The ever-increasing international competition stipulates the relevance of the theoretical analysis and the search for new forms of accelerated economic development and increase the competitiveness of the country and individual territories. World experience demonstrates the high efficiency of cluster integration, which is an element of structural economic transformation based on the methods of economic growth management. This is due to the fact that the members of the innovation cluster retain their independence and acquire strong mutual organizational, financial and other relationships that make corporate structural entities the most stable and reliable.

In its essence, the innovation cluster is an innovative and synergistic complex formed on the basis of an industrial enterprise autonomously and in cooperation with industrial and research organizations, integrating innovative, information and investment flows in the structure on the basis of development and implementation of innovation and investment projects in accordance with the internal strategy of the organization, the level of the industry development and the state strategy of innovation and economic development [1]. That is, one of the main properties of an innovation cluster is the presence of synergistic effect from the interaction of its participants.

It should be noted that, according to the theory of economic synergy, the synergistic effect is the result of the coherent action of the constituent components of the economic system, which causes qualitative changes in its state and keeps
the development of the system stable, despite exogenous influences and endogenous fluctuations. Fluctuations are exacerbated by the imbalance that arises in the system, which leads to the loosening of the previous structure and the emergence of a new one. As a result, a new structure emerges and a new order stems from the chaos appeared. Thus, from the point of view of the synergistic approach, the evolution of complex economic systems, which can be attributed to the innovation cluster, is realized through stochastic (probable) fluctuations and bifurcations [2].

We share opinion of O. Budarov that the formation of synergistic interaction involves the transition from one equilibrium state to another equilibrium state at a higher organizational level. In the previous equilibrium, business units, while operating individually, achieve maximum efficiency and minimize costs at the same level. After the transition to a new equilibrium, which implies the integrity of business units, an increase in efficiency and cost minimization take place [3].

The emergence of a synergistic effect in a cluster depends on many factors, including: number of cluster participants, availability of resources, proximity to consumers, competitors, as well as companies that supply components, materials and services to achieve the effect of agglomeration. Equally important are the flows of information, technological progress, innovation, the professional level of labor, the flows of capital and labor inside and outside the cluster. The effect of synergy in the cluster is facilitated by the independence of its members from one another. Competition among cluster members causes them to increase their own competitive advantages, which leads to the elimination of inefficient forms of functioning. Each participant develops its strengths, transferring the underdeveloped functions to other structures, which provides for the implementation of the principle of cluster members complementarity, as well as it leads to an increase of synergistic effect.

It should be noted that in practice, defining a synergistic effect in an innovation cluster is not always possible because of the difficulty in obtaining the source information. In this regard, the urgent task is to develop a methodology for evaluating the synergistic effect of integration processes, which will take into account various forms of synergy. Fig. 1 demonstrates in general one of the possible groupings of the indicators system that will allow to evaluate the effectiveness of the interaction processes between the participants of the innovation cluster. The proposed grouping of indicators provides for their formalization according to the components of the aggregate potential of the cluster.

In our opinion, the grouping of indicators shown in Fig. 1 can be used as a methodological basis in the formation of a methodology for evaluating the synergistic effect, which is determined in terms of components of the aggregate potential of the innovation cluster, namely of the production, investment, financial, investment one. An important step in this methodology is the calculation of the integral synergistic effect index, taking into account the interaction of all components of the aggregate potential of the cluster and the subsequent determination of the economic effect obtained as a result of the enterprises resources integration that are part of the innovation cluster.

As a result of the research, it can be noted that an important component of ensuring the effectiveness of the innovation cluster is timely evaluation of the synergistic effect of its participants’ interaction and the development of appropriate
measures to regulate the activities of enterprises that are part of the cluster, depending on the results of such evaluation.

Fig. 1. *Architectonics of a technique for evaluation the synergistic effect within an innovation cluster*

*Source: Developed by the authors*

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**References:**

