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ASSESSMENT AND CLASSIFICATION OF CLUSTERS ACCORDING TO THE METHODOLOGY OF THE EUROPEAN UNION: EXPERIENCE FOR BELARUS

ОЦЕНКА И КЛАССИФИКАЦИЯ КЛАСТЕРОВ ПО МЕТОДОЛОГИИ ЕВРОПЕЙСКОГО СОЮЗА: ОПЫТ ДЛЯ БЕЛАРУСИ

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Ключевые слова: кластер, кластерный подход, экономический рост, сила кластера, размер кластера, специализация кластера, производительность кластера, Европейский Союз, МСП, лидер инноваций.

Abstract. For the effective implementation of cluster policy in Belarus, it is necessary to study and summarize more than 30 years of foreign experience in creating clusters and national programs to support their development. The article defines the importance of cluster formations for increasing the country's competitiveness; the European experience of classification of clusters is analyzed, the methodology of "three stars" is studied; cluster formations in Belarus and the tendencies of their formation are determined.

Аннотация. Для эффективной реализации кластерной политики в Беларуси необходимо изучить и обобщить более чем 30-летний зарубежный опыт создания кластеров и национальных программ поддержки их развития. В статье определено значение кластерных образований для повышения конкурентоспособности страны; проанализирован европейский опыт классификации кластеров, изучены методология «трех звезд», определены кластерные образования в РБ и тенденции их формирования.

The cluster strategy for the innovative development of economies is widely used in many countries of the world. The importance and significance of cluster structures is confirmed by the following world facts:

− about 40 % of jobs in the world are formed in clusters;
− more than 90 % of industry in Denmark, Finland, Norway and Sweden is covered by clustering;
− about 25 % of the total number of jobs are in strong clusters, i.e. regional clusters with significant critical mass;
− almost 38 % of the workforce in the European Union is formed in more than 2.0 thousand clusters and related organizations registered with the European Cluster Observatory;
− more than 60 % of US GDP is formed in clusters and more than 50 % of US industrial companies are located in them [1].

At the same time, a number of issues related to assessing the effectiveness of clusters have not yet been resolved. This determines the relevance of the topic.

The purpose of the research is to study the methodology for assessing and classifying clusters in the European Union and to develop recommendations for Belarus.

Clusters, seen as points of economic growth on the map of Europe, have become important elements of the overall recovery program for the European economy. In the policy documents of the European Commission and the Council of the European Union, clusters are identified as effective means for strengthening regional innovation and narrowing the gap between business, research and resources, as well as those included in the programs of European regional policy for the period 2007–2013. Moreover, in the announcement of the new EU long-term budget cycle (2021–2027), clusters are mentioned as the core of industrial competitiveness under the European Union's flagship research and innovation program, Horizon Europe [2].

The cluster assessment methodology is given in the EU report "Methodological report for the European panorama of clusters and industrial changes" [3]. According to this methodology, cluster strength is measured using cluster stars introduced and identified earlier by the European Cluster Observatory. The European Observatory for Clusters and Industrial Change is expanding this methodology by adding two new stellar cluster sizes and introducing a new classification to measure the strengths of the cluster. Under the new methodology, the strength of a cluster is calculated using a cluster matching approach, but with an adapted approach. Cluster strength is based on traditional measures of cluster size, specialization, and employee productivity, and is complemented by two new categories of SMEs (high growth) and leadership in productivity and innovation. The newly introduced evaluation criteria are aimed at ensuring the right balance to better reflect the dynamics of cluster productivity and the role of cooperation between firms of different sizes.

The degree to which clusters have reached this specialized critical mass is determined by assigning them up to three stars for each of the following five categories:

1. Size: total number of employees in full-time equivalent units in the industry for a given region. This indicator reflects general employment indicators;

2. Specialization: measured by the location ratio, which is calculated as the ratio between the share of the industry in the total number of people employed in a given region and the share of the industry in the total number of people employed in all countries;

3. Productivity: measured by the average wage per worker. Performance levels vary across Europe, and these differences are accounted for as part of the cluster strength metric;

4. Productivity of SMEs: measured by the number of fast growing firms. Research shows that entrepreneurial activity drives economic growth, and entrepreneurship policies in highly developed countries should focus on potentially fast-growing new firms;

5. Innovation Leaders: measured by the number of the world's top firms (5 % of the top firms in terms of productivity). This indicator is important because the relative strength of such firms reflects their ability to innovate, quickly disseminate and replicate leading-edge ideas [3].

For the first three categories, a star is assigned to regions that rank in the top 20 % in all regions of Europe. These stars are then added up over three years to get the final one. For the latter two categories, leaders in SME productivity and innovation, three stars are assigned to regions in the top 20 percent in Europe over a nine-year period, two stars for those in the top 20–40 percent, and one in the top 40–60 percent. Thus, the number of stars in the cluster ranges from 0 to 15.

By the number of cluster stars, the following clusters can be distinguished:

1. High-performing clusters are regional concentrations of exporting industries with the participation of: high productivity in size, specialization and productivity, i.e. at least 3 stars for two of them and 2 stars for one of them, or at least 8 stars; medium to high performance indicators for SMEs and innovation leaders, i.e. at least 3 stars for one of them and 2 stars for the other, or at least 5 stars. Collectively, this gives at least 13 stars that can be earned in any possible combination across the five dimensions.

2. Medium-performing clusters are regional concentrations of exporting industries with the participation of: average indicators in terms of size, specialization and productivity, i.e. at least 3 stars for one of them and 2 stars for the other two, or at least 7 stars; average performance of SMEs and innovation leaders, i.e. at least 3 stars for both together. Together, this gives at least 10 stars.

3. Basic-performing clusters are regional concentrations of exporting industries with the participation of: low indicators in terms of size, specialization and productivity, i.e. at least 4 stars; low performance indicators for SMEs and innovation leaders, i.e. at least 3 stars for two indicators. Together, this gives at least 7 stars.

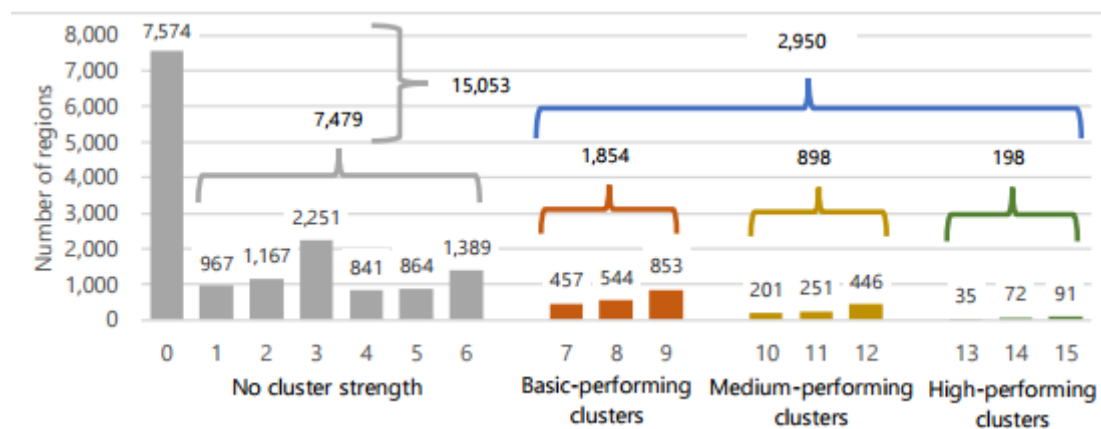Figure 1 shows the distribution of identified clusters.

Figure 1 – Distribution of clusters according to the strength of the stars.
Source: compiled by the author.

In accordance with the above methodology, which mainly uses data for 2017, a total of 2,950 clusters were identified from the European cluster database, including 198 high-performance clusters, 898 clusters with average performance and 1,854 clusters with this performance. There are 15,053 exporting industries that do not have strong clustering, i.e., where the number of cluster stars is 6 or less.

In Belarus, the clustering process is at an early stage. Today the "cluster landscape" of Belarus is represented by the following categories:

−   operating clusters – formations of legal entities that have taken shape organizationally, have elected the Cluster Council, implement a formalized cluster development strategy (cluster project), and regularly carry out activities in agreed areas of activity. Today there are four of them: an IT-cluster of the city of Minsk based on the scientific and technological association "Infopark" and the Park of High Technologies (unites more than 50 organizations); the medical and pharmaceutical cluster of the Vitebsk region on the basis of the union of legal entities "Medicine and Pharmaceuticals – Innovative Projects" (unites about 10 organizations); cluster in the field of instrument making in Minsk and the Minsk region on the basis of the Association "Innovative Instrument Making" (unites 10 organizations); cluster in the field of biotechnology and green economy of Pripyat Polesie on the basis of Polesie State University and Technopark Polesie LLC (unites 28 legal entities);

−   emerging clusters – which have initiative groups for their creation, have formed Cluster Councils, and have also taken the first steps in cooperation based on the cluster development model. To date, four of them have been identified;

−   potential clusters – fifteen groups of business entities that could become locomotives of economic development in their territories [4].

In the countries of Europe and the CIS, clusters have already proven their effectiveness and are perceived as one of the main tools for the development of entrepreneurship. The cluster model of the organization of the economy is able to stimulate the most dynamic development of the regions. The Belarusian business

community should follow the successful example and use the cluster approach for business development, first of all, in the regions of the country, where it is especially important to maintain the competitiveness of small and medium-sized enterprises, to attract additional investments in the regional economy.

For an in-depth analysis of clustering, as well as for the formation of cluster strategies in Belarus, the EU experience in assessing the effectiveness of clusters using the "three stars" methodology will be useful.

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THE EXPERIENCE OF THE EUROPEAN UNION IN THE FORMATION OF CLUSTER INITIATIVES AND PROGRAMS

ОПЫТ ЕВРОПЕЙСКОГО СОЮЗА В ФОРМИРОВАНИИ КЛАСТЕРНЫХ ИНИЦИАТИВ И ПРОГРАММ

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Abstract. The purpose of the article is to study the European experience in the formation of cluster programs. The ways of organizing interventions within the framework of regional cluster policy are studied. The analysis of cluster initiatives and EU programs, including goals, objectives and areas of activity, is carried out. The