create innovative products.

In addition to scientific and innovation parks, business incubators are well-known abroad. Business incubators provide business services needed by startups and companies in the early stages of their development. The main idea of business incubators is to help aspiring entrepreneurs implement startups at all stages of business formation - from idea development to commercialization.

For example, in Stockholm, in Kista Science City, a business incubator based in the information technology sector called Sting (Stockholm Innovation and Growth). This business incubator supports the creation of modern companies that meet market demands, attracting the best innovators and entrepreneurs, and offering them effective assistance in business development.

In Sweden, in the Ideon Science Park (the metropolis of Lund), specialists work in a variety of fields of activity, which is called Technopol. An organization called Innovation Bridge promotes and commercializes research and development. [1-3].

In addition, the Karolinska Development organization was created in Stockholm based on the Karolinska Institute. It was created to provide economic and advisory support for the implementation of projects carried out by researchers from the Karolinska Institute [2].

An analysis of international practice shows that most universities have become major research centers, uniting a large number of industrial and research organizations. Active interaction between scientific, technical, and entrepreneurial activities is necessary to form a base of scientific developments and train highly productive specialists in modern science and production.

In the United States, research institutes form the basis of the innovation infrastructure. They concentrate the majority of the country's scientific and applied research

Formed technoparks are based on scientific and educational institutes which are a powerful force in the formation of regions.

The first science and technology park was created at Stanford University, which enjoyed favorable conditions for its activities, namely low rent, close cooperation with technology companies and universities, and the availability of venture funding. Interaction between universities and private companies is developed especially in the USA. For example, MIT interacts with more than 300 organizations and businesses.

An analysis of the US experience shows that science parks integrating science, education, and business are being held based on universities. There is a transfer of innovations taking place in the country, which operates both in universities and in private companies. The transfer of innovations to the United States is one of the main tools that makes it possible to earn money and create new jobs. This role in this issue was played by the development of innovation activities and the improvement of legislation.

It should be noted that the United States still uses an effective system for financing innovative projects. Financing of innovative and research developments is implemented through contracts and grants. Their advantages are that the system of contracts and grants provides the opportunity for organizations to determine the highest priority areas of innovation, and scientific and technical activity.

One of the methods of financing innovation activities and innovative projects in a given country is venture funds. Even such well-known companies as Apple Computers, Microsoft, Sun Microsystems, and Intel were financed by venture funds at the stage of their formation. Further, numerous loan programs are one tool for financing innovative projects in the country.

Many US companies, to develop research activities and increase the volume of technological production, use the opportunities of the financial market to obtain loans on favorable terms with their subsequent repayment. The source of financing for companies' innovative projects can be their funds released during the production process. There are municipal financing and technical assistance programs, as well as a significant number of legislative, financial, and tax levers at all levels of government that promote the development of innovation in all areas of business.

In the USA, such basic elements of innovation infrastructure as technology transfer, knowledge generation, financing, production, and personnel training have been developed. The functioning of each element is ensured both by the state and by private companies [3].

In developed countries, priority is given to creating a mechanism for the commercialization of innovations. Commercialization of innovations is an activity related to the implementation of the results of scientific and scientific-technical activities and the introduction of new goods and services to the market [4].

Technology commercialization is the process of transferring technology from science to industry. It is possible only with the active interaction of all subjects of innovation and the implementation of intellectual property rights. The formation of small innovative and knowledge-intensive entrepreneurship is one of the forms of implementing intellectual property rights. Small and medium-sized businesses can contribute to the formation and development of production in high-tech areas.

Innovation is an important element of the modern economy, along with informatization. There is a widespread involvement of small and medium-sized businesses in the innovation process with the support of venture financing. Small and medium-sized businesses play a significant role in the formation of the financial basis for the well-being and social strength of all developed countries of the world.

Small and medium-sized businesses act as the main source of innovation, which, by generating fresh ideas, makes it possible for the innovative development of the economy.

In modern times, the sectorial division of the economy is losing its importance, and the cluster approach is becoming paramount, which is an effective tool for increasing the competitiveness of the region and innovative development of the economy.

An innovation cluster is an organized group of various organizations (research institutes, industrial enterprises, collective centers, entrepreneurs, regional and municipal governments, social organizations, etc.). As a result of creating a cluster, a system for disseminating ideas, knowledge, technologies, and innovations is achieved.

It should be noted that the formation and development of stable relationships between all parts of the cluster is an essential condition for the effective transformation of inventions into innovations with a competitive advantage.

The experience of foreign countries shows that clusters play a significant role in the development of the economies of the world. For example, the development of regional innovation clusters in the United States is one of the most important factors in increasing the competitiveness of the economy. The main condition for ensuring economic growth in Canada is the creation of innovation clusters.

The Finnish economy is characterized by a high level of clustering.

Today, the forestry, information, and telecommunications clusters are the most important for the Finnish economy. They create the bulk of GDP and provide most of the state's exports [5].

World experience in the formation and development of innovative infrastructure can be used in Uzbekistan. The use of individual positive approaches, taking into account the peculiarities of the country's economic and political development, will ensure the regional development of innovation

infrastructure.

Uzbekistan adopted the Presidential Decree "On approval of the strategy for innovative development of the Republic of Uzbekistan for 2022-2026." The decree approved the Strategy for Innovative Development of the Republic of Uzbekistan for 2022-2026.

One of the main directions of the Strategy is to ensure accelerated socio-economic growth of the regions by increasing the innovative activity of small businesses.

Target indicators for the implementation of the strategy and target indicators by region have been approved:

- number of subjects of innovation activity will be increased from 613 to 2,250;
- number of innovation infrastructure entities will increase threefold;
- number of new jobs created as a result of innovative entrepreneurship will increase fourfold.

From August 1, 2022, it was decided to introduce a unified chain system "industry-region-scientific/higher educational organization" when creating the production of innovative products. [9].

Analyzing the international experience of innovation infrastructure in foreign countries, we can conclude that to develop and improve the regional innovation infrastructure in Uzbekistan, it is necessary to ensure:

- integration of scientific, technical, business activities and government bodies;
- connecting the organization of science and industry to form and develop scientific, technical, and innovative activities;
- attracting extra-budgetary investments and funds for the development of scientific, technical, and innovative activities;
- increasing the volume of innovative products that are competitive in foreign and domestic markets;
- state support for stimulating the active development of small and medium-sized businesses engaged in scientific, technical, and innovative activities;
- development of interregional and international scientific and technical cooperation;
- consolidation of regional production and scientific resources and their use in priority areas of development of the region;
- transition of enterprises and organizations to innovative functioning;– support by local and regional authorities for developments in the field of high technology to enter domestic and foreign markets.

Thus, the formation of a highly efficient system of innovation infrastructure in Uzbekistan requires the creation of its concept of regional innovative development, taking into account international experience.

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