ECONOMIC FOUNDATIONS OF THE DEVELOPMENT OF CLUSTER ACTIVITY IN FOREIGN COUNTRIES

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Abstract: *This article explores the foreign experiences of cluster activity in production networks. At the same time, the economic basis of innovative clusters is analyzed. Issues of formation of scientific and technical clusters in Uzbekistan and countries of the world are revealed.*

Keywords: *Cluster, region, development, production, processing, world market, foreign experience, analysis, conditions, mechanisms.*

ЭКОНОМИЧЕСКИЕ ОСНОВЫ РАЗВИТИЯ ДЕЯТЕЛЬНОСТИ КЛАСТЕРОВ В ЗАРУБЕЖНЫХ СТРАНАХ

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Аннотация: *В данной статье изучен зарубежный опыт функционирования кластеров в производственных отраслях. При этом анализируются экономические основы инновационных кластеров. Раскрыты вопросы формирования научно-технических кластеров в Узбекистане и странах мира.*

Ключевые слова: *Кластер, регион, развитие, производство, переработка, мировой рынок, зарубежный опыт, анализ, условия, механизмы.*

In many countries, clusters have received priority development and form the basis of the economy. According to experts, by now clustering has covered about 50% of the economies of the leading countries of the world. The USA is the leader in the number of clusters – 380, clusters unite more than half of enterprises and produce 60% of GDP. In Italy, 43% of all employees in the industry work in 206 industrial clusters, enterprises belonging to clusters provide more than 30% of the country's exports. Finland's economic policy is based on clustering. Due to the clusters characterized by high productivity, this country occupies a leading position in the global export of wood processing and paper products, mobile communication equipment and mobile phones. There are more than 60 special clusters in China, which unite about 30 thousand enterprises with 3.5 million employees, they sell products worth about $ 200 billion per year.

The most important characteristic of the world's leading competitive cluster formations is the innovative orientation of clusters. The Global Innovation Index (GII)

provides the results of a study of one hundred of the largest and most successful clusters in the world. And the Japanese Tokyo-Yokohama cluster has been considered the most recognized and most effective cluster of them for many years in a row, the second line of the rating is occupied by Shenzhen-Hong Kong-Guangzhou (China and Hong Kong), followed by Beijing (China), Seoul (Republic of Korea) and San Jose-San Francisco (USA). In recent years, these clusters have not changed their leading positions, moving slightly within the Top 5. Of the leading scientific and technical clusters in 2022, 63% operate in high-income countries. However, there is a tendency to accelerate the development of clusters in middle-income countries. Thus, the rating of the Iranian cluster Tehran has increased by 11 positions since 2020, the Istanbul cluster in Turkey has risen by 5 positions, and the Warsaw cluster in Poland has risen by 7 positions.

The largest number of leading clusters are concentrated in North America, Europe and Asia, and especially in two countries: the USA and China. In the United States, the beginning of the development of innovation clusters occurred in the 1980s, when the government intensified work on creating programs designed for their education and development. One of the programs is the Regional Cluster Initiative, and subsequently a number of other programs are being adopted, for the implementation of which significant funds are allocated from the country's budget. Thanks to government support, the cluster system in the United States has become the main institution of economic development. The leading clusters, in addition to Silicon Valley, can be called clusters in Washington State, where the IT sector and the aerospace industry are developing; in Ohio, they work with "green" energy; in Massachusetts, biotechnologies are becoming more active.

The leaders among scientific and technical clusters, according to the Global Innovation Index 2022, are San Jose–San Francisco, Boston–Cambridge. The San Jose – San Francisco cluster is also among the clusters with the highest intensity of scientific and technical activity in relation to the population. San Jose is the largest city in Northern California, the heart of Silicon Valley, where the main pole of economic activity related to the technology industry is located, and San Francisco is the center of the financial industry and tourism. The cluster unites a number of large innovative companies located in the region. Among the technology companies, Google, Facebook, Apple Inc., Hewlett Packard; the largest energy companies Chevron and PG&E; companies providing financial services Visa Inc. and Wells Fargo; pharmaceutical McKesson and biotech companies Genentech and Gilead Sciences. The largest manufacturers include Tesla Inc., Lam Research, Bayer, Chevron and Coca-Cola.

San Jose – San Francisco is a prosperous region with an income of over 79 thousand dollars per person in 2016, it is one of the largest in the country in terms of GDP production.

Cambridge University/The Boston Biomedical Sciences Cluster is one of the most famous superclusters in the world and enjoys broad support from the Massachusetts

state government. This largest biotech and life science cluster receives 40% of the funds raised in the life sciences industry by all American companies. Harvard University and the Massachusetts Institute of Technology are the key centers of the cluster. Today, more than 150 life sciences companies operate around Kendall Square in Cambridge alone, which contributes about $8.8 billion annually to the Massachusetts economy. The cluster has received the largest number of discoveries in the country from the National Institutes of Health.

China deserves special attention in the formation and development of the cluster system, which over the past two decades has significantly improved its position in the market of innovative technologies by creating a national innovation system within the country. The creation of 19 innovation superclusters in the country, initiated by the government, contributed to the achievement of such growth in a relatively short period of time. In China, super innovation clusters are developing by combining agglomerations. Clusters contain a large number of innovative infrastructure that allows innovative entrepreneurship to actively develop. Among them are scientific and technical clusters that consistently occupy leading positions in the GII rating, such as, for example, Shenzhen – Hong Kong – Guangzhou and Beijing. The totality of the Shenzhen – Hong Kong – Guangzhou cluster consists of several components: the industrial center is the city of Guangzhou, where almost 25% of all Chinese products are produced, one of the most powerful free economic zones in Asia is the city of Shenzhen, and Hong Kong is Asia's largest financial, administrative, management and logistics center. The total population of the region now stands at 68 million people, and the GDP is $1.58 trillion. In 2003, the Chinese authorities decided to organize a mega-university campus in Guangzhou, uniting 10 universities. Today, the mega–university is one of the key catalysts for the development of the cluster and the region. Since the beginning of 2019, a plan has been implemented to create a supercluster of interconnected cities – a new industrial, economic, financial and cultural center. The plan provides for the development of the district in two stages: until 2022 and until 2035. It is planned to achieve significant progress in integrating the cluster's infrastructure, strengthening free trade, coordinating the development of various sectors of the economy, and improving the investment and business environment. The implementation of the plan will double the cluster's GDP by 2035.

The largest Chinese technology companies such as Lenovo, Baidu, Xiaomi and a number of other Chinese technology giants have developed in the world's largest innovation cluster Beijing. The total revenues of companies operating in the Beijing cluster amount to hundreds of billions of dollars, and more than 600 thousand jobs have been created here. And the total capitalization of the companies in this cluster has exceeded a trillion dollars. The Beijing Experimental High-Tech Development Zone includes about 50 higher education institutions. There are 130 research institutes and laboratories in the zone, employing more than 100,000 people. The production of about 7,000 types of high-tech products has been mastered, of which more than 350

have been awarded international and state prizes for inventions. The park's foreign exchange earnings from product exports have increased more than 70 times in 10 years and exceeded $220 million.

Japan is a recognized leader in the development of innovations of the highest level. The Japanese Ministry of Economy, Trade and Industry (METI) launched an industrial cluster plan in 2001 to revive regional economies. METI proceeded from the understanding that industrial clusters and innovative activities arise not only spontaneously, but can also be created with the help of public policy. The industrial cluster plan covered nine regions, in which 19 projects were implemented. These projects have covered almost all major manufacturing areas in Japan. Some projects promoted a new clustering of high-tech industries such as biotechnology and ICT (information and communication technologies), while others aimed at reviving traditional industries such as steel and chemical industries, metallurgy and mechanical engineering. The government considered it necessary to promote both types of industries in order to revive the regional economy, as well as the Japanese economy as a whole. As a result, a system of scientific and technical clusters was created in the country, the world leader of which is the Tokyo-Yokohama cluster. The cluster (from Sagamihara to the southeast to the sea and the entire territory of Tokyo Prefecture) is home to 27% of university engineering faculties, 37% of private research institutes and 39% of software development firms in Japan. The Association for Industrial Revitalization of the cluster includes 289 companies, most of which are small and medium-sized enterprises, 38 universities, 16 state corporations, 19 municipalities, 3 prefectural governments, 45 chambers of commerce (including similar organizations), 16 credit institutions and 17 cooperative associations. Inventors and companies located in the Tokyo-Yokohama cluster have filed the largest number of international patent applications – 94,000, surpassing technology centers in the United States and China. Tokyo's dominance is a testament to the large number of giant corporate companies based in the Japanese capital. Thus, the largest number of applications were submitted by Mitsubishi Electric . In the Republic of Uzbekistan, the cluster system began to be implemented in 2017 with the creation of cotton-growing and textile clusters. At the beginning of 2022, there were 415 clusters in the country with an industrial production volume of 19.9 trillion. soums. Clusters operate in leading sectors of the economy throughout the country. The first clusters were organized according to the type of process industry clusters with a vertical structure of interconnections. These are mainly cotton-growing, textile, livestock and food clusters (cereals, fruits and vegetables). In the future, discrete clusters were created with the enterprise "core" of the cluster and small and medium–sized component suppliers. Such clusters include the emerging cluster of agricultural machinery in Chirchik, which will include five large machine-building enterprises, as well as companies producing components and construction clusters in the regions of the republic. Today, the main clustering strategy in Uzbekistan is the creation of innovative clusters, which include a

large number of new companies that arise in the process of commercialization of technologies and the results of scientific activities conducted in higher educational institutions and research organizations. Such clusters operate in the republic in the form of technology and IT parks, where breakthrough innovative ideas and developments are implemented. At the same time, in modern world practice, mixed-type clusters have become the most widespread, and, basically, these are clusters in which the elements of an innovation cluster become the most important components of other types of clusters. Currently, a scientific and technical base is being created in clusters of all types to develop advanced organizational and technological solutions. The activity of clusters involves close cooperation of research and educational structures with production, the organization of start-ups and implementation organizations. However, the cluster system in Uzbekistan is at the beginning of its development, and a lot needs to be done to make clusters significant in the republic and recognizable on world platforms. In economic theory, the positive results of the upward movement of developing countries are associated with the possibility of their "catching up development", that is, based on the experience of advanced economies. For Uzbekistan, it is necessary to develop and adopt a concept for the development of cluster policy in the production and service sectors of the economy, which should reflect the basic terms and concepts, goals, objectives and principles of cluster policy implementation, the main directions for creating a cluster system in the production and service sectors of the economy and identifying promising industries, a system of measures to support clusters, a system of measures for the implementation of cluster policy, measures, aimed at preventing the risks of ineffective implementation and the expected results of the implementation of cluster policy.

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