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## CONDITIONS FOR THE DEVELOPMENT OF CLUSTERS IN PODKARPACKIE VOIVODESHIP

**Abstract:** The aim of this work was to identify and analyze the performance of clusters existing in Podkarpackie Voivodeship and presentation of benefits resulting from their functioning for this region.

There are several clusters in the region of Podkarpackie Voivodeship. Their branch structure largely corresponds to key industries of the region. These key industries include: aviation industry, chemical industry – including pharmaceutical industry and industry of plastics and rubber production, informatics, food industry, metal industry and tourism. The creation of clusters is promoted by the regional politics. Not without significance is the existence in Podkarpackie Voivodeship many entities that may support the development of regional clusters, such as institutions from the sector of science, administration or business environment.

The existence of clusters supports the development of Podkarpackie Voivodeship. Thanks to the cooperation of various entities within the framework of clusters, their mutual interaction and movement of knowledge, innovative solutions are generated. All above factors have impact on the increase of region's innovative potential.

**Keywords:** cluster; development; Podkarpackie Voivodeship.

**JEL classification:** E20

### Introduction

The concept of clusters is a new method of creating competitiveness. The word “cluster” comes from the English language and it means a mixture, a bunch, a group. In the economic aspect, this expression was used for the first time by M. E. Porter. According to this author, the cluster is a geographical group of interrelated companies, specialized suppliers, service providers, companies operating in related sectors and related institutions (for examples – universities, standardization authorities and industry associations) in individual fields, competing and cooperating with each other (Porter 2001).

Entities forming clusters includes: entrepreneurs, local government units, universities, institutes, research centers, business-related institutions or non-governmental organizations (Hermaniuk 2011).

Clusters can ensure a number of benefits to enterprises. They play a special role in the creation of innovation. Productivity of production factors increases thanks to innovations. This in turn leads to a higher level of economic development (Weresa 2012). The opinion is supported by author Mokrišová and points to eco-innovations as a determinant of effective business development (Mokrišová 2016).

## **2. Clusters in Poland**

The exact number of clusters operating in Poland is unknown. There is no institution that would monitor the situation in this area on an ongoing basis. The last update of the number of entities was in 2015. At that time, 134 clusters were identified by the Polish Agency for Enterprise Development. All of them were created after 2003, and over 60% in the years 2011-2015. They represent various industries. The majority of clusters operate in the information and communication technologies (ICT) sector. Other widely represented fields of the economy are: energy, heating, renewable energy sources, construction and architecture, medicine, tourism, and the metal industry (Buczyńska et al. 2016).

The cluster policy in Poland is a part of the innovation policy. It was included in the document: Directions for increasing the innovativeness of the economy for the years 2007-2013. It emphasized the importance of supporting networking activities of entrepreneurs in order to implement innovative projects, also by stimulating the creation and development of clusters (Figiel et al. 2013).

The importance of clusters for regional development was also expressed in the Strategy for Innovation and Efficiency of the Economy "Dynamic Poland 2020" developed by the Ministry of Economy. It emphasized that proper cluster policy may enable better use of the development potential of regions. It should be connected with the development of special economic zones.

In 2015, the Ministry of Development, in cooperation with the Polish Agency for Enterprise Development, announced a competition for the status of the National Key Cluster (NKC). The National Key Cluster - is a cluster of significant importance for the Polish economy and a cluster with high international competitiveness. Several clusters take part in this competition.

### **3. Clusters in Podkarpackie Voivodeship**

Podkarpackie is the voivodship in the south-east of Poland. From the east it borders with Ukraine, and from the south with Slovakia. Its area is 17,800 km<sup>2</sup>. In 2018, the number of inhabitants was 2129.0 thousand people. In terms of population, Podkarpackie Voivodeship ranks 8th in the country. The population of Podkarpackie constitutes 5.5% of the country's population. 41.1% of the voivodship's population lives in cities. This gives the lowest urbanization rate among all voivodships (for Poland, this rate was 60.1%).

The advantage of Podkarpackie Voivodeship is efficient functioning of clusters. In 2016, there were 16 clusters. The majority of cluster initiatives are related to the tourism industry. However, innovative industrial sectors are also represented – such as: aviation, casting, metal industry, chemical industry, renewable energy sources and new technologies: IT, informatics, organic food production and waste management. Their industry structure largely coincides with the key industries of the region.

The oldest and the largest cluster in Podkarpackie Voivodeship is the Aviation Valley. It was founded in 2003. It is also the largest cluster in Poland, known in Europe and in the world. It is seen as the center of the aviation industry in Central Europe. It is also indicated as an example of good practice. Over 22 thousand people work in this cluster. The cluster is included in the clusters with the status of a National Key Cluster. On the other hand, the majority of other clusters were created after 2010, so they have been functioning for a few years. These are clusters with local and regional, supra-regional, national, European and even global coverage. Clusters often cooperate with foreign partners. This mainly applies to European and global clusters.

The authorities of Podkarpackie Voivodeship undertake a number of activities for the development of clusters. In 2011, the following document was adopted: *Development directions of Podkarpackie Voivodeship based on clusters* (Maj, Rychlicki 2011). In addition, clusters are at the center of the concept of the innovation system in Podkarpackie Voivodeship. They are one of the instruments for the achievement of goals of smart specialization, which is assumed in the Regional Innovation Strategy of Podkarpackie Voivodeship for the years 2014-2020 for smart specialization (RIS3) (Woźniak et al. 2015).

The dynamic development of clusters in Podkarpackie Voivodeship is also possible due to the existence of number of other factors stimulating their formation and development. Here, it should be mentioned: numerous institutions supporting entrepreneurship, the existence of a dozen or so scientific and academic centres, the availability of a highly-qualified workforce, the existence of special economic zones and the functioning of the international airport in Jasionka.

#### **4. Conclusion**

The voivodeship has a large cluster potential. The industrial structure of clusters largely coincides with the key industries of the region. The range of impact varies from local and regional to European and global.

The existence of clusters supports the development of Podkarpackie Voivodeship. Thanks to the cooperation of various entities within the framework of clusters, their mutual interaction and knowledge flow - innovative solutions are generated. This translates into an increase in the innovative potential of the region.

Clusters activate the economic development of the region. They attract new investors to the voivodeship, is favorable the creation of new jobs, and improve the image of the region.

The development of clusters in Podkarpackie Voivodeship is favorable by infrastructure, including the presence of the airport, academic centres and economic zones. Furthermore, the policy of local authorities, supporting cluster initiatives, plays an important role.

The paper is the result of the transnational project with College ISM Slovakia IG - KEMM-01/2017- 3.3.9 Business Trend Analysis in a Changing Europe.

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