POSSIBILITIES OF IDENTIFICATION CLUSTERS IN THE REGION

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Abstract

The article is focused on problems of today's popular themes of grouping of enterprises into clusters. The main focus was on propose specific cluster in the selected region, advantages and disadvantages of the clusters. The article further deals with the description of clusters, the possibility of clusters in the Slovak Republic, their activities. The article describes a quantitative method used in data mapping process clusters. The example shown under what conditions it is possible to identify potential cluster. We conducted primary research on which has been designed cluster in the selected region. Businesses are answers to questions about clusters, their participation and expectations.

Keywords: cluster, funding, research, design cluster

Topic Groups: Entrepreneurship, Industry, area or region specific studies, Business strategy

INTRODUCTION

The present time is characterized by high technical and scientific progress, which is reflected in all areas of social life. These changes have occurred in the early 90s of the 20th century and meant that the world gradually starts to globalization. One manifestation is the formation of

clusters of different forms of business entities and not only at national but also at international level. It is important to ensure the necessary conditions for small and medium-sized enterprises, which must have the ability to react and adapt to changes that occur step by step. One of the opportunities of mutual cooperation between SMEs is the ability to connect to the cluster, which is a tool for increasing competitiveness and creating competitive advantages of the company.

The cluster members can be interconnected companies, specialized suppliers, firms in related industries, affiliated institutions, such as universities, agencies, trade associations of different directions, which compete but also cooperate. Clusters represent a new effective tool of regional development by supporting cooperation between businesses and innovation processes that are interactive in nature and can be speeded up. In the Slovak Republic there are financial programs, from which the cluster initiative to draw down on their development and operation. It follows that the cluster members are small and medium-sized enterprises, which have a great influence on the stability and development of the national economy because they provide the greatest number of employees work at the regional level in a particular sector.

CLUSTERS AND THEIR IDENTIFICATION

One of many definitions of clusters according to *Michael E. Porter said, that clusters* **are** "geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries and associated institutions in particular fields that compete but also cooperate." A cluster is a group of firms that are operating in the same or similar sectors and are generally in close geographical proximity to each other. A cluster may also have a range of support organisations. (Ffowcs-Williams 2012).

The process of analysing sectors, other subjects may be called cluster mapping. The purpose of „ mapping "the clusters is to identify and describe areas of existing or potential competitive advantages, which have the potential to be developed further and faster. The aim of this process is to determine whether within the industry there is the potential for the emergence and development of clusters. The mapping and identification of clusters are usually applied two different approaches. (Mikoláš 2002)
- Identification of clusters - „**top - down approach**" - the activity of the state or region to examine possible ways of development of competitiveness and identify areas of support with potentially high return on investment.
- Identification of clusters - „**bottom - up approach**". Bottom-up approach is an important aspect of identifying clusters independently of available public data in order to create real insight into potential clusters. For determining the potential of clusters obtained by mapping and self-selection, it is necessary to find out what is the position of these clusters. For each potential cluster is recommended to carry out an analysis on the basis of which it decides whether it makes sense to develop a cluster.

There is possible to find different approaches for the identification of clusters. Quantitative methods of analysis, however, do not indicate the strength of relationships between companies within the cluster, such as cooperation of companies, material, financial and information flows. The most frequently used technique of quantitative methods is using **location quotients (LQ)** to highlight regional concentrations of economic activity. A location quotients identifies the extent to which an economic activity is over or under represented in a

region relative to its presence in the country as a whole. Such a location quotient could be indicated when some options are fulfilled. It should be used employment statistics, production data, R&D activity, new investments, patent data or education data to highlight local concentrations. Location quotients would need to be above 1.25 to merit interest, indicating a local representation that is 25 % above the national average. (Štofková 2014)

POTENTIAL OF THE CLUSTERS IN SLOVAKIA

The current Slovak cluster policy can far be considered as not very developed, situated at an early stage and with several problems. The situation can be improved through several years better organized aid. Clusters based in the Slovak Republic are disadvantaged in terms of the innovation system and a weak, non-existent technology platforms. Also, a lack of innovative financing instruments, clustering innovative companies with centers of research and development with the competent national and regional support, start-up centers and technology centers, which is typical in developed countries of European Union. Slovak clusters looking for opportunities and partnerships abroad in order to secure acceptance, sustainability and a level of power.

Activities of technology clusters and clusters operating in the field of tourism is focused to promote cross-sector partnerships between businesses, increasing the knowledge and qualification level of employees through the exchange of experience in the use of new technologies, processes and services. Between 2013 and 2014 obtained 5 technology clusters and 2 clusters of tourism Label of the European Cluster Excellence Initiative, issued by the European Secretariat for Cluster Analysis. This award is recognition of the cluster in terms of the quality of its management and success in his activities. (Smolková 2009).

To identify clusters, there are different approaches and their use depends on the available data base. One approach that is based on the use of quantitative methods that are applied to the available data on the registered number of employed persons and calculate the coefficient of localization. Quantitative methods make it possible to determine whether the firms selected sectors in close proximity. Part of the identification of clusters should be the application of qualitative methods that allow a more detailed analysis. These methods include expert assessment, interview and observation method and others. This results obtained by applying quantitative methods complement of such data, such as the level of relations between suppliers and customers, the level of the workforce, the infrastructure, technology and so on.

On the basis of calculating the location of LQ for individual sectors, we found that in the Košice county were situated eleven sectors that showed a coefficient of localization over one and three sectors showed a coefficient above 1.2 localization demonstrating regional specialization. On these available statistical data and calculating the coefficients of localization the sector, we identified that could form the basis of a potential cluster in the county and we chose one specific sector J - Information and communication. Within this sector we reapplication coefficient of localization found that in terms of NACE Rev. 2 is a suitable class of computer programming that we have further defined for the purpose of disposal of companies that do not pay this activity. Part of the contribution is the realization of a questionnaire survey, based on which we have addressed representatives of various companies and we surveyed the views and opinions of the cluster.

EVALUATION OF THE QUESTIONNAIRE SURVEY

We found that in the region there are nearly 100 companies that carry out the described activities. In analysing the companies we strictly keep the class definition, in order to exclude companies whose activity was different. The total return percentage of the questionnaire reached 60 %. **Evaluation of some of the main issues can be seen in the following figures.**

Part of the questionnaire was theoretical definition of the cluster that respondents could read if they do not know the term cluster. We did not want to get into a situation where the respondent had to look up the definition to the Internet or other sources of information, eventually we might discourage to fill the questionnaire. None of the respondents stated that they are members of an existing cluster. Knowledge the term cluster before shows Fig.1.

**Figure 1**: Knowledge about the term cluster. (Source: Authors)
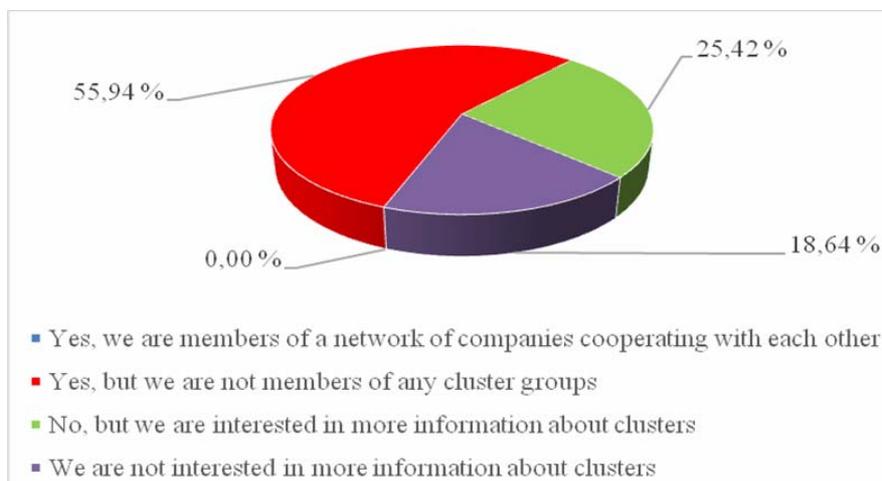
Respondents were questioning whether companies use any form of cooperation with other firms or institutions and do not use any form of cooperation. Based on the results shown in Fig. 2 we can see that 66.10% of respondents said they do not use the form of mutual cooperation, but thinking about it. Other answers are in the picture.

**Figure 2**: Cooperation with other companies (Source: Authors)
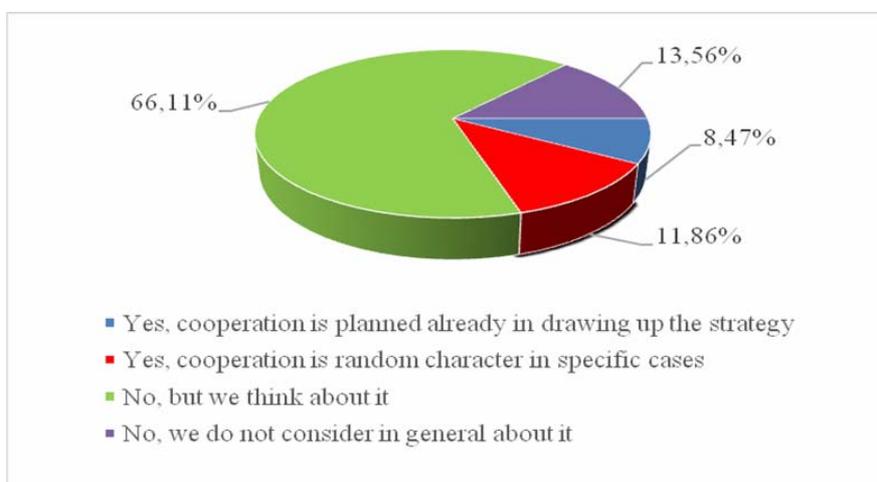
Further question was included in the primary research due to the fact that we can find out how many companies benefit from cooperation with universities and research institutes. Sense of cooperation between business entities and universities can be seen especially in the fact that universities or research institutes may provide its latest findings to firms which can use them for the development of the company and improve service quality. We found that 25.42% of enterprises worked intensively with universities and research institutes. The number of firms report collaboration of random character and in specific cases in relative terms, 16.95%. Most of all respondents said that cooperation with universities and research institutes realized, but thinking about it. 23.72% of companies said they are not thinking about cooperation see Fig 3.

Figure 3: Cooperation with universities or other institutions (Source: Authors)
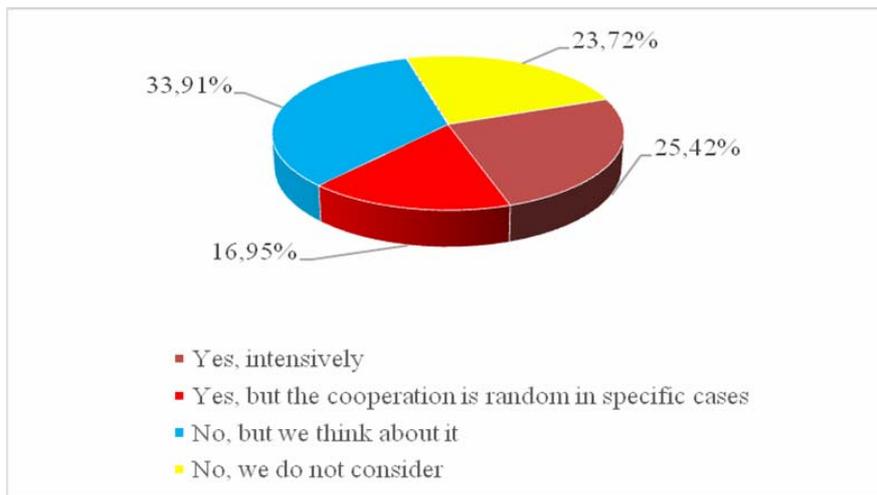
The next question was: what area to establish cooperation in a cluster with universities and research institutes could benefit a company. The answers are shown in Figure 4. We can conclude that businesses are interested in assistance in finding new employees from the students (33.90%), interest in internships of university students in the company (28.81%). Other answers are on Fig. 4.

Figure 4: The area of establishing cooperation with universities and scientific research institutions (Source: Authors)
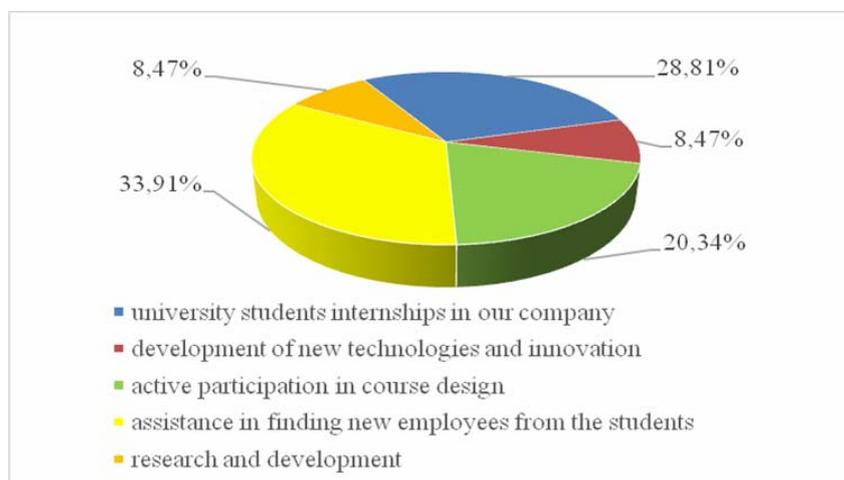
Due to the fact that the collaboration in a cluster is not limited to cooperation between enterprises, but it also includes universities, scientific research institutions and local government, in the questionnaire we included a question concerning the local government. Most respondents indicated that they would be interested in financial support for entrepreneurship (50.85%).

Another question that was asked addressed respondents relates to their interest in joining the cluster. We can conclude that 66.10% of all respondents said they would be interested in joining the cluster.

The last question to which respondents were asked in the context of our survey were the reasons entry into the cluster. This issue is display only those respondents who have chosen entry into the cluster in the previous question. The number of respondents who would be interested in joining the cluster due to cost savings in percentage terms 13.89%. The increase in market share through the entry of the cluster reflected 8.33% of all those questioned. Strengthening the competitive advantage addressed 16.67% informants, access to new technologies during the participation in the cluster has an interest 5.56% corporate representatives. The greatest interest (36.11% of respondents) was in respect of the possibilities of using financial and non-financial support of the European Union or States for promoting cooperation between undertakings. The answer - enabling the further development of the company chooses only 5.56% of all firms see Fig. 5.

Figure 5: Reasons for the entry of companies into the cluster (Source: Authors)
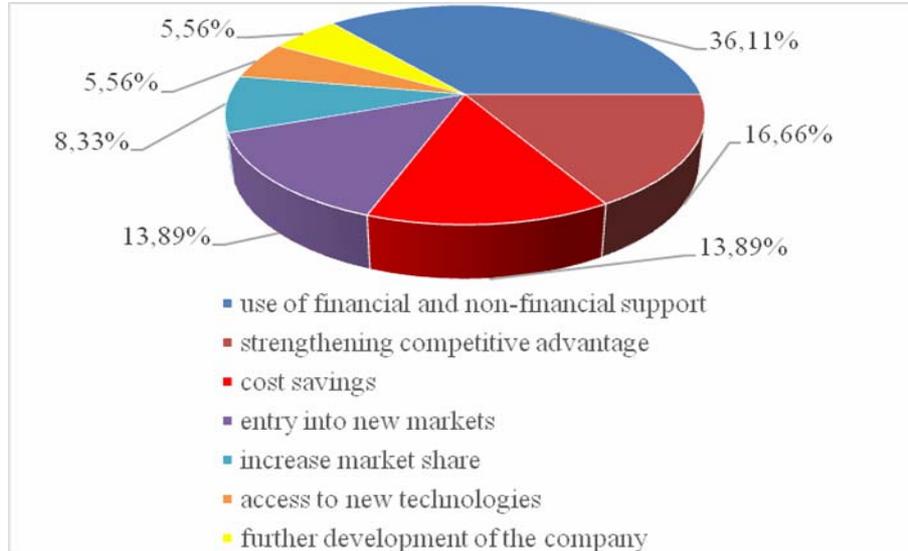
DISCUSSION

The results of primary research indicate that there is the potential for a cluster in in sector of information and communication, particularly in sections of computer programming in the region. We consider it important to inform businesses about the benefits of mutual cooperation between businesses, between businesses and local governments, between companies and universities and scientific research institutions. Mutual cooperation of companies, which employ specialists in computer programming can bring great benefit not only of cluster participants as well as people in all areas of social life, such as in the region as

well as in Slovakia. Based on the results obtained from primary research, we proposed a cluster – type, legal status, members, cooperation with universities and scientific institutions, vision, objectives and funding.

CONCLUSION

The use of ICT in the past recorded a big change, which is nowadays referred to as the new economy or e-economy. The information revolution and the rapid development of technology and innovation provide the prerequisite for the creation of new forms of partnerships and networks for enterprises. In certain circumstances, small businesses can compete with multinational companies both in terms of the dynamics of business development and positive changes and impulses in the region. Such an opportunity should SMEs in cooperation between clusters. We can assume that many businesses do not know the content part of the cluster concept and do not know what their membership in a cluster can bring. Cluster is a tool used in regional policy, which may increase the region's competitiveness.

The aim of the article was to show identification cluster analysis and its application in the selected region. On the basis of available statistical data, we calculated the coefficient of localization for all sectors and we have identified various sectors that can form the basis of the potential cluster. It should be noted that the calculation of the localization is only the first step in the process of mapping clusters, which is actually much more difficult. It should be paid to the evaluation of additional statistical data which cannot be fully realized from the available data, which are found in regional databases and yearbooks. A more detailed analysis is based on the use of qualitative methods, including expert assessment, interview and observation method. In the process is necessary to involve institutions that are very familiar with the particular region and are able to assess the importance of different sectors for the region.

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