
The Comparison of cluster support in Slovakia and selected countries of the European Union

Peter BURGER

Faculty of Economics - Department of Regional Science and Management

peter.burger@tuke.sk

Abstract

The current support of clusters in the Slovak republic is significantly falling behind the one of the clusters within the countries of European Union. However, considerable attention is paid to clusters and their politics in the EU countries including several „innovative leaders“ of Europe putting emphasis on the implementation of cluster politics and the production of clusters. Slovakia is annually classified as a below-average country within the European Union considering majority of macroeconomic signposts and the innovative performance. The aim of this article is to show the present situation of cluster support in Slovakia compared to the EU countries as well as the view of the Commission of European Communities on the implication of cluster production and the realization of cluster politics to increase the competitiveness and innovative performance of regions.

Key words: cluster, innovation, cluster policy

JEL Classification: O31, O38

Introduction

Recently, clusters and cluster policies are very popular with not only professional public but also with politics in many countries. Most of them can see in it an efficient tool for disadvantaged regions, an efficient tool of innovative strategies or a tool via which regional elite could be activated in the area of self-government, academia or businessman elite. Slovakia, in general, falls behind in production and support of clusters with developed (Great Britain, Netherlands, Austria, Germany) as well as less developed (Poland, Portugal, Greece) countries of the European Union. This fact, together with the actually low quality of an innovative efficiency of the country and other factors altogether have an influence on the position of Slovakia within the bounds of the Index of Global Competitiveness of Country which is on the downgrade. Slovakia was distinctively behind the countries like the Czech Republic or Estonia in 2008. This article deals with an answer for the question if it would be possible to change this situation, at least partially, using the implementation of cluster politics and cluster production.

1. Definition of Clusters

The topic of clusters, cluster initiatives and cluster policies has been the subject of greater concern to professional public since 1990 due to the publication of Michael Porter's book (1990) *Competitive Advantage of the Nations*. However, it was already in 1890 when one of the most significant British economists, Alfred Marschall, went into the merits of territorial

concentration of industrial branches. In his book named *The Principles of Economics* (1890) he also stated that industrial branches are often concentrated in one place and thus gain several advantages such as savings from the extent [7]. Concentration and interconnection of these enterprises bring savings from localization of great importance. Nevertheless, Marschall did not talk about cluster at that time but about so called industrial districts which resemble present clusters in many ways. Marschall identified three areas mostly influenced by the reduction of expenses. The first one was identified as the use of specific common sources including specialized infrastructure. The interest in its construction and maintenance usually has all companies competing in certain area. The expenses on its construction and maintenance are significantly reduced as long as these are divided between all of the companies. The second area, which Marschall defined, was the labour market which is characterized by the high specialization of manpower and labour places. The spatial decision of the companies can be influenced by the local presence of manpower with special skills considering its activities as inevitable. In this case, the right choice of the locality may reduce the costs on education or requalification of workers. The third area relates to the reduction of expenses between the companies and their transactions and businesses due to the negligible distance between them. It is usually easier for companies to conclude a contract with partners situated in their vicinity and offering specialized services and subdeliveries.

However, within the theory of clusters the most important role played was probably the publication of Michael Porter's book *Competitive Advantage of the Nations* (1990) [11]. Porter defined there clusters as „geographical concentrations of mutually interconnected organizations, specialized suppliers, service providers, companies in related industrial branches and interconnected institutions (such as universities or business unions) that compete in the same area as well as cooperate. Moreover, Porter updated this theory in Harvard Business Review magazine in article called *Clusters and New Economy of the Competition* published in 1998. „ Clusters are local concentrations of mutually interconnected companies and institutions in specific business field. Clusters include the group of industrial areas and other subjects tied up important for the economic competition. They may include the suppliers of specific outputs such as components, machines and services as well as providers of specialized infrastructure. Clusters are often expanding downwards to the sales channels and customers and sideways to the producers of complementary products and companies in industrial branches related in terms of abilities, technologies or common inputs. Most of the clusters include governmental or other institutions such as universities, normative agencies, research teams or business associations offering specialized trainings, education, information, research and technical support [12].

Clusters, as stated by Roelandt and Hertog (1999), are productive networks of mutually dependent companies including suppliers interconnected between each other in terms of productive chain forming added value. Clusters may even include strategic alliance with universities, research institutions, and services of intensive knowledge, consultants and customers [13].

Bergman and Feser (1999) mention that clusters are manufactory-trading companies and non trading organizations for which the membership in the group is important in terms of

competitiveness of each of its members. Moreover, the clusters join customer-supplier relationships, joint technologies as well as common customers and distributive channels or common labour markets and human capital [1].

Ketels (2003) calls attention to two key characteristics of clusters. The first one is the geographical concentration of branches while the second one represents the existence of binding between single participants. The mutual closeness, concerning the localization and the structure of activities, brings the members of cluster advantages of different types of positive externalities. These externalities include access to specialized human resources and suppliers, knowledge transmission, the pressure on higher performance resulting from the strong competition, new findings coming from the close interaction of specialized customers and suppliers [6].

Sölvell, Lindqvist and Ketels (2003), in their legendary book „*The Cluster Initiative Greenbook*“, state that clusters consist of jointly located and interconnected industrial branches, government, academia, financial institutions and institutions for cooperation [14].

R.A.Chase (2003) points out that the regional branch clusters are formed of connection of certain groups of branches that are relatively independent yet tie each other together and play an important role in rehabilitation of regional economy [3].

Buček (2007) mentions that the great advantage of clusters is the fact that they have a strong influence on total expense savings of individual members of cluster and effectivity of their production as a result of spatial closeness. The examples of these savings can be observed in local qualified manpower, existing technological and physical infrastructure, bindings between universities and industrial enterprises etc. Total savings are particularly important for the economic activities for which innovation is a key variable. The enterprises in these branches are attracted by innovative activities of other companies via transmission of education between them. Moreover, the extent of communication and interaction of set up links in the cluster has a big role in its „sustainability“ [2].

Porter's conception of clusters was several times questioned. Some of its most significant critics are Martin and Sunley (2003) who brings too general use of the term cluster into focus. They state that the too wide spectre of different industrial groups and specializations, supplier-customer relationships or the industrial production organization itself is often understood in this concept. Martina and Sunley are convinced that such a loose understanding of the cluster concept thwarts the creation of unified model or the theory of cluster. They call the conception of clusters even chaotic [8].

2. Cluster policy

Sölvell (2008) states that the term „cluster policy“ is accommodating in professional literature [15]. According to Sölvell, cluster policy may have the character of microeconomic politics that will have more general influence on clusters or the character of specific politics that focus directly on the cluster issues. Both types of such defined politics play an important role in

building clusters as well as in their development. The first type contains several traditional politics supporting cluster development (see table).

Table 1: Politics supporting cluster development

Policy area	Implication for clusters
Science and innovation	Science-driven clusters are sensitive to investments in science and technology development.
Competition	Rivalry is one of the key ingredients of dynamic clusters.
Trade	Linkages to world markets is of fundamental importance to the dynamism of clusters.
Integration	For example in Europe, the European Union work towards creating one level playing field where resources can flow more freely, where some clusters will gain more resources as others will decline. Regions will specialize.
Regional	Clusters can gain from regional programs, e.g., promoting infrastructure or training.
Social	Access to superior public services enhances attractiveness of clusters, bringing in new resources from the outside.

Source: Solvell, O., 2009. Clusters. Balancing Evolutionary and Constructive Forces. Ivory Tower Publishers, Stockholm, ISBN 978-91-974783-3-5

The existence of growing number of evidence that clusters play an important role in explaining differences in living standard within the countries and regions raised concern among politicians. Many of them look for the most appropriate ways to induce the situation that would lead to the creation of clusters or help develop and prosper already existing clusters via politics intervention. Economists look for the reasons of cluster formation as one of the tools of market failure. The networking failure comes from the fact that individual subjects of cluster do not realize the so called pouring of knowledge and information that creates competitive advantage also for others and thus resulting in cluster forming too little activities and investments. Cluster policies may be used for overcoming the gaps between the private and public sector and the return of these activities into the portfolio of activities of such cluster. Actually, the information imbalance can raise even in the case when all the stimuli within the cluster actions are in harmony because the information needed to maximise the cluster value are distracted between too many different cluster participants. Cluster policies can be used to get over such differences raising from the information imbalance through dialogue and communication support within the cluster.

Pavelková (2009) mentions several reasons explaining the interest of public sector in cluster issue engagement [10]. It is mainly the fact that the support of regional clusters is becoming an important and successful tool for support of economic region development. Among other reasons mentioned are the importance of interconnection of small and middle businesses into a mutual cooperation and interconnection of local universities and research institutions together with the ability of small and middle businesses to engage in mutually prosperous cooperation with other subjects. In comparison to big companies, the small and middle businesses are more linked to a specific region and they are becoming more and more

competitive on the worldwide scale. As Pavelkova states later, cluster politics are realized by the public sector in order to increase social-economic benefits thank to the cluster creation and development. The other politics affect the existence of the cluster just indirectly. The public sector may significantly support formation and development of clusters via politics and programmes that promote knowledge exchange lower the information and coordination failure and boost the cooperation between the companies as such as well as between the companies and research institutions. Another option of cluster support from the side of public sector is the creation of political tools for cluster formation and development such as partnership of public and private sector for research and development. Within the regional politics, the clusters are often used as tools for gathering and activation of key participants in region.

As it is in the case of many countries, the clusters are really useful tool for increasing competition of regional politics (Basque country or Catalonia in Spain). That is the reason why the cluster and cluster politics programmes in a lot of EU countries are realized on the national level. The programme itself is „the organized file of financial, organizational and human activities for achieving specific aims in the set period of time. The programme is always managed by specific governing body and is usually divided into priority axis and particular actions and it is realized through projects. This way it is possible to positively influence the level of national or regional competition in areas the governing body states. In the following picture the cluster politics of the selected countries as well as the fact which of the factors dominates (or the group of factors) within the cluster politics is indicated. While the Czech Republic and Spain (especially Basque region) use clusters as a tool for increasing competition of industry and business, Japanese and Netherland perceive clusters as a tool for the development of science, technology and innovations. However, it is important to take into consideration the connection of individual partial politics as shown in the examples of Korea, France, Great Britain and Norway that stand in the middle of those partial politics.

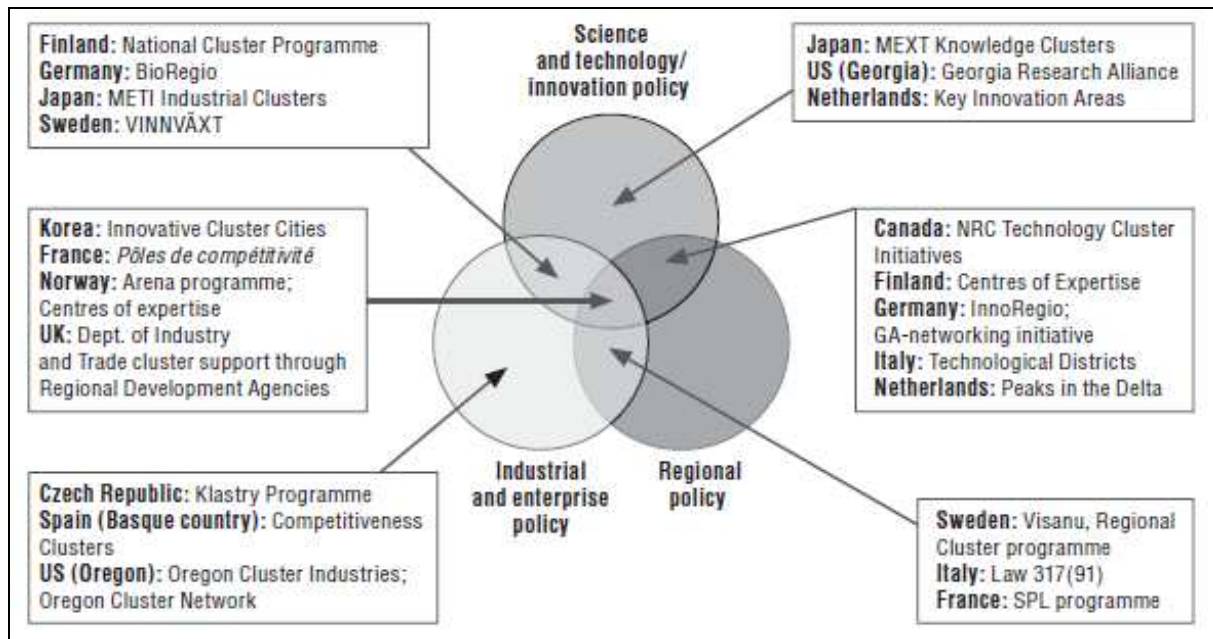


Figure 1: Cluster policies of the selected countries

Source: Competitive Regional Clusters – National Policy approaches, OECD (2007) [9].

3. The view of the Commission of European Communities

Communication from the Commission of European Communities to the Council, the European Parliament and the European Economic and Social Committee and the Committee of the Regions (Brussels, 17.10.2008) entitled “Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy” introduces, that Europe does not lack clusters, but persistent market fragmentation, weak industry-research linkages and insufficient cooperation within the EU mean that clusters in the EU do not always have the necessary critical mass and innovation capacity to sustainably face global competition and to be world-class [4].

As international competition builds up so does the pressure to attain excellence. Strong clusters offer a fertile combination of entrepreneurial dynamism, intensive linkages with toplevel knowledge institutions and increased synergies among innovation actors. They contribute to the building of a knowledge-based economy and therefore to achieving the objectives of the Lisbon Partnership for Growth and Jobs. Striving for excellence should thus be a high priority.

As part of the renewal of the economy, new clusters are emerging over time as others lose their competitive edge. This is a healthy market-driven process and clusters which are not working should not be artificially kept alive. Such clusters should not become a channel for subsidies which would undermine competition and even the emergence of new competitive clusters. New cluster initiatives should be carefully designed and underpinned by a very clear rationale based on precisely identified business interests, regional strengths, specific competences, knowledge hubs of international excellence and market foresight. If such

conditions are not fulfilled, it is unlikely that a cluster initiative will be successful. The challenge then is to avoid a proliferation of cluster initiatives with little chance of long-term success.

Policy makers at all levels should concentrate on providing the best framework conditions nurturing innovation, excellence and cooperation across the EU. To support this approach, common efforts are needed to achieve more synergies and complementarities between different policies, programmes and initiatives.

4. Cluster policies of European countries

The document „Cluster policy in Europe – A brief summary of cluster policies in 31 European countries“ was published in January 2008 [5]. A specialized knowledge-based institution „Oxford research“ based in Norway, Denmark, Sweden mapped the level of development and use of cluster politics in the countries of European Union, except Hungary, as well as in Norway, Switzerland, Iceland, Turkey and Israel. A lot of interesting findings resulted from this study. Some of them are a part of this article.

Generally, cluster policy was initially used in Europe in 1990. Until 1995 many countries, mainly from the west, north and partially south part of Europe, started with its implementation, 10 countries out of 31 altogether. According to The World Economic Forum in 2008 and its Index of Global Competitiveness, 9 out of those 10 countries (except Italy) are rated among 30 most competitive countries of the world. In the following five years 5 more countries joined them. All of them ranging to the best 20 of the scale mentioned above (except Romania). After 2000 even the states that joined European Union in the present decade started with the implementation of cluster policy in larger or smaller scale. Moreover, some of the „older“members of European Union such as France, Greece, Luxemburg and Portugal started with the systematic cluster policy just in this decade.

At the same time, the question whether the purpose of cluster policy in selected countries increased, decreased or steadied in years or if the priorities of cluster policy in specific country changed so much that it would not be possible to answer the question objectively was examined. The fact is that 12 out of 31 countries state that the purpose of cluster policy and clusters in country increased. Slovenia as the only country states that the purpose of cluster policy decreased when compared to its purpose in the past (in case of Slovenia, the past is dated back to 2000). 7 countries state that it is not possible to answer this question as the cluster policy of the countries has changed significantly in years. One country, Cyprus, states stable condition of the cluster policy and relatively large number of countries (10) did not give any answer.

Table 2: Comparison of cluster policies in selected countries

Countries	The beginning of cluster policy implication in the country	Importance of cluster policy in country in years	Global Competitiveness Index of the country according to The World Economic Forum ¹ [16], [17].		
			2008	2007	2006
Austria	1995-2000	increased	14	15	18
Belgium	1990-1995	cluster policy has changed	19	20	24
Bulgary	2000-2005	n.a.	76	79	74
Cyprus	2005-2009	did not changed	40	55	49
Czech republic	2000-2005	n.a.	33	33	31
Denmark	1990-1995	cluster policy has changed	3	3	3
Estonia	2005-2009	increased	32	27	26
Finland	1990-1995	n.a.	6	6	6
France	2000-2005	n.a.	16	18	15
Germany	1990-1995	n.a.	7	5	7
Greece	2000-2005	increased	67	65	61
Iceland	1995-2000	increased	20	23	20
Ireland		n.a.	22	22	22
Israel	1990-1995	n.a.	23	17	14
Italy	1990-1995	cluster policy has changed	49	46	47
Latvia	2005-2009	n.a.	54	45	44
Lithuania	2005-2009	increased	44	38	39
Luxembourg	2000-2005	increased	25	25	25
Malta	2000-2005	increased	52	56	51
Netherlands	1990-1995	cluster policy has changed	8	10	11
Norway	1990-1995	increased	15	16	17
Poland	2000-2005	cluster policy has changed	53	51	45
Portugal	2005-2009	cluster policy has changed	43	40	43
Romania	1995-2000	increased	68	74	73
Slovakia	2005-2009	n.a.	46	41	37
Slovenia	2000-2005	decreased	42	39	40
Spain	1990-1995	increased	29	29	29

¹ Global Competitiveness Index measures total country competitiveness. It was developed by Professor Xavier Sala-i-Martin from Columbia University for World Economic Forum and it has been used since 2004. The Global Competitiveness Index is created by World Economic Forum and Michael Porter is annually one of its co-author.

Sweden	1990-1995	cluster policy has changed	4	4	9
Switzerland	1995-2000	n.a.	2	2	4
Turkey	n.a.	increased	63	53	58
Great Britain	1995-2000	increased	12	9	2

Source: the author based on the information from OXFORD RESEARCH AS. 2008. Cluster policy in Europe - A brief summary of cluster policies in 31 European countries a World Economic Forum. 2008. The Global Competitiveness Report 2008-2009.

Slovakia as it is shown in the following picture underestimates the influence of cluster development and the implementation of cluster policy on the competitiveness of the area and the living standard of its inhabitants. The evidence is also the fact that only one operation programme within the structural funds, namely the structural fund stated as „Competitiveness and Economic Growth“takes care of cluster issues. In particular, it is the priority axis n.1 „Innovations and the Growth of Competitiveness“that offers opportunities for cluster support within the action „Support of Common Services for Businessmen“ The final recipient within this action is public sector. Within the action 1.2 „Support of Common Services for Businessmen“ the legitimate expenses cover expenses on finding proper companies for cluster formation and activities linked to conceiving the studies before setting up the clusters with promotion of them and their activities. Also actions 1.1 „Innovations and Technological Transfers“ and 1.3 „Support of Innovative Activities in Companies“ in the private sector support clusters as a part of innovations and innovative solutions aimed to increase competitiveness in authorized areas. Despite the fact that clusters could be supported within the programme of interregional cooperation INTERREG IVC and via support from the community programmes, „Framework Programme for Competitiveness and Innovations (CIP) and 7th Framework Programme of Community for Research and Technological development, it is necessary to note that the cluster support and cluster policy support is not adequate in Slovakia. When compared to countries such as Poland, Great Britain, Netherland, Spain, where the number of cluster programmes (see Table 2) is above 10, it is needed to say that Slovakia, as one of the few countries in Europe, does not even have ratified National Cluster Strategy and thus it belongs among the less developed European countries.

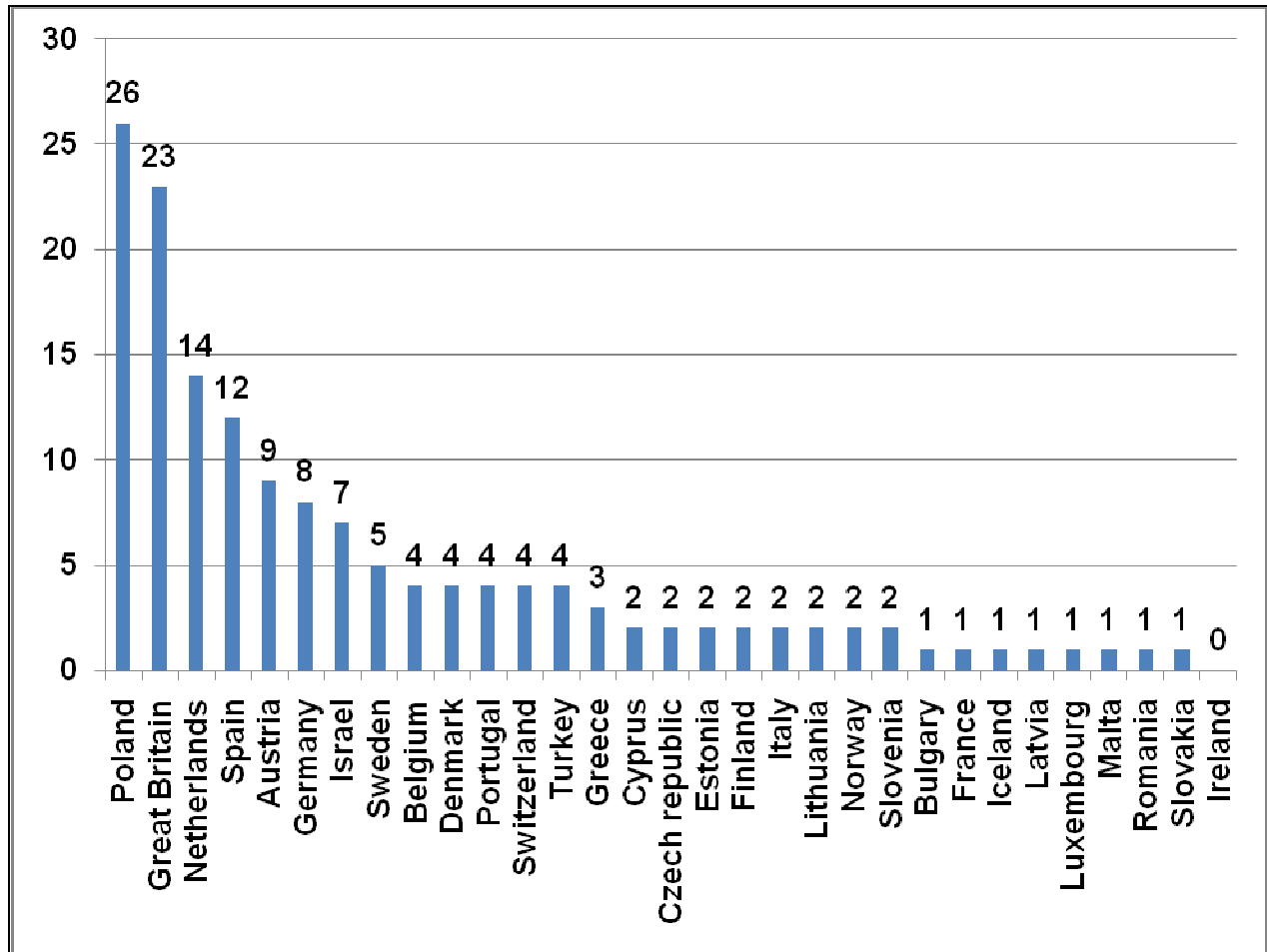


Figure 2: The number of cluster programmes in individual countries

Source: author based on the information from OXFORD RESEARCH AS. 2008. Cluster policy in Europe - A brief summary of cluster policies in 31 European countries.

5. Sources of cluster financing in selected countries

During the identification of cluster financing in selected countries it was defined whether the cluster programmes are financed on the national or regional level. From the total number of 31 selected countries that were examined, it was found out that 24 countries out of the total number financed clusters on national level, 16 countries used financing on the regional level and 11 countries finances clusters on regional as well as national level. The countries that joined European Union in this decade dominate among the countries that finances clusters entirely on national level. There are mainly the countries that have small number of cluster programmes (one or two) and these are financed on the national level (Bulgaria, Cyprus, the Czech Republic, Latvia, Lithuania, Malta, Romania and Slovakia). The exception, on the other hand, is Estonia, Slovenia and especially Poland. When it comes to sources of these financial resources, in 28 out of 31 examined countries these are the ministry budgets, which mean it is on national level. On the contrary, money from the business sphere was used the least (only in 10 countries). There are three countries, Finland, Poland and Great Britain, where all 5 sources for cluster financing were used. Slovakia, just as noted in the table above,

belongs to countries where the level of cluster and cluster policy support is below-average, in comparison to other European countries.

Table 3: Sources of cluster financing in selected countries

	National ministries	EU structural fund	Regional budget	Business	Other
Austria	X		X		X
Belgium	n.a.				
Bulgary	X				X
Cyprus	X	X			
Czech republic	X	X			
Denmark	X	X	X		X
Estonia	X	X			
Finland	X	X	X	X	X
France	X		N.A.		
Germany	X	X	X		X
Greece	X	X	X	X	
Iceland	X		X	X	X
Ireland	N.A.				
Israel	X				X
Italy	X				
Latvia	X	X			
Lithuania	X	X		X	
Luxembourg	X	X	X		
Malta	X				
Netherlands	X		X	X	X
Norway	X				
Poland	X	X	X	X	X
Portugal	X	X		X	
Romania	X				
Slovakia	X	X			
Slovenia	X		X		
Spain	X		X	X	X
Sweden	X	X			X
Switzerland	X		X	X	X

Turkey		X	X		X
Great Britain	X	X	X	X	X
Summary	28	16	14	10	14

Source: author based on the information from OXFORD RESEARCH AS. 2008. Cluster policy in Europe - A brief summary of cluster policies in 31 European countries.

Conclusions

A lot was written in recent years about the importance of cluster formation and the implementation of cluster policy for strengthening the competitiveness and innovative potential of regions. Most of these works agree on the fact that clusters are very useful tools for increasing the competitiveness and innovative activities of regions with a direct impact. Slovakia is one of few countries of European Union that does not have a ratified individual cluster strategy. However, it is true that there are references to cluster formation and support in Innovation Strategy Proposal for the Slovak republic for years 2007 – 2013 and Innovation Policy Proposal for the Slovak republic for years 2008 – 2010. This is reflected also to actual cluster support in Slovakia where it belongs among the countries with the smallest number of operation programmes aimed at cluster issues. Successful clusters are typical for areas with high support of science, research and innovations and areas where regional government is among the real leaders of regional development. Moreover, cluster support enables improvement of relationships among the key economic participants of region, activating of self-government, companies, and academia and finding the way of active cooperation of all these subjects with different interests. If Slovakia wishes to join these above-average competitive countries within European Union and wants to improve its innovative performance as well as the innovative performance of its regions, then the ratification of individual national strategy and enabling the use of structural funds for cluster formation and support could be an important step towards fulfilling this target.

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