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Foreign Experience of Using Innovative Technology Parks to Increase the Competitiveness Of Industrial Products

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ABSTRACT

Technological parks are one of the important means of forming innovative economy and innovative clusters, which is evidence of accumulated advanced foreign experiences. The analysis of the advanced development experience of economically developed foreign countries allows us to come to the conclusion that ensuring the optimal growth of the economy and effective innovative development requires the competent introduction of principled new methods and mechanisms of supporting economic entities that encourage the growth of innovative activity and the introduction of its results into economic practice. is enough.

KEYWORDS

technological parks, innovation process, competitive product, exportable product, economic development..

INTRODUCTION

In the leading countries of the world economy, more than 75-80 percent of the growth of the gross domestic product corresponds to the share of innovative high-tech goods and technologies and forms a fundamentally new non-resource model of the economy - the "knowledge economy".

Technopark structures (currently, the terms "technopark", "industrial park", "industrial park" are used synonymously in world practice) are one of the most rapidly developing infrastructure objects and almost always attract innovative manufacturers, service and supply to achieve the rapid development of the industrial potential of the regions. was created in order to concentrate the development of companies, technology centers, educational and scientific institutions in a certain local area.

The International Association of Technology Parks also includes "technology park",

"techno-pol", "technological site (area)", "research park" and "science park" (for example, in the UK they are usually "science park", in the US "research park", In Russia, the terms "technopark") are used.

For example, organizations designed to encourage the creation of technological parks in their territory give the following definition to such structures, i.e., the Innovation Council of Queensland offers the following formula: . The mission of the technopark is to stimulate regional development, deindustrialization, and simplify the introduction of commercial and industrial innovations. The activity of the technopark enriches the scientific and/or technical culture of the region, creates jobs and added value."

At the end of the 20th century - the beginning of the 11th century, the active international progressive development of the innovative infrastructure, which was connected with the increase in the number of technological park structures, began. For industrialized countries (the USA, Japan, Germany, etc.), it became clear that it is impossible to overcome the stagnation in the development of the main industries without increasing the level of their knowledge intensity and orientation to innovation. Industrial parks and technopolises take the first place with the proportionate development of the innovative high-tech sector of science, technology and technology, and its formation and development.

In general, there are more than 700 technology parks in the world today, of which more than 40% are located in the United States, more than 30% are located in the European Union countries, and about 10% are located in China, and the remaining 20% are located in China. all the rest of the world.

The absolute leader in terms of the number of technological parks created is the United States, where by the beginning of the 1990s, more than 70 industrially developed zones were already operating, and by 2010, there were about 300.

In Hatija, the world experience in the development of technology park structures, regardless of a specific country, is summarized in four models - American (typical for the USA, Canada, South American countries), Japanese (Japan), Chinese (China, Singapore, Taiwan, Korea) and mixed (Western European countries - Great Britain, France, Germany, Italy, Scandinavian countries).

Let's take a closer look at each of these four models for their key differences and features.

American model.

The founder of the first American science park is rightly called Stanford University. Many start-up companies founded in the park have become large leading international corporations over time (Hewlett-Packard, Sun Microsystems, Cisco Systems, Yahoo!). By standards, Stanford is a very large science park with a total area of more than 280 hectares, and its main and most famous infrastructure facility is Silicon Valley. Silicon Valley was preceded by the Stanford Industrial Park, which was formed in the 1950s when Stanford University leased some of its vacant land to university graduates to open small firms and companies.

As a result, startups began to be created around Stanford University, which later became famous IT companies. Over time, Silicon Valley has become not only the technological center of the United States, but also a global high-tech center. About 40% of American IT engineers work in California. There are about 7,000 companies in Silicon Valley that employ about 386,000 IT professionals, and there are more than 4 million of them in the US. In this regard, one third of venture capital investments in the United States are in Silicon Valley.

However, not all of the created American technology parks turned out to be really effective. Reasons for inefficiency: The reasons for inefficiency are different: the lack of a single strategic vector of development, underdeveloped infrastructure, the inability to attract business structures to

network cooperation, as well as a rather long period of formation and reaching full "strength" - about 35 years to achieve success Silicon Valley, North Carolina technopark - 30 years, University of Utah Technopark - took about 20 years.

In recent years, the processes of creating new technology park structures in the United States have been somewhat halted, and the main focus of support, including the existing structures of the state, has been optimized and improved management systems, innovative models of management. network interaction is introduced, priority specialization is defined and distributed, cooperation with the industrial sector is developing, large-scale PR and advertising campaigns aimed at integrating the production and research sectors of the economy are being conducted. These factors significantly contribute to increasing the efficiency of the structures of technological parks, increasing their role as an integrated link between science and production, and increasing the knowledge intensity of production.

Japanese model

Japan has always been characterized by a very high level of regional concentration of science, which is almost entirely concentrated in the Kanto, Tokai and Kinki regions. Greater Tokyo alone is home to more than half of all the nation's scientific research, where half of the faculty teach, and where more than 40% of all students study. In the early 1970s, there was a "great exodus" of science from Tokyo to the new city of science, Tsukuba (Tsu-kuba), which was purpose-built 60 km northeast of the capital and soon became the country's largest research center. This marked the beginning of the process of deconcentration of the scientific field, typical of other areas of economic and non-economic activity in the 1970s.

The following special programs have been developed and adopted by the state government for the development of Japan's national technopolises:

1. The "Technopolis Development Plan" envisages providing financial incentives to venture business entities in the form of subsidies and low-interest loans, reducing rent payments for industrial facilities and especially for buildings within the structures of technoparks.

2. "Scientific Production Placement Plan" envisages regional concentration of separate productions and their unification on the basis of cooperation and specialization.

3. "Fundamental Research Plan" has been developed to support the development of start-ups in the most priority branches of science and production.

The country's government put forward a number of specific requirements in the implementation of the nationwide "technopolization" program, which only 24 Japanese prefectures were able to fulfill in the first stage, namely the mandatory presence of several large-scale industrial productions of industries requiring priority knowledge in the immediate vicinity of the facility, the state that will train personnel for them, or a private university, proximity to an air or rail hub that provides a quick connection to Tokyo, Nagoya, or Osaka, and a residential area to facilitate efficient labor migration.

Yokosuka (Yokosuka Research Park), one of the most successful technology parks not only in Japan, but also in the world, has demonstrated a high rate of development due to the fact that the management of the technology park adopted the Ubiquitous Mobile Frontier program a few years ago. Also, the rapid development of the mobile industry ensured the prosperity of the technology park: today, its structure includes both independent small startup projects and branches and departments of large telecommunications companies - NEC, ZTE, NTT.

The most successful of Japan's technopolises was Oita, which provided a dynamic leap forward in reorienting regional development away from agriculture to industries such as electronics and microprocessor technology. The presence of large companies such as Sony, Canon, Matsushita,

Nihon MRC, Toshiba in the prefecture contributed to the favorable development. Perhaps the decisive role in the development of the Oita technopolis was played by its organizer, former representative of the Ministry of Foreign Trade and Industry, Hiramatsu, who deliberately chose a development strategy based on the main concentration of the object. Existing large companies rather than venture-based start-ups such as in US Silicon Valley.

Sendai (Sendai) technopolis has achieved the same success. Founded by large corporations such as Mitsubishi, Motorola, Toshiba, Toyota, this technopolis has become one of the equivalents of the American Silicon Valley. Government intervention played only the role of initiative, established tax incentives and established a number of public laboratories and institutes, the main role in development was played by these resident companies, which attracted a large flow of intellectual capital, technology and research.

Chinese model

Since the mid-1980s, many countries of Southeast Asia have been implementing national programs to concentrate efforts on the development of knowledge-intensive industries: microelectronics and informatics, telecommunications and optical fiber communication, genetic engineering and biotechnology, and medical equipment.

The first Chinese technology park was opened in Shenzhen in 1985, and today there are 53 national, 50 provincial and 30 university technology parks across the country. At the same time, the organization and operation model of Chinese technology parks is significantly different from that of America and Japan. The main goal of the development of the Institute of Chinese Technology Parks was the intention of the Chinese government to create the most favorable conditions for attracting foreign investment to the economy. In the context of a developed planned economy, this turned out to be a very serious task, and the government began to provide large tax incentives and encourage the growth of a favorable investment environment.

In 1999, the Zhongguancun industrial site was opened, and after 4 years, the biopharmapark, China's largest biomedicine production complex, began operations. Today, Zhongguancun is the largest integrated complex in the northwest of Beijing, which includes 5 parks: Haidianyuan, which includes 2 bases: Shandi Information Industry Base and Yunfen Experience Base; Fentayuan; Changpinyuan; Izhuang Technical and Economic Development Zone in the southern suburbs of Beijing; An electronic complex in the northern suburbs of Beijing.

In 2009, by the decision of the State Council of the People's Republic of China, Zhongguancun was transformed into a model innovation zone at the national level, which is considered the "Silicon Valley of China".

In 2018, the total capitalization of Zhongguancun listed companies was nearly 800 billion dollars, and the total revenue was almost 580 billion dollars. The most famous resident company is Lenovo. Huawei and Alibaba, giants of the Chinese IT industry, together with Lenovo, are sponsors of technology park incubators.

Mixed (European) model

Western European countries are one of the main regions of science, engineering and technology development: the number of scientists and engineers exceeds 850 thousand people, while in Eastern European countries it is almost 3 times less (about 300 thousand people). However, for a long time, the processes of science and technology integration in Europe lagged significantly behind the USA and Japan: for example, research and development expenditures per capita in the EU countries averaged \$200 per year at the end of the 20th century. In Japan - 470, in the USA - more than 600. However, in the 11th century, the technological and scientific gap began to gradually shrink, and this was especially evident with the strengthening of Western European integration processes. At

the same time, spending on research and development began to grow significantly, which was the highest in the Big Four countries - Germany, France, Great Britain and Italy. They are followed by Sweden, the Netherlands, Switzerland, Spain, and then Belgium, Austria, Finland, Denmark and Norway.

One of the pioneers in the establishment of science parks is Great Britain: the first technological park in the country was established in 1972 at Heriot Watt University in the east of Scotland, and the second one was established in 1973 at the campus of Trinity College, Cambridge University. As early as the mid-1990s, more than 400 high-tech companies specializing in the production of electronics, computer technologies and computer programs operated in this park. Branches of many large international companies such as Siemens, IBM and others have also located their research and production facilities here. Scientific and innovative centers have been established in the park. In the late 1980s. About 20 thousand people worked here. The classic old English cityscape of Cambridge, favorable environmental conditions and proximity to London (80 km) give this park a unique look.

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