

the economy is increasingly increasing. Given this, the 21st century can be called the "century of global migration"; secondly, in modern conditions, almost all countries of the world are involved in international labor migration, it has assumed an ever-increasing scale, which has led to the emergence of many new problems, both for states and for the world community as a whole; third, the overall global impact of labor migration is twofold. On the one hand, it ensures the redistribution of labor resources in accordance with the needs of countries, provides opportunities for the development of new areas, on the other hand, population migration causes the growth of cities and rural depopulation, increases the marginality of society, exacerbates social, interethnic, cultural and other contradictions.

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MODELS OF TECHNOLOGY PARKS IN THE GLOBAL ECONOMY

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Abstract. *The article identifies five models of technology parks in the global economy and discusses their features.*

Keywords: techno park, techno polis, science city, incubator, research park.

One of the most important functional and organizational structures that determines the active involvement of national economies in the world economy, including in global scientific and technical relations, at the end of the 20th century is such a specific form of integration of science, industry and capital as technology parks. These structures are the basis of an innovative mechanism that combines the generation of scientific ideas, applied developments and the implementation of scientific results into production into a single stream.

Currently, there are several models of technology parks existing in the world economy, which have been formed depending on the characteristics of the country's market model and the specifics of the national mentality (Figure 1).

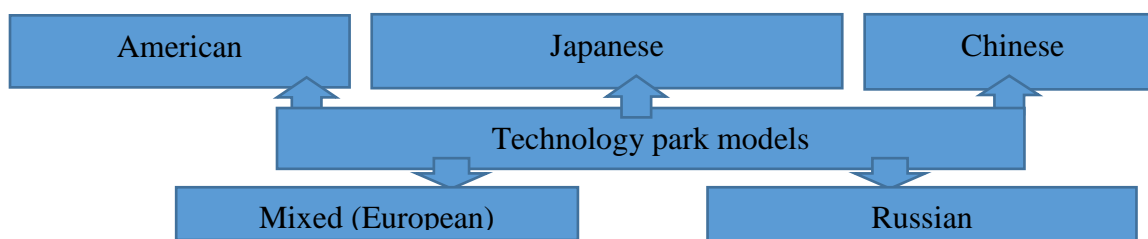


Figure 1 – Models of technology parks in the global economy

Source: developed by the author based on [1, 2, 3].

The American model has become widespread in the USA, Canada, Great Britain, South America. Its features: 1. the core of the techno park: universities and research centers; 2. purpose of creation: commercialization of scientific developments, acceleration of start-ups in high-tech sectors of the economy. It is created mainly through the lease of university territories and premises by operating companies; 3. degree of state involvement: low (provision of support measures); 4. priority industries: IT, computer technology, radio electronics. (Techno park of Stanford University (USA).

In the US and UK, there are currently three types of "science parks": "science parks" in the

narrow sense of the word; "research parks", which differ from the first ones in that within their framework technologies are developed only up to the stage of a technical prototype; "incubators" (in the US) and innovation centers (in the UK) in which universities provide start-up companies with land, space, access to laboratory equipment and services for relatively modest rents. The first techno park in the world was created on the basis of Stanford University, which from the very beginning of its activity in 1951 became the accumulating center of commercial research activities, and many start-ups transformed over time into large international corporations.

In recent years, the process of creating new techno parks in the United States has noticeably stopped, as the emphasis on the part of the state is on support measures for existing techno parks.

The Japanese model is common in Japan. Its features: 1. the core of the techno park: large industrial productions of priority science-intensive industries and universities; 2. purpose of creation: leveling the level of development of prefectures; 3. degree of state participation: high (initiation, management, support measures, financing); 4. Priority industries: IT, electronics, science-intensive industry. (Research techno park in Yokosuka, silicon island of Kyushu (Japan)).

In contrast to the American model, it is planned to build completely new cities – "technopolis", concentrating scientific research in advanced and innovative industries and high-tech industrial production. Techno polis assumes a territorial concentration of universities and science-intensive industrial production and their association on the basis of cooperation and specialization.

The created technopolis allowed Japan to rebuild the national economy and develop knowledge-intensive and highly profitable industries. Technopolis have also become key elements of the country's regional development strategy in the context of the transition to a knowledge-intensive industrial structure and the acceleration of scientific and technological progress. A special role in the creation and development of technopolis is played by the state and the prefecture, which carry out a significant share of the financing of technopolis, provide residents with support measures in the form of tax incentives, subsidies, low-interest loans, preferential rental rates for premises.

The Chinese model is common in China, Taiwan, Singapore, South Korea, Hong Kong. Its features: 1. the core of the techno park: universities and (or) high-tech enterprises. • Purpose of creation: attraction of foreign investments; 2. degree of state participation: high (initiation, management, support measures, financing); 3. priority sectors: microelectronics, telecommunications, biotechnology. (techno park "Zhongguancun" (China)).

The first Chinese technology park was opened in Shenzhen in 1985, and today there are 133 technology parks operating in the country (53 national, 50 provincial and 30 university). The key goal of the development of techno parks in China was the intention of the government to create the most favorable conditions for attracting foreign investment in the economy, in connection with which the government began to provide significant tax incentives and other measures to stimulate innovation. Residents of local techno parks are exempt from paying taxes for the first few years. Also, a distinctive feature of China's techno parks is that they are created and managed by state authorities [4].

Mixed model (European) combines Japanese and American models. It has become widespread in Europe, some CIS countries. Its features: 1. the core of the techno park: universities and (or) high-tech enterprises; 2. purpose of creation: stimulation of innovative activity of high-tech enterprises; 3. the degree of state participation may be lower or higher, depending on the specifics of the country's legislation and regional specifics. However, the degree of state participation in their creation and development is higher than in the United States; 4. priority sectors: depends on the priorities of the country's economic development. (techno park "Ideon" (Sweden)).

In addition, the specifics of this model is that technology park projects in Europe are also considered as social projects that create new jobs. In addition, as a rule, in such techno parks there are several founders. This complicates the management mechanism, but it is effective in terms of access to funding. Techno parks and technopolis in the EU are financed through the use of the state order mechanism, concessional lending, direct investment, and financial guarantees. Fiscal preferences, non-financial services and support measures are also used. An example of such a model of "science parks", oriented to both Japanese and American, can serve as science parks in France, in particular, the largest of them "Sophia Antipolis". Each science park can pursue several goals, but the significance of a particular goal is determined by local conditions and the dominant position of one or another founder.

The Russian model is common in Russia. In Russia, the formation of the technology park

model is associated with the creation of science cities (1960s). This model is a different model that does not fit into the above models of technology parks and develops in its own way. Its specificity is education not at an early stage of industrial development, but at a time when the structure of the existing giant state research and production enterprises ceased to function. Its features: 1. the core of the techno park: industry and academic institutions (primarily of the defense profile), military-industrial complex enterprises, partly commercial structures and universities; 2. purpose of creation: attraction of investments into the economy, including foreign ones; 3. degree of state participation: high (initiation, management, support measures, financing); 3. priority sectors: microelectronics, telecommunications. (For example, "Russian Silicon Valley" (Russia, Zelenograd of the Russian model of technopolis – science cities (1960s); 4. Most of the Russian techno parks were organized in higher education.

These techno parks did not have a developed infrastructure, real estate, or trained management teams. They, as a rule, were created as a structural unit of the university and were not really operating organizations that initiate, create and support small innovative enterprises. In isolated cases, techno parks were formed in the form of CJSC, which makes it possible to carry out flexible management with relative independence from the base organization. Russian techno parks, with rare exceptions, do not perform the functions of an incubator, but primarily serve as a kind of "security platform" that protects the enterprises located in them from an aggressive external environment. The terms of stay of small firms in the techno park are not limited and today average about 10 years (with the international standard of 2–3 years) [5].

As of September 1, 2022, 307 technology parks are successfully operating in Russia in various regions and regions of the country. More than 800 new companies with more than 9,300 employees are located on their territory [6].

Thus, five main models for the development of technology parks in various countries were identified. These are American, Japanese, Chinese, mixed (European) and Russian. Each of these models differs in its core, in the main forms of technology parks, the purpose of creation, and the role of the state in it.

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