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MARKET INFRASTRUCTURE IMPLEMENTATION AUDIT IN CLUSTER MANAGEMENT

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Formulation of the problem. The article discusses the issue of the audit of the implementation of market infrastructure in the management of clusters, which is a key factor for increasing the efficiency and competitiveness of modern economic systems. Special attention is paid to the analysis of the role of market infrastructure in the development of cluster formations, which contributes to the synergistic effect, the unification of enterprises, scientific institutions and other business entities to achieve common economic goals. *The purpose of the study* is to carry out a comprehensive analysis of the implementation of market infrastructure in the management of clusters and determine its impact on the effectiveness of the functioning of cluster formations in Kyrgyzstan. The main attention is paid to the assessment of infrastructural components, such as logistics, financial services, information technology and institutional support, which ensure the competitiveness and sustainable development of clusters in the conditions of the modern economy. *The object of the study* is auditing methods and approaches used to assess the effectiveness and risks of innovative processes of introducing market infrastructure during cluster management. *Research methods:* logical and meaningful method, methods of comparison, systematization, induction and deduction, analysis and synthesis, coefficient method. *The main hypothesis* of the follow-up. Effective implementation of market infrastructure in the management of clusters has a positive effect on their competitiveness and ability to adapt to changes in the economic environment. The lack of proper infrastructure or its shortcomings can significantly limit the potential of clusters in achieving a synergistic effect and ensuring economic growth. *Present of the main material.* The authors highlight methodological approaches to the audit of market infrastructure, including the analysis of key indicators such as logistics and information networks, financial and credit institutions, as well as government support mechanisms. The importance of conducting an audit to identify problematic aspects that prevent the efficient functioning of clusters and to develop recommendations for their elimination is substantiated. *Originality and practical significance.* The study also presents the results of the analysis of the impact of the introduction of market infrastructure on the competitiveness of clusters and their ability to adapt to changes in the global economic environment. The issue of integration of cluster strategies with regional and national economic plans was separately considered. On the basis of empirical data, conclusions are drawn regarding the effectiveness of infrastructure changes and practical recommendations for improving cluster management are offered. *Conclusions and prospects for further research.* The results of the audit show that the market infrastructure is a key element that contributes to the development of clusters, ensuring effective interaction between the participants of the cluster association, improving their productivity and competitive advantages. Implementation of infrastructure components, such as modern information and communication technologies, financial institutions and logistics networks, is crucial for improving the efficiency of cluster management.

Keywords:

market infrastructure, cluster, audit, management, competitiveness, economic development, state support.

АУДИТ ВПРОВАДЖЕННЯ РИНКОВОЇ ІНФРАСТРУКТУРИ В УПРАВЛІННІ КЛАСТЕРАМИ

Постановка проблеми. У статті розглянуто питання аудиту впровадження ринкової інфраструктури в управлінні кластерами, що є ключовим чинником для підвищення ефективності та кон-

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курентоспроможності сучасних економічних систем. Особлива увага приділена аналізу ролі ринкової інфраструктури у розвитку кластерних утворень, яка сприяє синергетичному ефекту, об'єднанню підприємств, наукових установ та інших суб'єктів господарювання для досягнення спільних економічних цілей. *Мета дослідження* є проведення комплексного аналізу впровадження ринкової інфраструктури в управлінні кластерами та визначення її впливу на ефективність функціонування кластерних утворень в Киргистані. Основна увага приділяється оцінці інфраструктурних складових, таких як логістика, фінансові послуги, інформаційні технології та інституційна підтримка, що забезпечують конкурентоспроможність та стійкий розвиток кластерів в умовах сучасної економіки. *Об'єктом дослідження* є аудиторські методи та підходи, що застосовуються для оцінки ефективності та ризиків інноваційних процесів привпровадженні ринкової інфраструктури під час управління кластерами. *Методи дослідження*: логічно-змістовний метод, методи порівняння, систематизації, індукції та дедукції, аналізу та синтезу, коефіцієнтний метод. *Основна гіпотеза дослідження*. Ефективне впровадження ринкової інфраструктури в управлінні кластерами позитивно впливає на їх конкурентоспроможність і здатність адаптуватися до змін економічного середовища. Відсутність належної інфраструктури або її недоліки можуть суттєво обмежувати потенціал кластерів у досягненні синергетичного ефекту та забезпеченні економічного зростання. *Виклад основного матеріалу*. Автори висвітлюють методологічні підходи до аудиту ринкової інфраструктури, включаючи аналіз ключових індикаторів, таких як логістичні та інформаційні мережі, фінансові та кредитні інституції, а також механізми державної підтримки. Обґрунтовано значущість проведення аудиту для ідентифікації проблемних аспектів, що перешкоджають ефективному функціонуванню кластерів, та для розробки рекомендацій щодо їх усунення. *Оригінальність та практична значимість*. У дослідженні також представлено результати аналізу впливу впровадження ринкової інфраструктури на конкурентоспроможність кластерів та їх здатність адаптуватися до змін у глобальному економічному середовищі. Окремо розглянуто питання інтеграції кластерних стратегій з регіональними та національними економічними планами. На основі емпіричних даних зроблено висновки щодо ефективності інфраструктурних змін та запропоновано практичні рекомендації для вдосконалення управління кластерами. *Висновки та перспективи подальших досліджень*. Результати аудиту свідчать, що ринкова інфраструктура є ключовим елементом, який сприяє розвитку кластерів, забезпечуючи ефективну взаємодію між учасниками кластерного об'єднання, покращуючи їхню продуктивність та конкурентні переваги. Впровадження інфраструктурних компонентів, таких як сучасні інформаційно-комунікаційні технології, фінансові інституції та логістичні мережі, має вирішальне значення для підвищення ефективності управління кластерами.

Ключові слова:

ринкова інфраструктура, кластер, аудит, управління, конкурентоспроможність, економічний розвиток, державна підтримка.

Formulation of the problem. The process of market infrastructure development in Kyrgyzstan is accompanied by a number of conflict situations and unresolved issues. The low level of interaction and building of economic ties between production enterprises, organizations, scientific and educational institutions negatively affects the quality parameters of the economic space. Simultaneous aggravation of territorial development problems, weak adaptability of social and economic systems to the influence of global financial and economic trends significantly reduce the level of competitiveness of individual enterprises and the state as a whole.

Increasing the level of social, economic and financial systems in the conditions of a continuous process of strengthening globalization and economic integration is achieved due to the organized formation of the market space and its infrastructural filling [1].

A developed market infrastructure is a mandatory and key condition for the activation

of the process of mutual complementation of geographically localized interdependent business groups, which logically contribute to the creation of new forms of organization of the market environment - clusters. Modern trends show that the appearance of clusters allows us to talk about a significant expansion of the possibilities of interaction and can lead to additional benefits of individual subjects, creating a certain incentive for the formation of a unified system of functioning, as well as ensuring a complete system of market infrastructure [2].

From the point of view of a systemic approach, a cluster is a set of subjects of economic activity of various interrelated industries, united in a single organizational structure, the elements of which are interdependent, jointly functioning with a certain goal. In the practice of developed countries, several definitions of clusters are distinguished. These are regionally limited forms of economic activity within related sectors, usually tied to relevant scientific institutions (research





institutes, universities, etc.). The cluster represents vertical production chains, narrowly defined sectors in which adjacent stages of the production process form the core (for example, the chain "supplier - manufacturer - sales - customer"). Networks formed around the main firms fall into the same category. A cluster contains industries, certain levels of aggregation ("chemical cluster") or a set of sectors at the highest level ("agro-industrial cluster") [3].

Each of the certain definitions emphasizes the main features of the functioning of clusters, which are a real tool for the prospective improvement of the competitive positions of Ukraine and its industrial, agricultural and other sectors of the economy. However, despite the prospects, the existing mechanism for stimulating the development of regions and the partial ignoring of the role and place of market infrastructure in the formation of clusters do not allow to achieve a full synergistic effect in the conditions of the national economy.

Analysis of recent research and publications. Business incubators can be created within existing technology parks. If in large cities business incubators are often part of other organizations, then in small towns business incubators themselves become the basis for the formation of an infrastructure to support small businesses, and often the center for the development of the territory. The most common practice in many regions is the creation of business incubators at universities [1].

In large cities, a chain of innovative enterprises is being created: a business incubator - a technology park - a municipal industrial zone. The roles of these structures in the organization of innovative business are distributed as follows. Business incubators host start-up innovative firms on their premises, provide office support, and provide utilities and additional services on preferential terms. Technoparks, having office, industrial premises, engineering communications and equipment, offer premises for rent to the most promising enterprises that have left the incubator for organizing production. Enterprises that are going to expand production are moving from a technopark to a municipal industrial zone. Here, at the expense of budgetary funds, engineering communications are created, and production facilities are built by the innovative enterprises themselves [2].

The purpose of the article is to carry out a comprehensive analysis of the implementation of market infrastructure in the management of clusters and determine its impact on the effectiveness of the functioning of cluster formations

in Kyrgyzstan. The main attention is paid to the assessment of infrastructural components, such as logistics, financial services, information technology and institutional support, which ensure the competitiveness and sustainable development of clusters in the conditions of the modern economy.

Presentation of the main research results. The practice of the most competitive countries in the world, such as Germany, Great Britain, Switzerland, France, Finland, Denmark, Sweden, and the Netherlands, shows that the current mechanism for the development of the economic system is the implementation of a cluster policy, which is based on a complex of legislative, administrative, economic and other actions aimed at the formation and support of the development of clusters [6; 7]. Therefore, the process of their development is a complex of organizational and economic measures carried out by state and public institutions to unite enterprises and establish informal relations and network cooperation between them.

Studying the formation of clusters, the author determines that, first of all, this process is accompanied by an adopted cluster policy, which consists of a number of stages designed to stimulate the development of competitive enterprises of various types and types [1]. The author defines that the cluster policy includes the justification of regional programs and principles of development, the development of tools for the selection of clusters and the determination of the composition of their participants, the creation of an information base [1]. Other researchers found that as part of this policy, business plans for clustering are selected, organizational and legal regulations on the creation of potential clusters are formed, decisions are made on the implementation of pilot projects, and programs are developed to support their development [2; 3; 5].

In the leading countries, a purposeful policy in this direction is actively pursued, which allows the functioning of competitive clusters, which employ about 40% of all employed in the economy and produce more than 50% of the GNP. The largest number of competitive clusters, according to the Institute of Strategy and Competition of the Harvard Business School, operates in Great Britain and the USA [4].

The analysis of foreign and domestic experience allows us to state that the key basis for the development of clusters is an effectively organized market infrastructure. The scheme of interaction of potential participants of the cluster may include its infrastructure (banks, consulting

companies, transport, energy, etc.), consumers of products, authorities, public organizations, science and education (personnel, innovations), suppliers of raw materials and equipment, manufacturers of products.

Cooperation outside and within the cluster consists of a large number of economic connections, such as procurement of raw materials, logistics, management and information technologies, engineering and innovation, finance and investment, strategic planning, ecology, resource conservation, marketing, training and retraining of specialists. Therefore, for the effective development of clusters, a system of interdependent specialized organizations that serve the flows of goods, services, money, securities and labor is necessary.

The development of the mentioned elements of the market infrastructure becomes a key condition for the formation of the cluster and directly of the enterprises in it. The key indicators of the development of clusters are an increase in the level of productivity of individual enterprises and sectors included in the cluster; increase in export of products and services, increase in profitability, etc.

Secondly, the presence of competitive advantages in the region for the development of clusters is achieved by entities that have already formed at the level of market infrastructure, which provides access to raw materials, supports the availability of specialized human resources, suppliers of components and related services, maintains relations with specialized educational institutions and organizations conducting R&D. At the same time, the key indicator characterizing the level of formation and development of clusters is the attraction of foreign investments in the enterprise or sector.

Thirdly, the modern market infrastructure ensures the concentration and interaction of geographically close business entities. Being in geographical proximity, the key members of the clusters receive wider opportunities for active interaction. As the infrastructure develops, the geographical scale may vary depending on the type, features and specialization of the cluster and cover one or more regions.

Fourth, a developed and effectively organized market infrastructure contributes to the expansion of the number of participants in market relations, which contributes to a wider involvement of enterprises that make final products and services; expanding the number of suppliers of components, equipment, specialized services, as well as professional educational institutions, research institutes and other support-

ing organizations. The indicator that characterizes the rate of formation of clusters is the level of employment at enterprises and sectors located in the respective regions.

Fifth, the market infrastructure contributes to the prospective interaction of participants in market relations. The formation of clusters, first of all, requires the presence of connections and coordination of efforts between participants in market relations. The contacts that appear can have a different nature: formalized relations between the main enterprise and suppliers; directly between post-tachalniks; partnership with suppliers of equipment and specialized services; connections between enterprises, universities and research institutes within the framework of cooperation in the implementation of joint R&D and educational programs; interaction between small and medium-sized enterprises with simultaneous coordination of efforts for the collective promotion of goods and services to existing or new markets [5].

Taking into account the role and place of market infrastructure in the processes of clustering of territories, it should be said that programs of development and support of entrepreneurship at the regional level are of particular importance. Foreign experience shows that in the main provisions of regional development, special attention is paid to the interaction of market infrastructure subjects with new forms of management. At the regional level, the process of formation and development of clusters is accompanied by:

- adoption of business support programs;
- determination of potential strategic opportunities of the cluster, as well as complex analysis with further support for the development of new business initiatives; development of institutional or network mechanisms for building cooperation between key participants of the cluster;
- improving the quality of information exchange between research organizations and enterprises, as well as assistance in the commercialization of developments; formation and implementation of educational programs aimed at raising the level of cluster participants;
- development of the supply chain.

Modern market infrastructure is the basis for real interaction between clusters, business structures and other institutions. On the basis of such interaction, characteristic signs of clustering are formed: opportunities for research and development of entrepreneurship; improving the qualifications of the workforce; increasing labor potential; approach of suppliers; availability of capital; access to specialized services; expansion of relations with equipment suppliers; intensifi-



cation of network formation; activation of entrepreneurship; further opportunities for innovation and learning.

As a result of the deepening of the regional market structure itself, infrastructural clusters can be formed that form communities of firms in closely related industries that contribute to the growth of the region's competitiveness. Thus, in a cluster, the benefit spreads in all directions of connections, as new producers coming from other industries accelerate their development, stimulating research and development, and ensure the implementation of new strategies. At the same time, there is a free exchange of information and rapid spread of innovations through the channels of suppliers or consumers who have contacts with numerous competitors. New relationships appear throughout the cluster, which contribute to the emergence of other competitive advantages.

Conclusions and prospects for further research. The results of the audit show that the market infrastructure is a key element that contributes to the development of clusters, ensuring effective interaction between the participants of the cluster association, improving their productivity and competitive advantages. Implementation of infrastructure components, such as modern information and communication technologies, financial institutions and logistics networks, is crucial for improving the efficiency of cluster management. It has been identified that shortcomings or gaps in the market infrastructure can prevent the realization of the cluster potential, which requires targeted measures by the state and private structures to eliminate these problems.

The article offers a number of recommendations for improving the market infrastructure aimed at increasing the competitiveness of clusters and their ability to adapt to global economic challenges. It was concluded that the integration of cluster strategies with regional and national economic plans can increase the efficiency of economic development as a whole.

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