The Necessity of Clusters for Modern Management

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Abstract

The term of cluster as economic agglomeration became in time an obsessive concept for politicians, consultancy organizations, business associations and companies, in general. It is seen as an instrument that guarantees the economic success at local and regional level, one of the solutions to sustain cohesion.

We know that clusters connect people and organizations, their activities are interdependent and intertwined. Even so, there are voices that criticize clusters and the approach of Michael Porter who launched the term in the early 90's. Given this we search for answers about what is a cluster and why should the industrial policy focus on it? What determines organizations to gather in a cluster? Is there a typology of clusters? At the end we make some observations about clusters in Romania and their potential influence on the economic development.

Keywords: *cluster, Romania, regional and economic development, competitiveness, innovation*

JEL classification: D00, D20, L00, M10, R10

Introduction

The strategies and policies for economic development in the globalization era changed the approach on competitiveness, investments and economic growth and switched the focus on innovation, knowledge and networking. Even though globalization dissolute the borders between countries, it didn't decrease the importance of regions. We may say that globalization emphasized the role of regions; developing the strengths of the region became the promotion policy for investments.

Programs and funding schemes for developing local production systems, sustaining industrial clusters, implementing regional innovation systems, or creating knowledge regions helped in fostering the attractiveness of a region for economic growth.

One word that comprises all these ideas and scopes is *cluster*. It is so popular now, that not only scholars but also politicians and enterprises embraced the concept and promote it heavily.

In this paper we ask what is behind the term cluster. Is it just a buzzword that is now in fashion used more to impress than to inform or a necessary concept for regional and economic development?

In the last 20 years there has been a growing interest for the scholars in different fields (economics, business, regional development, urbanization

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economy, geography) in observing and analyzing the industry development, in the tendency of companies to concentrate in particular locations.

This phenomenon was first observed by Marshall (1930) who in 1890 by analyzing the economic space around London concluded that organizations and companies were connected by three main factors: *a pool of work force, specialized suppliers* and easy access to *knowledge and information*. His observation was right; these factors where important in the creation of the industrial zones and are key features of the nineteenth-century industrialization in Europe and United States. In the modern economy, we name these "location conditions" that exist for all industries. These have different importance and are "translated" by the companies into a more specific set of locations for different factories (Hayter, 1997). A typology of location conditions (Hayter, 1997) includes transportation facilities, materials, markets, labour, urbanization, energy, community infrastructure, capital, land, buildings, environment and government policy. The location conditions are complex, they can be tangible (e.g. freight rates, costs, taxes) or non-tangible (e.g. reliability, frequency, quality, availability) and are hard to measure.

The work of Alfred Marshall was revitalized in the 1950s because of the economic boom; after the World War II mass production changed the industrialization. Since the Industrial Revolution we had a confrontation between the flexible specialization represented by small and medium enterprises organized in industrial districts (e.g. the industrial districts from Northern Italy) and the mass production represented by multinational companies with factories in the Third World (India, China). In the 1970's occurred a "second industrial divide" (Piore & Sabel, 1984) and brought in attention a flexible mass production where multinational companies (MNCs) combine high volumes with product differentiation and SMEs are suppliers of components and services for MNCs (Hayter, 1997).

The industrial development in the twentieth century brought to light some facts:

a) the flexible specialization highlighted the influence of industrial location and regional development;
b) enterprises doing similar things locate close to each other; because of proximity and scale advantages they can profit better from this;
c) networking between enterprises raises the question about innovation and knowledge transfer;
d) regions with a high industrial agglomeration show more competitive advantages in comparison with underdeveloped zones;
e) by developing the economic activities in the region, people and enterprises can have high benefits in form of money, time, transaction costs, infrastructure etc.

Many scholars attempted to capture all these features and build a map of regional economies trying in the same time to promote the idea that this model can be copied everywhere in the world.

First observations about the regional economies and industrial agglomeration were made by Brusco (1982) and Becattini (1990) who analysed the

development dynamic in the so called "Third Italy". The regions Emilia-Romagna (Bologna), Veneto (Venice) and Tuscany (Florence) are very popular for the large number of family enterprises, active mainly in the textiles, footwear and light machinery. This so called "industrial districts" based on relatively small sized enterprises with strong relationships with the labor market and political institutions grow very fast and made very popular the label "Made in Italy", a label for high quality handicraft work.

When thinking at industrial agglomeration we go to the popular Silicon Valley. The under populated region managed to become the world's leading centre for technological innovation and an example for enterprise networking, economy of scale and a synonym for the American high-tech sector.

This two popular examples emphasize once again the importance of cooperation and collaboration between companies and advantages brought by locating near to competitors, input suppliers (including also the substitute suppliers), focusing on the changing demand of customers, reducing costs by using local and regional infrastructure.

1. Collaborative models for small and medium enterprises

Till recently large companies, MNCs were the only capable to have economies of scale, to access resources and materials all over the world, to position themselves with a high power of negotiation, to control inputs and outputs in order to be more efficient and make profit. Due to the long term orientation they were able to research and develop permanently and profit from knowledge and innovations. We may state that MNCs were at the base of the innovation process because their characteristics of combining technologies and investments (Parto, 2008, pp.1007). MNCs can show also weaknesses. They have a rigid organizational architecture, internal bureaucracy, a complex organizational culture. In the same time, SMEs show a flexible structure, are more innovative, have a rapid reaction to changes in consumer behaviour or environment. But the problems that SMEs face now are important constraints in achieving their strategic goals and becoming profitable. We mention here: the lack of resources, limited access to facilities and financing, and technical knowledge. In this conditions it becomes a necessity for the SMEs to participate in networks, alliances and other collaborative models (Tantau, 2011) in order to reduce costs, accelerate the knowledge and technological transfer. The table below shows the most known collaborative models and their main characteristics (Table 1).

Table 1. Examples of collaborative models

Collaborative model	Main characteristics
Industrial park	It is a delimited zone for economic activities (industrial production and services). Scientific results and technological development are combined with the human and material resources of the region and transformed in inputs for achieving efficiency and performance. It may be founded by the public authorities in partnership with

	local private companies or it can be a total private project. The most popular facilities received are tax reduction or no payment of the land and building taxes.
Scientific and technological park	It is similar to the industrial park, but with an emphasis on the role played by the higher education institutions and innovative companies. The main activity is research and development; companies can rent offices for research departments. There is no production facility.
Business network	It is a form of collaboration between independent companies with common economic goals and with a geographical spread. Advantages of the networks are: market opportunities, best practice exchange between its members, common use of resources (human resources, technologies, credits, and marketing instruments) for reducing costs, possibility of heterogeneous partners to enter in projects. One weak aspect is the proportion of confidence and trust between partners.
Local action group (LAG)	This type of collaboration is more an ad hoc framework on local level, for exchanging ideas, for debate on issues important for the local community, and for initiatives to boost economic activities. The most common projects are: promoting a local product or brand, the image of a tourism attraction, local traditions etc.

Source: adapted from Tantau, (2011), Mosora (2012)

The descriptions from Table 1 show different types of collaboration between companies, some are formed based on a contract with clear objectives, other are more networks or groups with a common project limited in time. In the same time, the industrial parks or networks can impose also a limited number of members (e.g. because of limited space for offices within the industrial park) or non-competition between its members. In this context, a new concept of collaboration and competition in the same time had more chances to be accepted.

We excluded from the table the *business incubator*. This type of cooperation can be presented also as a collaborative model but between two parts, the management of the incubator and the young start-up with growth potential. Usually, the goal of a business incubator is to "produce successful firms" (Aernoudt, 2004) who continue to do business outside the premises. The business incubator can have a high impact on entrepreneurs, on the creation of an entrepreneurial culture; it has strong relationship with higher education institutions, and linkages with R&D institutions, but it doesn't necessary represent a network between companies.

In the modern economic theory the competition shows an evolution from the rivalry between local companies to a rivalry between regions. Sustained also by diverse political and economic programs (e.g. the European Funds for Convergence and Cohesion), regions became attractive if they included also industrial agglomerations. The form of collaboration and co-operation between companies that influences directly the development of regional industry is the *cluster*.
Further we will discuss the evolution of the concept and the range of its definitions.

2. Development of cluster concept

In his article "Entrepreneurship and Development: The Role of Clusters", Rocha (2004) makes an in-depth analyse of the cluster concept and emphasises the impact of clusters in the different stages of the industrial development. He starts with the late 19th century and the industrial labour division based on comparative advantage. He calls the time period between 1890 and 1920 as the genesis of the cluster. It is an incipient form of collaboration and location specific factors that companies use in order to increase their competitive advantages. He refers to external economies (economies of suppliers, economies of labour) which increase the efficiency of small enterprises. Between 1920 and 1970 he mentions the time period of industrial boom, restructure and investments after two World Wars, and high growth of production facilities and of demand. The focus is on high volumes, high margins; quality is not considered important. Starting with the 1970s the cluster concept comes to an "impasse", large companies are dominating the market, and they have the whole mass production facilities. These companies are not interested in collaboration or expansion on a horizontal level. The focus is on vertical integration, on economies of scale due to large volumes and predictable markets. The 1980s changed this approach. The IT revolution (computers are becoming more accessible and accepted), suspension of convertibility (the US Dollar doesn't have an equivalent in gold anymore) and oil crisis influenced the more complex markets; customers are more demanding. The socio-economists turned to the traditional areas of manufacture and looked for alternative ideas and business models especially for small and medium enterprises. The focus goes now to industrial districts in Italy where local social, cultural, political and historical factors influenced the efficiency of the business community and the social development. In the same time the institutional approach of clusters, turns to the concept of flexible specialization as an alternative to mass production. The main issue are economic growth and development, regions adopt a strategically orientation and the objective of local social development. Starting with the 1990s several school of taught refer to clusters in terms of flexible specialization as an alternative to mass production, transaction costs and competitiveness. Globalization grows rapidly and competitiveness goes from the companies' level to regional or national level (Porter Modell or Krugman's theory about New Economic Geography). Porter (1998) argues that productivity is directly influenced by the "national and regional environment for competition" and the quality of the business environment is built on the interaction between the context of firm strategy and rivalry, factor (input) conditions, demand conditions and related and supporting industries (Porter's diamond). On the other hand, Krugman (1991) stresses that concentration is the "most striking feature of the geography of economic activity" and the returns to scale on the fabric level motivates individual producers to concentrate geographically in order to benefit from the internal economies. Starting with 2000 factors like globalization, fast changing technology and deregulation of markets put pressure on governments, regions and businesses

to become more innovative and creative, to have access to qualitative information and to collect knowledge. The cluster is seen as an environment for innovation and knowledge spillovers and with major influence on the company performance and regional development.

The evolution of the cluster concept reflects the different stages in the economic development and emphasises the importance of industrial agglomeration and location factors, of inter-firms network and institutional networks between companies, non-governmental organizations and governments (Rocha, Sternberg, 2005).

The different school of taught bring in the debate the cluster definition. Economists, socio-economists, urbanism researcher, sociologists, economic geographers or managers introduced different approaches and views. This makes more difficult the acceptance of a unique definition of cluster and turns it also in a semantic issue.

In the following table we include some recognized authors and their contributions to the cluster concept.

Table 2. Cluster definitions

Author	Definition
Swann & Prevezer (1996)	"Clusters are here defined as groups of firms within one industry based in one geographical area."
Enright (1996)	"A regional cluster is an industrial cluster in which member firms are in close proximity to each other."
Feser (1998)	"Economic clusters are not just related and supporting industries and institutions, but rather related and supporting institutions that are more competitive by virtue of their relationships."
Swann & Prevezer (1998)	"A cluster means a large group of firms in related industries at a particular location".
Simmie & Sennett (1999)	"We define an innovative cluster as a large number of interconnected industrial and/or service companies having a high degree of collaboration, typically through a supply chain, and operating under the same market conditions."
Porter (2003)	"A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities."
Asheim, Cooke & Martin (2006)	"Clusters are composed of interconnected firms and associated institutions linked by commonalities and complementarities. (…) Clusters are spatially localized concentrations of interlinked firms"
Sölvell, Lindqvist & Ketels (2003)	"Clusters consist of co-located and linked industries, government, academia, finance and institutions for collaboration."

When reading these definitions we observe two dimensions of clusters. The first one is a spatial dimension, clusters are "based in one geographical area", or "in close proximity" and the second dimension of networking where clusters include interconnected companies from one or several fields. The network between companies, this interconnection raises the question: Is a cluster equal to a network? This answer has been searched by several authors. According to Rosenfeld (1997), Markusen () networks allow companies to access specialized services, when clusters attract companies specialized in different fields, at lower costs. Networks have usually a limited or restricted numbers of members, clusters are "open" for everybody. The membership in a network is established by a contract, in a cluster the projects are based on trust, reciprocity. Networks are focused on cooperation in common projects and fields, clusters ore oriented both to cooperation and competition.

Many scholars and politicians accepted very quickly the definition of Porter which is more pragmatic and business oriented. His main ideas are that (1) companies in a cluster are linked – vertical and horizontal, the social relationships between members produce benefits for all parts (e.g. knowledge sharing, promote learning, competence building) and (2) clusters are "spatially localized concentrations" (Asheim, Cooke & Martin, 2006, pp.10). Porter suggests also that the most competitive industry in a nation is likely to be geographically clustered. In his model, Porter identifies a number of mechanisms proposed to foster industrial dynamism, innovations and long-term growth. He builds on four intertwined forces:

(1) factor conditions – the classical production factors capital and labor force are changing into smart money, smart investments, specialized skills that fit with a specific economic activity;

(2) demand conditions – the demand is treated as a "primarily qualitative factor" and its sophistication drives companies to innovation and strong competitiveness;

(3) related and supporting industries – the proximity of the suppliers reduces the transportation and transaction costs;

(4) firm structure, strategy and rivalry – the location in the neighborhood of a competitor simplifies the direct comparison.

With this cluster approach known also under the name of "new competitive diamond" Porter shows that the interaction of these forces is enhanced if the actors are located in the same area, in proximity. Plus the intensity of interaction will make companies more competitive.

In general, we find two different approaches regarding clusters and their role in regional development. These different state of views refer mainly to Porter's definitions so we find adapts and critiques on his theories. One view (OECD, 2005, 2007, 2009) says that clusters are very important for the regional development; clusters are essential in innovation and openess, are the platform for the interaction between universities, entrepreneurs and authorities; the companies within clusters are more innovative, create work places, pay higher taxes and wages. The opposite

view represented by Asheim, Cooke & Martin (2006) criticizes the popularity of clusters and the overemphasize of co-operation, the power asymmetrics in supply chains wih larger companies imposing terms of collaboration. Porter is also criticized because he doesn't take into account the dynamism of spin-outs or the project focused activity. In the same time, his focus on the market, rivalry and competitive advantage is influenced by the present, and skips the fact that clusters develop in time, in some cases in hundreds of years.

3. Cluster typology

As we mentioned before the first reference about clusters comes from Marshall (1930), he named this type of agglomeration and cooperation "industrial district". Later in the 1960's Jane Jacobs, an economic historian studied the "economy of cities" (Jacobs, 1969) and underlined that, due to proximity inside, cities are very good platforms for innovation and knowledge and it is expected that clusters are sometimes equal to cities or metropolitan areas (e.g. media cluster in the London region).

Another point of view belongs to Markusen (1996). Her research question was: Why certain locations or spaces were able to attract investments and others seemed not? She put for the first time clusters in categories and identified the following:

a) "Marshallian" cluster – based on the observations of Marshall, these clusters are formed by SMEs with strong relationships, and interlinked;
b) "Hub and spoke" - the main member is one big company, with SMEs as suppliers, it functions on the principle of a hub and the large member establishes the cooperation conditions (e.g. automotive industry in Detroit, USA or in Pitesti-Mioveni, Romania)
c) "Satellite platforms" – the geographical dimension is very important, members are branches/fabrics of medium and big companies with a minimum of cooperation and interconnections;
d) "State-anchored" – are founded by state-owned companies, with relationships with specialized suppliers; the development on medium and long-term is dependent by the finance schemes of the government.

The author investigated especially the role of state in the regional development policy as well the role of MNCs in the formation of industrial districts. She stated also that in real life several forms of clusters may co-exist and the structure of a cluster may change in time.

The Scandinavian school of taught represented here by Sölvell, Lindqvist and Ketels (2003) makes an interesting differentiation between static and dynamic clusters. They underline that the evolution of a cluster is directly influenced by the microeconomic environment and the general business environment. A dynamic cluster benefits from strong business environment factors and tends to transform its members into internationally competitive companies, where a static cluster tends to "produce" only locally competitive companies.

Porter (2003) doesn't define different clusters; he focuses more on regional competitiveness and on the type of industry which influence the typology of the local clusters. So, he identifies a resource-dependent industry (operates on natural resources), a local industry (focuses on the local needs) and a traded industry (with activity both on local and regional level).

A political based approach comes from Enright (2000) who identifies in his work four types of clusters:

(1) Latent clusters – there is a critical mass of companies in related industries, who can benefit from a cluster, but the link between them is not strong enough to benefit from the co-location factors; usually there is a lack of information about other local companies, lack of trust, no common projects;
(2) Potential clusters – we can find the necessary elements for a cluster, but the lack of interaction, or the gaps in the services and information flows impede the cluster development;
(3) Policy driven clusters – are supported by the government usually based on other type of factors besides the economic factors; this type of clusters are failures or have a short life cycle;
(4) Wishful thinking clusters – are ideal types of clusters, policy driven clusters without any critical mass of companies.

Gordon & McCann (2000) introduced a cluster typology based on the relationships and links between its members. They identified "pure agglomeration" with co-location but no internal links, "industrial complexes" with companies linked by internal market relations and clusters centered on "social networks" with long-term orientation and complex relationships.

The diversity of cluster typologies is completed also by the hierarchy developed by the EU in different documents and position papers. In the Observatory of European SMEs, No.3/2002 the cluster concept is described as a "spontaneous phenomena", a group of local companies developed through entrepreneurial activity. EU adds to the cluster concept another two types of economic agglomerations. The regional innovation network is a "more organized co-operation (agreement) between firms, stimulated by trust, norms and conventions, which encourages firms" (pp.14) and the regional innovation system is also a co-operation between local companies but with the objective of "knowledge development and diffusion" (pp.14). These two new types are in debate when speaking about public policies in the field of competitiveness and innovation.

If we compare the different types of clusters and add also the typology of the EU we observe that clusters can be policy driven clusters (the government plays an important role, different financing schemes attract companies usually to underdeveloped regions), or private-sector driven when local companies recognize a bundle of factors and competitive advantages that can help improve their strengths and increase the competitiveness.

4. Cluster measurement

The lack of a unique definition makes very difficult in analysing and measuring the efficiency of clusters. The simplest way to measure the success of a cluster is the input-output analysis which is centred on the idea of inter-sector transactions. The outputs of a sector are inputs for another. This analysis is made with input-output tables where each column represents the monetary value of the inputs and each row the value of the outputs. This analysis is a linear and a static one, when in real life the business relations are influenced by a large number of factors. The disadvantage of this model is the need of relevant and qualitative data, and the long time for the collection process. In general, input-output tables are published few years after the collection step.

The most common way to measure the efficiency of a cluster is to mix macro-economic with micro-economic indicators and information. The list with macro-economic indicators can include: jobs created by the cluster, economic growth, turnover, exports and imports of the cluster, level of overall investments etc. The micro-economic information can round the opinion about cluster performance, we may include here: concentration (the distance between the members, and between cluster and the labour pool), company performance within the cluster, local connections and networks, customer perspective on the quality of goods and services, internal aspects of the companies, cooperation etc.(Mayer-Stamer and Harmes-Liedtke, 2005). The list with macro- and microeconomic indices can be extended and adapted on the specific of the cluster.

In the same time when visualising particular networks and their activity, and measuring their importance in a region we may use a mix of quantitative and qualitative data.

From the quantitative data we mention the importance of the cluster in the region, size and concentration, specialization of the cluster, export ratio and innovation. The qualitative data are more complex and refer to aspects like geographical concentration (e.g. concentration of an industry in a particular area), the existence of universities and research institutions in order to develop R&D activities, the availability of human resources, the quality of the education system, the level of cooperation, the existence of "catalyst/promoter" institutions (centres for technological transfer, commerce chambers etc.).

5. Clusters in the Romanian public debate

Cluster as a buzzword equivalent to economic growth and regional development was quickly embraced by national and international organization, and politicians, in general.

The success of the cluster concept and the high visibility between scholars and politicians is recognized by the many books (Karlsson, 2008, Cooke, Lazzeretti, 2007, Pitelis, et al, 2006), publications and reports of national and international organizations (OECD, 2005, 2005, 2009, European Commission,

2007, Observatory of European SMEs, 2002) and a long list of scientific articles published on this subject.

This high interest comes from the presumption that clusters have an important impact on the firm performance, regional economic development and nation's competitiveness. As a consequence many national reform programs and industrial policies include cluster strategies and cluster initiatives programs as tools for economic development. Romania is no exception and starting with the late 90's we find a list of actions and documents referring to the ideas of regional development and competitiveness by introducing the cluster concept.

The thinking in the EU accession process was to develop the industrial policy of Romania based on competitive economic agglomerations. This was the starting point for diverse projects in order to create a map of the emergent regions and industrial developing regions. The report „Clusters and Potential Clusters in Romania" (2010) made by Gesellschaft für Technische Zusammenarbeit (GTZ) for the Ministry of Economy presents observations based on secondary data and workshops about potential cluster in different regions of the country. The map is divided into eight development regions and for each has been created a list based also on the local and regional industrial and economic traditions (e.g. region South-West – Craiova – identified clusters in the automotive industry, or South-East – Braila – identified clusters in agro-food). This mapping exercise used five criteria for cluster identification: (1) concentration, (2) R&D units, (3) labour force, (4) cooperation and (5) service providers.

After the 2007 accession, Romania adopted the plans of EU which concentrate more on the industrial policy and looks in an integrated vision to the major themes of poverty, competitiveness, climate change, energetic efficiency, education and occupation. The plans for 2007-2013 imposed a series of objectives regarding cohesion, regional competitiveness, occupation and European teritorial cooperation. The Member States were obliged to include in their national strategic plans measures for the fulfillment of these objectives and to regard the teritorial development as a distinct option of economical initiative (Cojanu, 2010).

Romania adopted a series of documents which refer to the EU objectives, we mention here: the National Plan for Development, the National Strategic Frame, the National Reform Plan 2007-2010, the National Strategy for Sustainable Development, the National Strategy for Research, Development and Innovation 2007-2013, the Strategic Concept for Teritorrial Development – Romania 2030. The main objectives are to orientate the industrial policy towards innovation and modern technology, to „the consolidation of the competitive innovative clusters on local/regional/national/transboundary and transnational level" (The National Reform Plan, 2011) by encouraging partnerships with enterprises, universities and research institutes, and public administration.

In the time period 2011-2012 the authorities have financed projects with the scope of identifying new regions with agglomeration potential, economically strategical sectors, ways for involving SMEs in partnerships, benchmarking of clusters in comparison with EU clusters etc (The National Reform Plan, 2011). The

finance of the projects and initiatives is insured by the European funds (JEREMIE intitiative), state founds through the Ministry of Economy.

The classical concept of cluster was translated by Dzisah and Etzkowitz (2008) in the so called triple helix theory, the three main actors companies, universities and institutions, and government work together and co-operate. In the Romanian public debate this theory was extended to a „four clover model", where a fourth part comes in the network, the facilitators, mainly business consultants. The reason is the lack of trust and communication between companies and universities, or companies and local authorities. The model of triple helix is a macroeconomic model and it might be suitable for our country because the state is still in a high proportion centralized and companies have difficulties in lobbying for a better business environment. Some characteristics of the Romanian business environment hinder the deepening of networks similar to clusters and makes more difficult to develop economic agglomerations and increase competitiveness of local companies. Main characteristics are: concentration of industry in highly specialized industrial districts (Pitesti, Galati, Brasov); no or weak linkages between actors – managers regard higher education institutions as too theoretical, universities say that companies are too superficial; high unemployment in regions where large state-owned factories once where the sole employers; regional disparities because of the FDI, investors preferred to locate at the Western boarder – to be more closely to EU (e.g. Timisoara and Cluj counties); lack of infrastructure – few highways; difficult to keep educated people in small and medium cities, in general, a young graduate is attracted to work in a multinational company – with a high wage than in a Romanian SME; lack of trained personnel in state institutions; to many changes in government, no clear long-term orientation and strategy of the different governments; no clear image about the strategic priorities (strategic industries of the country); lack of social capital etc.

That is why we can explain that clusters are still underdeveloped in Romania and we are still in the pioneering phase of economic agglomeration, in modern context. We refer to the fact that the state is promoting through workshops the idea of cluster, and introduced in several national programmes financing schemes, this leads to the situation where many clusters were founded in order to access money. On the other side, natural clusters were build with the scope of better positioning of the members, access to services and information, strategical partners, joint national and international marketing and sales activities (e.g. Automotivest Regional Cluster, ProWood Regional Wood Cluster).

Conclusions

Clusters are related directly to regional development in industrialized economies and many local examples show that in the regions with clusters the unemployment rate is much lower.

We emphasized that clusters are very popular today, especially in the modern economic thinking and many governments try to impose this concept. The

variety of definitions, typologies and measurement techniques makes more difficult the proper use of this concept.

The reason why clusters became so popular at the state level is the fact that states are becoming poorer. They are unable to provide an efficient management, costs are reduced, subsidies are diminished, and practically there is a transfer of authority, funds and performance expectations on the regional level. The state sustains the development of regions, with the objective is to administrate money at regional level, with less bureaucracy and costs than organizing all the activities at the central level. Plus, at the regional level by financing local projects the needs of the community can be solved much better and efficient.

The mapping exercise of clusters, which was done also for the Romanian industry tries to implement the idea that the structure of a successful industrial agglomeration can be imposed anywhere. We know that in the real life, productivity and competitiveness depend on a complex group of quantitative and qualitative factors, and what fits the Eastern regions of Germany doesn't necessary fit to Southern Italy.

Clusters bring benefits in form of firm productivity, wages and employment levels are higher in these clusters than in the economy as whole; regional specificities, greater knowledge circulation. Sources of risks associated with clusters may be the risk of vulnerability if the region's portfolio of clusters is too concentrated (the case of closing the Dacia plant in Romania and moving it in Marocco); risk of regarding cluster equal with competitiveness (being a member of a cluster doesn't mean automatically to become competitive); firms in a cluster may become too inward looking or rigid (lock-in effects). The co-operation within the cluster can be sometimes assymetric, if we refer to the "hub and spoke" model of Markusen than the larger companies have a stronger bargaining power and can impose much easy its conditions.

Because there isn't a unique understanding of clusters, the concept has become in many public discussions a buzzword, and in many policies an objective per se. On the contrary, clusters should be regarded as a tool for innovation policy and, in general, for economic development.

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