

CLUSTERS IN THE CZECH REPUBLIC

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Abstract

This paper deals with connection between cluster theory and with cluster current condition in CR territory. Introduction part contains cluster theoretical information – its basic definition, types and diversification, its influence on economic environment and it also brings basic information about cluster development process. The second part of this paper handles current cluster condition in CR territory.

Keywords: *cluster, economic growth, value chain, competence, economic environment, cooperation, productivity, competitiveness, facilitator, mapping, competitive advantage*

1 INTRODUCTION

Clusters can be used as one of the tools for supporting small and medium businesses. The Cluster is a complex of the regionally inter-connected companies (entrepreneurs) and associated institutions which have a potential to improve their relationships to increase their ability to compete. Usually institutions of the tertiary education (high schools and universities) participate in clusters.

The goal of this paper is to clarify briefly the role which can clusters play in regional development. In practical part there will be made an evaluation of the current situation of clusters in the Czech Republic.

2 BODY OF THE PAPER

The most widely known definition of cluster will be used in this paper - the definition of cluster by Michael E. Porter: „*Clusters are geographic concentrations of inter-connected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure.*“

There are also some different definitions. For example the definition by OECD 1: „*Clusters are geographical groups of similar or complementary companies, which have active channels for business transactions, communication and dialogs and which share special infrastructure, markets and services or which are facing common opportunities or threats.*“

Basic cluster types

There are many factors influencing the final form of the cluster. The clusters are influenced by structure of their members, by their strategies and by existence of competency among their members. The next factors can be market conditions (demand and support on the market) and also inter-branches relationships. These factors influence whether the cluster is based on value chains or on competency.

1 Z CEI Workshop on Clusters presentation, OECD,
<http://www.oecd.org/dataoecd/54/26/17942708.pdf>, str.5, slide no 9

The cluster based on value chain contains defined supplier networks. The most important are vertical relations in this type of cluster because they can be source of innovations. This type of cluster usually works on the relationship between the main producer and network of his suppliers. The typical example of value chain cluster is a supplier chain in automotive industry, plastic industry or electric industry.

The clusters based on competency are typically concerning on some concrete area of technical expertise or on some concrete area of competency within the region. The main goal of this cluster is usually application of specific knowledge throughout different economic activities. Typical members of this clusters are information technology companies, but often this type of cluster is founded by companies sharing the same distribution channel or know-how. Sometimes this type of clusters is formed by companies which want to achieve some common goal. The goal can be for example improvement of selling possibilities or common representation on abroad markets or trade fairs.

Another categorization of clusters can be made by the development stage of companies systems. By this criterion the clusters can be divided into vertical production chains, groups of inter-connected branches, regional clusters, industrial region, innovative environment.

Vertical production chain is a group of companies with vertical relationship from production chain - suppliers, producers and often also customers.

Group of inter-connected branches is usually big aggregation of inter-connected branches, which are usually exporting their goods and services. The cluster in this case is assembled from groups of companies which are producing final goods, tools for the production, providing special inputs for production or special services following the production. This type of cluster is not limited by borders and can be internationally spread.

Regional cluster is characterized by group of branches connected regionally which is often competitive globally.

Industrial region is a cluster on local level. The cluster usually consists of small or middle sized companies which are specialized to specific production stages and which rely on big supplying or consuming companies.

The network is depending cooperation of some companies. The regional location is an advantage but is not necessary.

Innovative environment is usually created in hi-tech branches and membership in such type of cluster brings better and faster knowledge sharing.

The clusters can be also categorized by their development stage. There are working clusters, latent clusters and potential clusters. The working cluster was identified and the members of the clusters are interested on function of the cluster. The latent cluster is an already identified cluster , but does not have members yet, however it has all other conditions for cluster forming. The potential cluster means some conditions for cluster creation, but not all necessary conditions are filled.

Foundation and development of clusters is very expensive. Therefore the Ministry of industry and trade formed within its operational programs a Program Clusters, which supports most of clusters created in Czech Republic. The Program Clusters should support development of regional economics and improve their ability to compete. This program contributed in important way to recent clusters development as it will be shown in practical part of this paper.

Clusters are part of the Priority of Institutional Environment. The clusters are increasing ability to compete and therefore they are involved into Strategy of Economic Growth of Czech Republic. The Strategy of Economic Growth of Czech Republic propose following proceeding: *„The support should be targeted mainly into branches where the Czech Republic and regions can compete. The financial support should improve business environment or help to companies directly. The accent should be laid on creation of relationships between companies (clusters), the best practices implementation to management and development of human capital and cooperation with universities.“*²

² Autorský tým: Strategie hospodářského růstu, page 47

The relationship between economic growth and clusters is stressed by the following citation: „Clusters as a tool of national and regional development can be the solution of increase of competency, which is a basic goal of national strategy of economic development of the Czech Republic.“³

The National Cluster Strategy (part of the Strategy of Economic Growth of Czech Republic) defines main goals, general principles and arrangements for clusters application in conditions of the Czech Republic. The National Cluster Strategy has several goals, but as the main goal can be considered „to identify key business clusters and branches in every region in Czech Republic, which have a potential to create well-paid working positions and to improve efficiency of companies by supporting ability to compete and innovations capabilities.“⁴.

Current situation in clustering in Czech Republic

There are more than 40 clusters in the Czech republic at this time. The clusters are on different stages of their development. Above 30% of them (13 clusters) are in the stage identification and mapping. The rest 70 % of clusters were successfully founded (26 clusters). Over 90 % of clusters in the identification stage gain some financial support. The founded clusters can be divided into two parts – clusters, which gained already some financial support (92%) and the clusters which did not obtained any financial support yet (8%). Over 50% - 14 clusters - obtained financial support for their development.

There are some industrial branches which utilize clusters more than others. The most clusters were identified or founded in lumber industry (13%, 5 clusters), waste management (11%, 4 clusters), automotive industry (9%, 3 clusters) a plastic industry (9%, 3 clusters). Next branches with clusters utilization are biotechnology (6%, 2 clusters) a information technologies (6%, 2 clusters). These branches are very dynamic and development of new clusters is expected there soon. The clusters are also existing in traditional industrial branches like machinery industry (6%, 2 clusters) and shoemaking industry (6%, 2 clusters).

There are also some branches where clusters are not so developed yet. However, the existing clusters shows some activities there and therefore potential for further development of clusters exists in these branches. Some examples of these branches are the vine culture in the South Moravia, glassmaking industry in Liberec region and masonry in Hradec Králové region.

3 Neužilová, I.: Podpora inovačních a konkurenceschopných podniků v krajích ČR (Národní klastrová strategie 2005-2008), page 2

4 Neužilová, I.: Podpora inovačních a konkurenceschopných podniků v krajích ČR, page 2 (Národní klastrová strategie 2005-2008), page 2

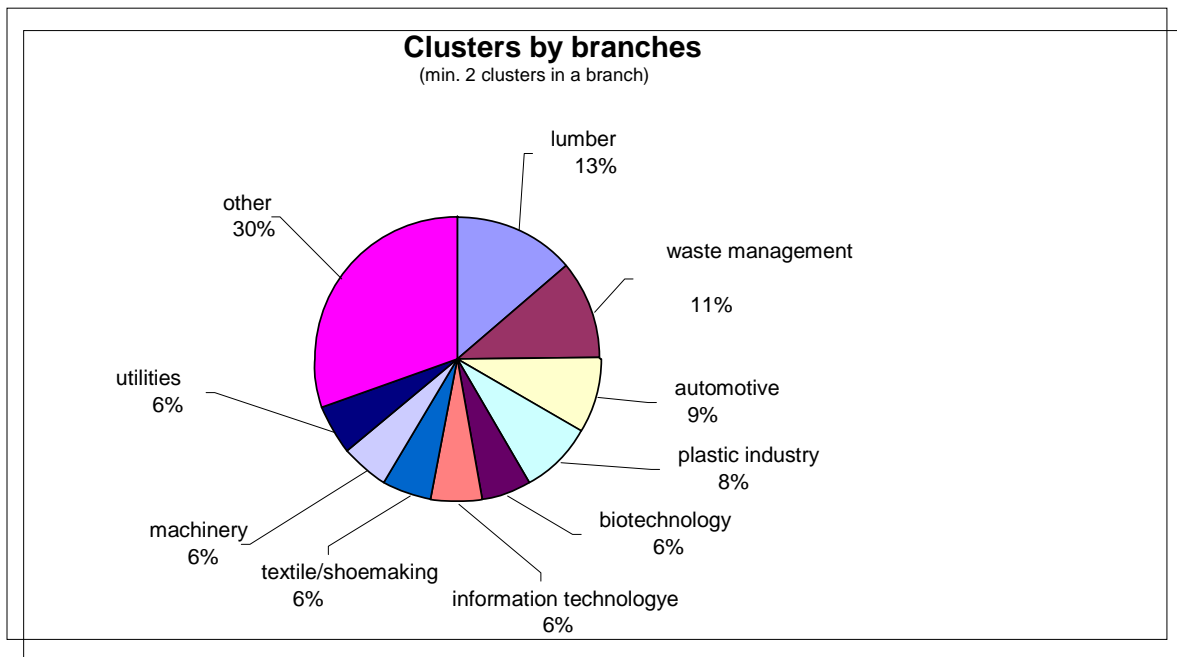


Figure 1 Clusters in the Czech republic classified by industrial branches

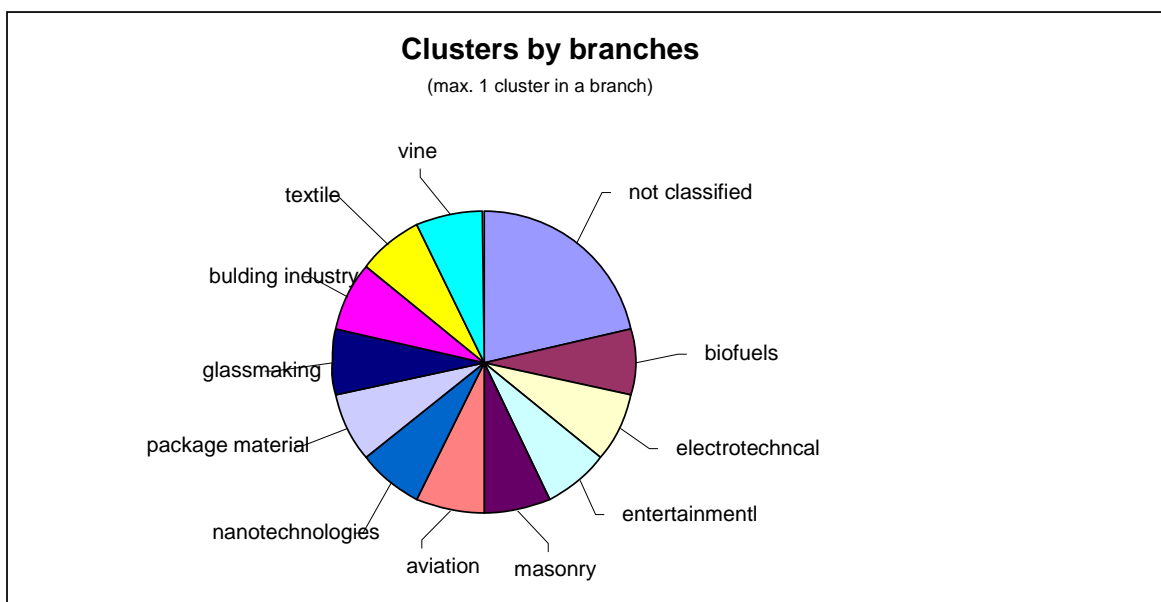


Figure 2 Clusters in the Czech republic classified by industrial branches

If the clusters are classified by the regions, some regions are dominating. Currently two regions are dominating among others in the number of clusters (stage of their development is not considered)- Jihomoravský Region (7 clusters) and Moravskoslezský Region (7 clusters). The next regions are Královéhradecký Region (4 clusters), Jihočeský Region, Karlovarský Region a Zlínský Region (all of them 3 clusters). The rest regions have only 1 or 2 clusters identified.

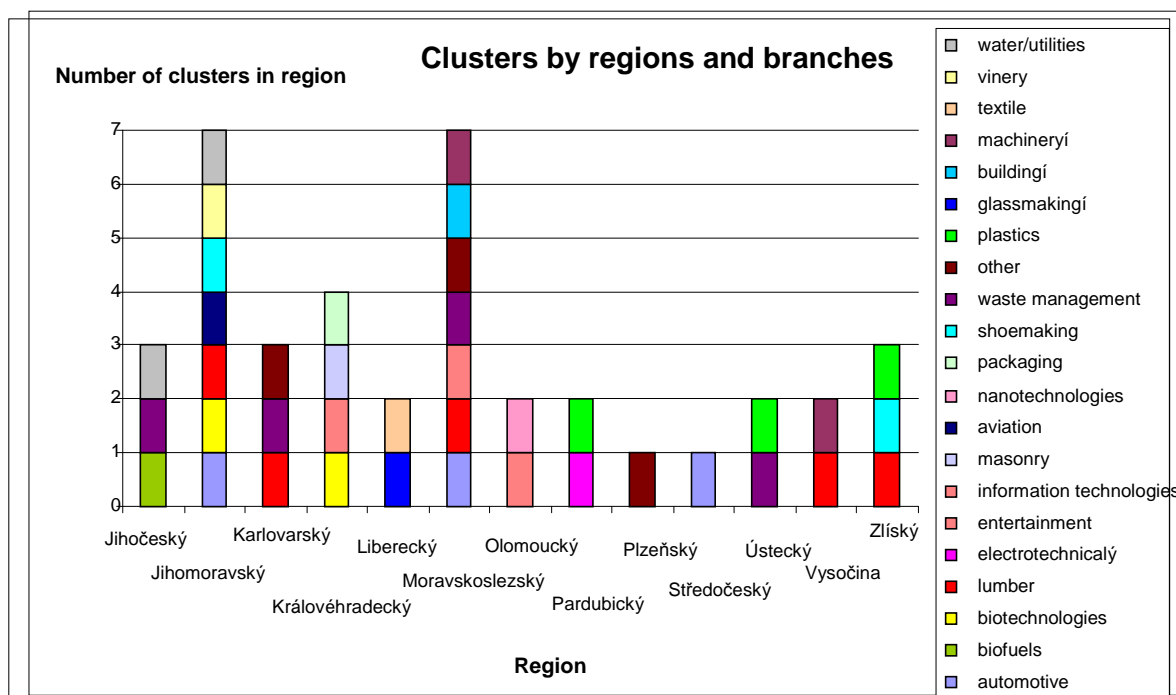


Figure 3 The clusters by the regions and branches

The Program Clusters is a part of the Competitiveness and Innovation Framework Program. The clusters which would like to obtain subventions from this program has to meet a basic condition which is a participation of the institution of the tertiary education in the cluster. There are 26 clusters founded (not only in stage of identification but they already show some activities to support their members) at this time. All of this 26 clusters asked for subventions from the Clusters program and therefore college or university is engaged in every cluster. In several cases more than one university are members of one cluster and even research institutes are members of some clusters. 16% of already founded clusters have more than 1 university among their members, 30% of clusters has a research institute as well as university among their members.

The most active university in clusters is a Technical university Ostrava, which participates in 9 (32%) already founded clusters. The next most active universities are VUT Brno (11%) and University of Tomáš Baťa in Zlíně, University Pardubice, Technical University Liberec, ČVUT Prague and University of chemical engineering in Prague (all of them 7%). The following universities participate in just one cluster: Czech Agriculture University in Prague, Moravian College in Olomouc, University of Jan Palacký in Olomouc, Masaryk University in Brno, University of Jan Evangelista Purkyně in Ústí nad Labem and Charles University (faculty in Hradec Králové).

Subsidies for mapping stage and following foundation of clusters are mainly obtained from the Competitiveness and Innovation Framework Program and its sub-program Clusters. The Program Clusters is divided to two parts and applicants are eligible to apply for subsidies for mapping stage and foundation stage as well. There were 53 applications accepted in 2006 (36 applications for mapping stage). There were also 15 applications rejected in the same year (13 applications in mapping stage) and 1 project was stopped in mapping phase.

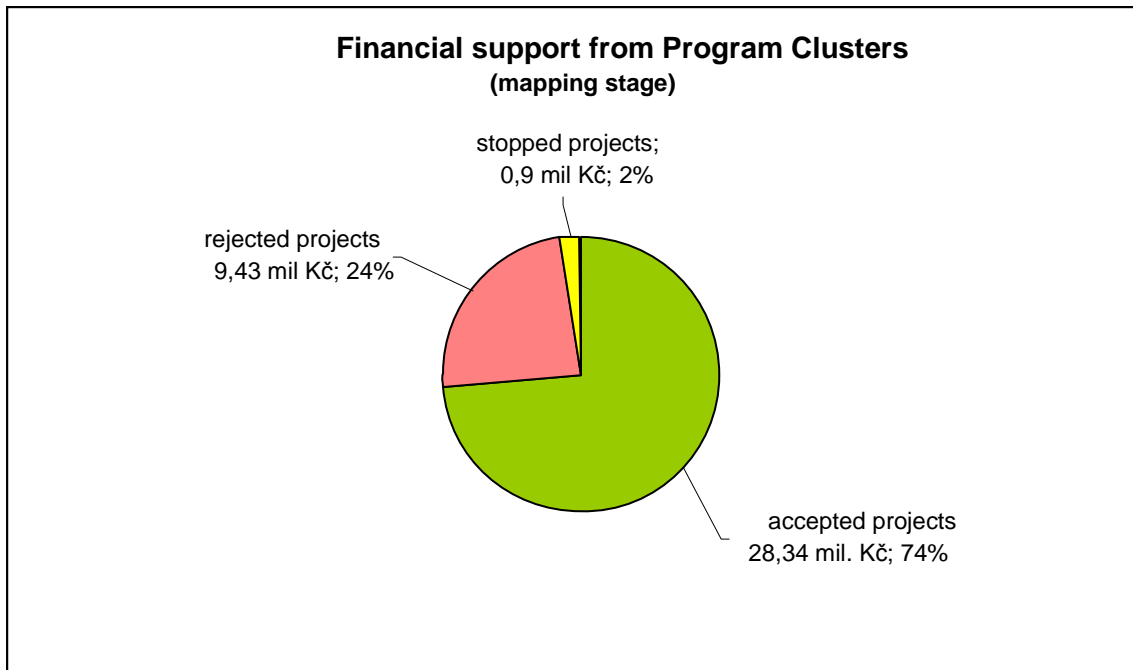


Figure 4 Program Clusters – accepted and rejected applications in stage of mapping in 2006

The subsidies from the Program Cluster reach 28,4 mil. Kč in 2008 for 36 projects in mapping stage. The rejected amount of subsidies reached 9,3 mil. Kč for 13 projects. The stopped project already obtained financial support 0,9 mil. Kč.

The Program Clusters accepted 17 applications in stage of foundation and development in 2006 with total amount of 346,5 mil. Kč. At the same time two applications were rejected with requested amount of 97,6 mil. Kč.

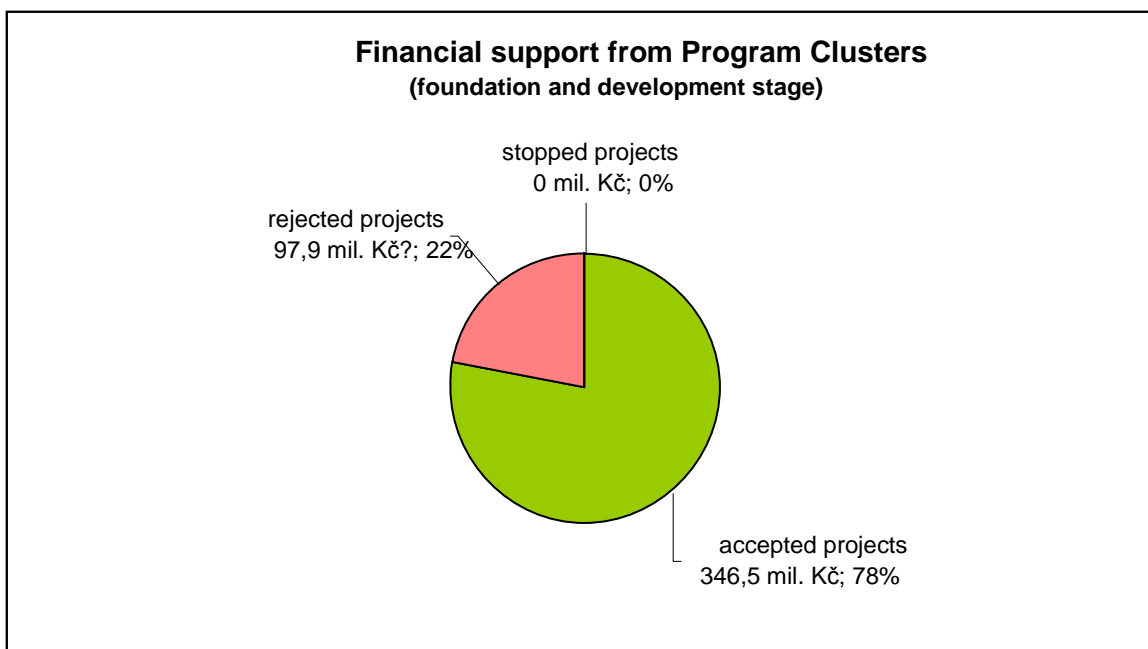


Figure 5 Program Clusters – accepted and rejected applications in 2006

It is evident from presented figures that the financial support is more significant for projects in foundation and development stage than for projects in mapping stages. The reason is that the mapping stage includes mainly preparation activities (data gathering and analysis, work on statistical data, identification of potential local advantages) and these activities are not expensive. In the opposite, foundation and development stages include activities for cluster foundation (offering of cluster membership, information seminars and conferences, definition of visions and strategies) or activities for administration of already working clusters. It has to be mentioned, that most of newly established clusters does not have income from their activities at the beginning of their existence and therefore they must rely on financial subsidies.

The first cluster in the Czech Republic was established officially in 2003. It was Moravian machinery cluster (this was the pilot project of CzechInvest Agency which purpose was to support business development in Moravskoslezský Region). No other cluster was established in the Czech Republic in during next two years. There were some activities which led toward clusters foundation, however none of these project was successfully finished. The big change came in 2006 when 21 clusters were founded in the Czech Republic. The Czech Invest Agency, as an administrator of Program Clusters, started to receive applications for this program and the foundation of clusters started to be supported financially.

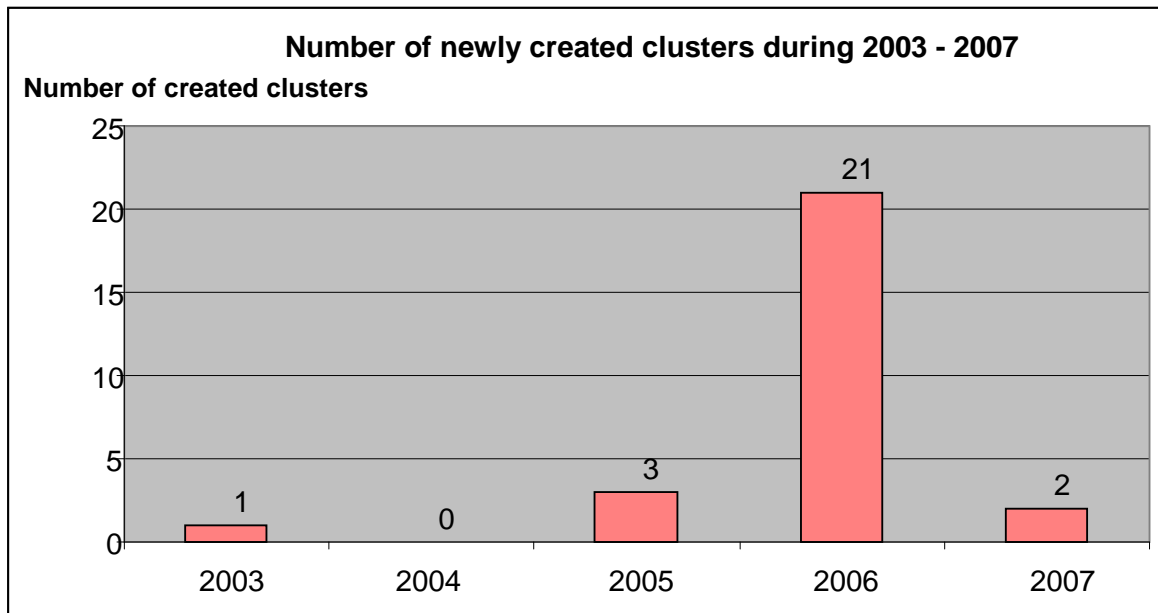


Figure 9 Number of established clusters in the Czech Republic during 2003 - 2007

3 CONCLUSION

There is more than 40 clusters in the Czech Republic at this time. 26 clusters (70%) are already established and they are performing activities for further development. About 1/3 of clusters are still in mapping phase. Clusters in mapping phase succeeded to obtain subsidies in more than 90% of cases. More than 50% of already established clusters obtained subsidies for their development, while about 40% of already established clusters received financial support in phase of mapping but have not received subsidies for their development. The most of clusters is established in lumber industry (13%) and waste management (11% of the total number of clusters including already established clusters as well as clusters in mapping stages). There are 5 already founded clusters in lumber industry and 4 already founded clusters in waste management. The most active regions are Jihomoravský Region (7 clusters) and Moravskoslezský Region(6 clusters). The clusters existing in this two regions constitute 46% of total clusters existing in the Czech Republic. The most active university in area of participation in clusters is Technical university in Ostrava, which is member of

33% of existing clusters in the Czech Republic. The fastest progress in clusters establishment was in the year 2006 when more than 20 new clusters were founded. The reason of this fast progress was start of financial support from operational programs of European Union. The clusters at all stages of their development (in stage of mapping or in stage of foundation and development) are in the most cases financed from the Competitiveness and Innovation Framework Program and through its subprogram Clusters. There was provided a total subsidies in amount of 370 mil. Kč in 2006 (from which 28,4 mil. Kč for mapping phase of clusters identification and 346,5 mil. Kč for foundation phase and further development of clusters).

It is evident that the progress of clusters development in Czech Republic depends on availability of financial support. However financial support invested to clusters development can increase efficiency of regional companies, improve their ability to compete and it can lead to strengthening of the regions and the whole national economy.

REFERENCES

- [1] SKOKAN, K.: Konkurenceschopnost, inovace a klastry v regionálním rozvoji, Ostrava: Repronis, 2004, str.158, ISBN 80-7329-059-6
- [2] MAREŠ, D.: Kooperativní strategie – klastry a podnikatelské sítě, 1.vydání, Praha: Oeconomica, 2007, str.93, ISBN 978-80-245-1264-8
- [3] VÍTKOVÁ, R.; VOLKO, V.; VÁPENÍČEK, A.: Konkurenceschopnost malých a středních podniků v aliancích (clusters), ISBN 80-02-01772-2
- [4] SOLVELL, O.; LINDQUIST, G.; KETELS, CH.; PORTER, M.: Zelená kniha klastrových iniciativ, český překlad 2006, 2003, page 92, ISBN 91-974783-1-8
<http://www.czechinvest.org/data/files/zelená-kniha-klastrovych-iniciativ-64.pdf>
- [5] CzechInvest: Průvodce klastrem – Informační brožura, Praha, www.czechinvest.org/data/fines/pruvodce-klastrem-63.pdf
- [6] BŘUSKOVÁ, P.: Průmyslové klastry – Informační brožura, Ostrava, 2003
<http://www.arr.cz/docs/prumysloveklastry.pdf>
- [7] Strategie hospodářského růstu ČR
www.vyzkum.cz/storage/att/2E19C964AA2946D68D17482DC5DDFA0D/SHR%20Expert%20Final.pdf
- [8] NEUŽILOVÁ, I.: Podpora inovačních a konkurenceschopných podniků v krajích ČR (Národní klastrová strategie 2005-2008), dokument MPO, www.mpo.cz/zprava6216.html
- [9] KADEŘÁBKOVÁ, A. a kol.: Ročenka konkurenceschopnosti České republiky, Praha: Centrum ekonomických studií Vysoké školy ekonomie a managementu, Národní observatoř zaměstnanosti a vzdělávání Národního vzdělávacího fondu, 2005, page 172, ISBN 80-86131-64-5
- [10] WWW stránky jednotlivých klastrů
- [11] www.europe-innova.org