

INNOVATIVE APPROACHES TO CLUSTERING

Akhmedova Madina Shuhrat kizi

Full-time doctoral candidate

Tashkent State University of Economics

The development of cluster models plays a strategic role in ensuring economic growth and increasing the competitiveness of industries. Clusters not only contribute to job creation and the development of related industries but also strengthen innovation potential by enhancing the efficiency of production processes. In the context of globalization and intensifying competition, countries are actively implementing cluster models that optimize cooperation between enterprises, scientific centers, and educational institutions, improve access to advanced technologies, and stimulate investments in scientific research.

In the field of cluster approach development, as in the realm of various innovative technologies in general, the United States of America represents the richest and most open space for innovative paths and solutions. In the USA, industrial clusters became quite popular because American scientists began studying the principles of regional economic development earlier than others, and M. Porter was the pioneer developer of the cluster model. The states of Arizona, California, Connecticut, Florida, Minnesota, North Carolina, Ohio, Oregon, and Washington led this process and adopted relevant programs, with hundreds of cities and territories developing their own cluster strategies. The cluster model is implemented in 22 states.

The largest cluster in terms of the number of employees is located in Silicon Valley, which is a computer and communications cluster with over 1 million workers. The production of automobiles and their components in Detroit is a prime example of a cluster where leading automakers, while remaining competitors, implement joint projects, including those aimed at improving supply chains - in common interests and for the benefit of the American economy. Cluster participants compete at the enterprise level but cooperate at the industry level. The Detroit Auto Cluster, established in 1890, provides jobs for 256,500 people.

The agricultural clustering model in the United States is characterized by several key features that make it one of the most effective in the world:

- government subsidies and tax incentives;
- use of venture investments and farm startups;
- development of specialized clusters where production, processing, and logistics are integrated;
- high level of technological advancement;
- well-developed logistics and export infrastructure;
- adaptation to market conditions, with entrepreneurs able to quickly change their specialization depending on demand;

The US model relies on private capital, innovation, export orientation, and cooperation. This makes American clusters some of the most productive and profitable in the world.

Traditionally, economists have distinguished between clusters and Special Economic Zones (SEZs). By definition, a cluster is a group of geographically localized and interconnected enterprises and institutions in a particular field, while an SEZ is a designated part of a country's territory where a special system of benefits and incentives is created. Both are attractive targets for investment. Therefore, it is not surprising that the world has gained experience in combining clusters and SEZs. China is organically using this trend to develop its own economy. Participants in clusters and SEZs are closely linked through supply and value-added chains, and this interconnectedness helps increase the economic efficiency of all entities involved.

A classic example of success is Shenzhen, the driving force behind Guangdong's development. In 1979, a year before the Special Economic Zone (SEZ) was established there, it was an agricultural village with a negligible contribution to China's GDP (less than 1%) and a GDP per capita of less than \$90 per year. Today, it is one of the largest megacities in Guangdong Province (second only to Guangzhou) with a population of 11 million. In 2008, the SEZ demonstrated an annual growth rate of 15%. In 2010, Forbes magazine ranked Shenzhen among the five most populous cities in the world. Economists attribute this successful development to the following factors:

- special powers granted to local authorities (the CPC gave provincial leadership a certain degree of autonomy in addressing current tasks within the framework of the intended course, which helped reduce bureaucratic red tape);
- effective management - the competent actions of the First Secretary of the Provincial Party Committee, Ren Zhongyi, who was able to independently reform the province without fear of making mistakes;
- a favorable location and large "initial" territory, the largest among the "first wave" of SEZs, and proximity to Hong Kong and Macau.

The last factor is considered the most decisive. Many emigrants from mainland China lived in Hong Kong and Macau, which were economically developed and interested in further growth through participation in SEZs. Throughout its history, Shenzhen has shown extraordinary growth rates, far surpassing other "classical SEZs."

The Chinese model is a hybrid mechanism that combines elements of a market economy with strict state regulation. This allows the country not only to effectively develop clusters but also to control their growth, providing significant competitive advantages in the global market.

The active development of cluster initiatives in Russia began in the late 2000s. In 2011, the Association of Clusters and Technoparks of Russia was established, uniting over 110 organizations from 50 regions of the country. The Association serves as an analytical and methodological organization in the formation of industrial clusters, determining the conditions

for their creation and subsequent inclusion in the register of the Ministry of Industry and Trade of Russia to facilitate state subsidies for project costs incurred by all cluster participants.

The most successful project is considered to be when in 2018, the Association, together with UMATEx Group (part of Rosatom Corporation), initiated the creation of the interregional industrial cluster "Composites Without Borders."

Thanks to the active support of the Association, in 2018, the "Composites Without Borders" cluster was included in the Register of Industrial Clusters of the Ministry of Industry and Trade of the Russian Federation. This allowed cluster participants to access state support measures, including the possibility of reimbursing up to 50% of the costs for production creation and product development for import substitution purposes. The assistance of the Association also contributed to the expansion of the cluster's geography. In 2019, the Tula and Ulyanovsk regions joined, and in 2023, the Kaluga and Lipetsk regions followed, increasing the cluster's operational territory to 7 subjects of the Russian Federation.

As part of its activities, the cluster, with the support of the Association, has attracted more than 2.8 billion rubles in state support for the implementation of investment projects in the field of composite materials. This contributed to the growth of production cooperation between cluster participants from 21% to 50% and the expansion of the composition to 55 production enterprises, 9 scientific and educational institutions, and 7 technological and industrial infrastructure facilities from 19 regions of Russia.

Thus, the Association of Clusters, Technoparks, and Special Economic Zones of Russia has made a significant contribution to the establishment and development of the "Composites Without Borders" cluster, providing methodological support, facilitating the expansion of its geographical reach, and attracting state investments, which has strengthened Russia's position in the global composite materials market.

The Russian clustering model is unique in its state-oriented approach, focus on import substitution, development of regional networks, and integration into the military-industrial complex. Its weakness lies in its dependence on state support and limited international connections, but it provides strategic advantages in the face of sanctions pressure and the need for technological sovereignty.

For Uzbekistan, which possesses significant agricultural potential, the implementation of the cluster model can become a key factor in increasing productivity and improving the level of agricultural product processing. However, to achieve maximum effectiveness, it is necessary to consider aspects such as infrastructure modernization, the introduction of digital technologies, and the expansion of international cooperation.