THE ORGANIZATIONAL BENEFITS GENERATED BY THE MEMBERSHIP TO A CONGLOMERATE OF REGIONAL CLUSTERING TYPE. THE IMPLICATIONS OF "ROŞIA MONTANĂ PROJECT" ON CREATING A MINING CLUSTER IN THE "APUSENI MOUNTAINS" AREA FROM ROMANIA

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ABSTRACT: Starting from Michael Porter's statement, according to which the cluster, the simple concentration, pack or spatial, territorial agglomeration of SMEs, specialized in a field (service, product, knowledge) or interrelated areas, can generate sustainable competitive advantages in the market (including global) in this sector of specialization, in this article I will try to address the issue regarding to the implementation of regional cluster concept and of sustainable regional development in the "Apuseni Mountains" area, taking into account as nucleus the mining project from Roşia Montană (Romania), which could represent a real lever and a good example for stimulating the mining industry competitiveness, both at regional and also at national level. The idea of designing a regional cluster model, that has as "motor drive" the mining project from Roşia Montană, which otherwise should be like a point of "concentric radiance" in the purpose of launching of new economic activities and of developing of new specialized firms, could contribute to the increase of employment and of competitiveness of the companies in the region and implicitly to the improvement of the life of communities in which the cluster will be implemented, bringing also significant benefits to the Romanian state, both directly, but also indirectly through the multiplier effect and thus providing an example of good practice for other initiators of regional clusters.

Keywords: regional mining cluster, "Roşia Montană Project", sustainable development.

JEL Codes: L14, L26, L72, M13, O20, O40, P13, Q01, Q31, Q32, R12, R58.

Introduction

In contemporary literature there are a series of concerns, studies and researches related to "marshallian rediscover", that one which refers to those ideas and theories pertaining to the concepts of "cluster", "pole of competitiveness" or "industrial district", invented by the English economist Alfred Marshall almost 100 years ago. Kajikawa et al. (2010) mentions that Marshall never used the "cluster" term in his writings, instead he developed in 1920 the notion of "industrial districts", as agglomerations of firms operating in one industry sector in a well defined and relatively small geographically area. In the same direction, Zaratiegui (1997) notes that Marshall has defined this industrial districts as being an "an area of mutual commercial, social and technical understandings, which connects the entrepreneur even with his rivals, whose innovations provide him stimulus and information".

In Porter's (1998) view, the regional clusters are defined as "geographic concentrations of interconnected companies and institutions in a particular field". The regional clusters are distinguished from pure or traditional agglomerations through their interconnected nature, for

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example the clusters are characterized as collaborative networks and concentrations of collaboration and competition, which offers significant opportunities and stimulates the economic development (Porter, 1998). Another feature of regional clusters refers to the diversity of actors that it contains. According to Porter (1998, 2000), an industrial cluster includes suppliers, consumers, adjacent industries, governments and support institutions such as universities. The local clusters can provide more opportunities for innovation than scattered locations, fact that is determined by the reduced transaction costs, by the access to venture capital, by sharing of local labour market, by the entrepreneurship activity within region, by the increased diffusion of knowledge and by located learning within an area.

In another article in Business Economics, Porter (1998, p. 10) adds the following: "A cluster is a critical mass of companies in a particular location, whether it is a country, a state, a region or even a town. The clusters take different forms depending on their depth and specialization, but often include a group of companies and suppliers of specialized inputs, components, machines, resources and firms in related industries". One of the best examples of cluster is Silicon Valley in California, which is composed of specialized and flexible companies at a high level, which have agglomerated for sharing the external economies of scale in materials, qualified workers, new technologies and market information, such that its competitive environment encourages the creation of new businesses, aspect which in turn provides more jobs and compensatory factors for supporting the further development of cluster (Akoorie and Ding, 2009).

The policymakers, the universities or the research institutes have realised and revealed the special capacity that the firms own within a network cluster. As a result of the cluster ideology, the corporations are decentralizing themselves and are strengthening themselves simultaneously with outsourcing of services in an effort for achieving more large economies of scale (Hood and Peters, 2000). Particularly, the accent is put on learning and on knowledge diffusion through regional networks, because the contemporary economy is considered increasingly more as being a knowledge-based economy, meaning the economy where the knowledge is the most important resource and learning is the most important process (Bergeron et al., 1998), so in terms of this aspect it can be said that the information and implicitly the knowledge is probably the most valuable organizational resource, the most valuable intangible asset which can generate innovativeness and competitive advantage at a high level for the companies belonging to a cluster, but not only.

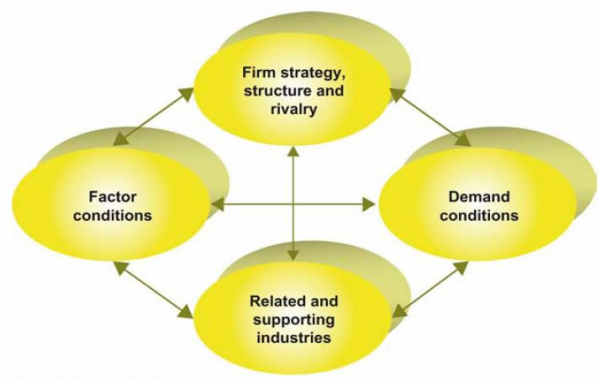

Figure no. 1 - Porter's Diamond of Advantage

Source: Porter, M.E., 1990. The Competitive Advantage of Nations, The Free Press, New York, NY, p. 72 in Campaniaris et al., 2011. The applicability of cluster theory to Canada's small and medium-sized apparel companies, Journal of Fashion Marketing and Management, Vol. 15, No. 1, p. 16.

The modern concept of industrial cluster describes the factors that Porter (1990) determined them in creating the competitive advantage for firms (Campaniaris et al., 2011), according to fig. no. 1.

The factor conditions refer to aspects such as natural resources, skilled workforce, infrastructure and the progress related on technology, while the demand conditions or the nature of local demand to aspects such as the products and services of the industry. The companies strategy coupled with their structure and rivalry with other firms make reference to the conditions that shape the attitudes towards competition, to the degree of national competition or to other factors that affect the way in which companies make business between them, as well as to their workers and why not to government and to local authorities. Not least, the presence of related and supporting industries, which include internationally successful suppliers and competitors, stimulates the cooperation and the competitive rivalry.

In further of this article, I will briefly mention in chapter two certain approaches from the specialty literature related to the concept of cluster, from the point of view of different authors, for that in chapter three to mention about the research methodology used in this paper. After that, in chapter four I will highlight the main directions of manifestation that take place within the regional clusters, for that in chapter five to propose a potential concrete model for regional clustering which has as triggering factor or "nucleus" the mining project from Roşia Montană (Romania), a project which by an innovation of the spatial organization of its related activities should represents the "springboard" of the regional clustering phenomenon, with immediate effects over others mining geographical areas in proximity. In other words, it could trigger latent energies and synergies between the components of the mining cluster, developed and animated by the mining profile of areas which used to be in the days of old and especially during the communist system trully Romanian profile industries, but which unfortunately in the last decade have begun to disappear, from different reasons more or less objective. The article ends with a chapter of conclusions and with the related bibliography after studying the specialty literature.

Literature review – approaches to the concept of clustering

In his paper about the Marshallian orthodoxy challenge related to industrial clustering, Akoorie (2011) is making a presentation of all organizing forms of clustering type in human history, starting from traditional guilds of different industries, which were representing real knowledge repositories and highly skilled workforce and up to the modern clusters from contemporary period, which have as the main characteristic the geographical proximity. Related to this aspect, Porter (2003) suggests that one of the most notable features of regional economies is the presence of clusters through the close geographically concentrations of interconnected industries. The interconnected companies within this industries are suppliers of goods and services or those which are part from associated industries in a particular field which are outsourcing different needs to others, such as skills, knowledge and purchased inputs.

Zaretiegui (1997) mentions about "the central trinity" of Marshall's thinking. Thus, the first part comprises the paradigm according that a geographically concentrated industry supports the specialized suppliers of inputs. The second part of this trinity refers to the concentration of the "same type" of workers which provides a common labor market, while the third part suggests that the geographical proximity facilitates the spread of information. The symbiosis between knowledge and organization is the driving principle behind the idea according to that a mutually beneficial relationship it is produced in the industrial environment between the creation of new information and organizational improvement of the firms concerned.

According to Zelbst et al. (2010), a review of previous research revealed that there are three typologies of clusters, namely that of Porter's (2003), Eden's (2002) and Markusen's (1996). Porter (2003) identified three types of clusters: the local industrial clusters, the dependent clusters of

resources and the traded industrial clusters. Eden (2002) found that the clusters can be described as being horizontal (specialization) and vertical (complementary). The Eden's simplistic approach in the classification of clusters indicates in fact the features of clusters rather than the types of cluster. The level of specialization and complementarity searched in an area by cluster formation corresponds closely with the efficiency and effectiveness level of cluster, it is shown in a study by Zelbst et al. (2010). Markusen (1996) used the geographical and economic characteristics in the study of cluster formation around oligopolistic industries to identify the types of clusters formed within metropolitan areas. Markusen's typology is based on the type of geographical area, on the public or private investment decisions, on the availability of workforce and on the value of commercial exchanges within and outside of cluster.

McEvily and Zaheer (1999) explored the social, professional and economic networks of a geographical cluster and the relationships of networks with the company's competitive capabilities. They found that firms within a regional network of companies have some new ideas, informations and opportunities by the links between them and by the institutional links. In this sense, the transfer process of knowledge which takes place within a cluster gives rise to a cumulative local know-how, which transcends the boundaries of a firm, but in the same time remains in the region (Capello, 1999). Karaev et al. (2007) proposed the revision of cluster effect approach concerning the competitiveness of SMEs, in the sense that the primary objective is to use the cluster approach within the SMEs as a tool to deal with their challenges related to globalization and trade liberalization, in the same time with the investigation of its contributory factor on the growth of their competitiveness.

Kajikawa et al. (2010) analyzed from a multiscale mathematical perspective the inter firms networks in the regional clusters from Japan, while Zelbst et al. (2010) address the location decisions within a cluster, stating that these are among the most expensive strategic decisions that an organization makes and moreover the location of an organization may be a key strategic advantage. The organizations can make efforts to achieve a competitive advantage through location decisions because of knowledge transfer and innovation, of specialization and of complementarity (co-agglomeration).

DeWitt et al. (2006) aimed to demonstrate the link between the Porter's cluster theory and supply chain management and to provide evidences of their potential positive impact on firm's competitiveness and business performance. In this sense, the authors addressed a practical example, using data from a case study related to the Amish furniture industry in the location Homes County, Ohio, USA. Using this case study, respectively a representative furniture firm as example, their research shows the positive impact of operating in an integrated supply chain within a geographically concentrated cluster and also highlights the competitive advantage that it causes the supply of firms within a cluster.

Akoorie and Ding (2009) aimed to examine the relationship between the regional clusters and regional economic development in a less developed geographic area in China, while Adebanjo et al. (2006) proposed the concept of e-cluster, within the technological developments allow widely to dispersed organizations to cooperate using the internet, so that this e-clusters can therefore be seen as facilitators of "digital proximity".

In another approach, Jahre and Jensen (2010) proposed a phenomenological approach, in the sense of solving problems related to the coordination in providing humanitarian aid through clusters, as a solution to the lack of a coordinated response to disasters. In authors opinion, the purpose of their research was to contribute to a better understanding of potential of the cluster concept using supply chain coordination and inter-cluster coordination.

Research methodology

In this chapter the research methodology that I used it is based primarily on the identification from the specialty literature of the main characteristics that involve the existence of a regional cluster, for then to implement these features within the proposed mining cluster from "Apuseni Mountains" from Romania, which should have as strategic point of starting the "Roşia Montană Project", a project situated strategically in the middle of all the economic activities within the region. After identifying these aspects, I will shape in chapter five a regional cluster model within "Apuseni Mountains" area, a zone which by definition and tradition is a mining one and which through the starting of "Roşia Montană Project", could be a booming mining cluster, reviving either the other ex-mining areas nearby. Moreover, a benchmarking tool in necessary for analyzing also other mining projects of the same type from the world, which through their development are contributing to the sustainable development of the area in which take place. In this context of sustainability, another indicator that I will follow in my research and which could otherwise be a major factor for developing a mining cluster refers to the amount of subsoil wealth (gold produced) within an area, aspect that is correlated or has a directly proportional relationship in my opinion with the number of jobs and of SMEs that will be created within the mining exploitation and which in their turn are correlated with the welfare of the comunities from the area through the indirect employment created within region.

Theoretical aspects related to clustering development and design

As an overall vision, for developing countries and especially for a developing country like Romania, there are increasingly more significant beliefs that industrial clusters are facilitating to firms to compete in a performant manner even in distant markets as a synergistic whole. Such a phenomenon can be observed within SMEs in many developing countries which may don't have the necessary internal market for economic growth and have a lower infrastructure and a limited support for industry (Niu, 2010). In the context of the mining profile of "Apuseni Mountains" area, the regional clusters have sparked an increased interest as a concept for understanding of outstanding skills of some regions and also for stimulating and supporting the regional economic development. The knowledge which is accumulated, shared and generated through network, is a key factor regarding the competitiveness of a cluster. This aspect is more obviously as in the area exist some latent energies and synergies, triggered by the past activities, like in our case related to the mining activities around "Roşia Montană Project". The main reason for that a network is superior to a firm is the greater diversity of resources and knowledge within a network than within a firm. The idea of cluster is used more and more in planning policies as the firms and maybe authorities or governments realize the benefits that are generated by it. Moreover, many companies and societies notes that the cluster organization can be used in the benefit of development of an economy.

The geographical proximity creates competitive advantage for SMEs, which cooperate and compete closely, fact demonstrated by Porter (1998), which states the following about the essence of a cluster existence: "a system of connected companies and institutions whose value taken as a whole is greater than the sum of its parts". The competitors within the cluster will benefit from the agglomeration effects in a way that they will achieve cost advantages and will have access to resources which are not available to the competitors that are not located within cluster. It will also be created the so-called "tacit knowledge", which is a great source of generating of competitive advantage and that doubled by the trust between the cluster members represents the intangible assets of the cluster, which unlike the financial and physical ones, are difficult to be imitated by competitors, being so a powerful source of generating of sustainable competitive advantages

(Kaplan and Norton, 2004). The geographic proximity reduces the transaction costs (for example, the delivery costs) between all the stakeholders which are in the value chain and other related institutions that are close to each other, so the transport costs are reduced due to the short distances, fact that also reduce the risks and therefore the insurance costs. This aspect could be applied easily within the issues related to the transportation and manipulation of cyanide for example from the mining industry, or in the same tine in the case of other hazardous substances used in mining industry, in order to reduce the potential risk of pollution and the costs associated with it.

By the introduction of cluster model, Porter (1998) proposes that in the future the competitive advantages of firms will not be mainly determined by a greater efficiency in the supply of inputs, but rather through the ability of firms to exploit the available resources wihin cluster or network of individuals and local companies in which they operate. In this sense, he suggests that a greater competitive advantage can derive from the examination of business environment outside the firm, rather than on what happens inside the firm. Related to this fact, for example, in an area and within a context where some latent energies and synergies exist already, it could be more easily created a specific cluster focused on the specific field of activity that exists or existed in that area. In this sense, I will shape a cluster of this type with these features in the following chapter.

In order to respond to increased pressure caused by the globalization process and for benefit of global market opportunities, the SMEs have started to face two major challenges: the first one to transform themselves and to increase their individual competitiveness and the second one, due to their limited size, to benefit from the synergy effects created by entering in relations of cooperation with other SMEs and related partner institutions (Karaev, 2007). In the same time, the government policy at the macro level must try to improve the competitiveness of national economies by creating the conditions in a favourable framework for the economic activity development and by the promotion of various instruments and measures for the development of competitiveness of SMEs, in the perspective of strengthening regional and national economies by implementing in an efficient manner the concept of cluster. The clusters often include strategic alliances with the universities, research institutes, corporate services providers (brokers, consultants) and with the clients (Porter, 1998). The proximity helps to establish cooperative ties between companies by strengthening of mutual learning and by creating of knowledge which in turn propagates in organizations because of this cooperation and trust between them. The high concentration of SMEs, both in terms of suppliers and demand, but also of institutions which support the cluster, can contribute to a high level of specialization. Similarly to infrastructure, the existence of specialized companies attract potential participants within cluster and when they are attracted, they generate an additional pressure for further specializations, this phenomenon being interpreted as “economies of expertise” (Karaev et al., 2007).

In an economic environment characterized by radical changes, the ability of firms to exploit the opportunities that arise, to continuously adapt to market demands and to counter in an efficient way the actions of competitors is an extremely issue. A flexible organization provides modalities for a company to continue the innovation and allows the adaptability to changing circumstances. The SMEs must realize that their flexibility and their capacity to react to changes and to remain continuously open to innovations will represent a crucial factor for future. In high technology industries and in dynamic industries within a cluster, the process of innovations is more frequent, fact that shows a high level of local co-operation with suppliers and universities (Karaev et al., 2007).

The clusters offer a suitable environment for creating of new start-ups, from several reasons: the entrepreneurs who work within a cluster can easily perceive the unmet needs in their geographic area and using the necessary assets, the competencies, the inputs and the personnel available within cluster location, can form a new enterprise (Porter, 1998). An entrepreneurial environment encourages and enables an entrepreneurial spirit in ways that generate opportunities and create

conditions for the creation of new SMEs, this critical mass of SMEs being actually the crucial factor for cluster development.

Following researches, Frisillo (2007) admits that the basic elements of a cluster contain the following directions: the geography, the role of government, the entrepreneurship spirit, the presence and activity of SMEs, trust, cooperation and the creation of networks. The geography plays a very important role in the formation of a cluster, because the industries or sectors which are located in a certain geographical area will create an interdependence between firms, so they will be linked by a common specialization or sector. It is very important for the firms in a cluster or for clusters to be in the same geographical region in order to be close to the competition, customers, products and services or to suppliers, aspect that will help to streamline activities. More over, where there is a proximity between the above factors, the ideas are spreading more easily and new innovations are developed. The final result will be that the strong regional clusters will evolve and this fact will attract different buyers or even investors from different parts of the world who seek specialization.

Another element which is essentially relevant in the implementation of cluster strategies is the cooperation. The firms that are participating in a cluster should be open one to another and also should be able to share any risk involved. The trust would also be another aspect to be considered within an alliance or a cluster, because where is trust, new markets are starting to take birth, because the companies can share knowledge in a more honest way, without fear that they will not win anything (Lorenzen and Maskell, 2004). Thus, within cluster there must exist trust and cooperation to achieve an economic advantage.

Another direction to which a cluster must identify itself is the innovation. The pressure that is created because of the competition within cluster is a consequence of the results of innovation and of the fact that companies are obliged to continuously innovate. The driving force behind the innovation is represented by knowledge, as Frisillo (2007) states. When a company knows its customers and has expertise in designing and creating of products, the innovation arises. The new inventions and technology that are created as a result of sharing knowledge create a good basis for cluster and also for local business economy (Forsman and Solitander, 2003). Of course, this innovativeness and this knowledge sharing it can not be achieved only by the action of entrepreneurs and of SMEs. Many entrepreneurs were initially employed by the large companies in which they acquired a certain experience and tacit knowledge I could say, aspects that have developed their skills and contributed to the development by them of “start-up” and “spin-off” businesses, which often manifest in concrete plan through SMEs. The clusters are beneficial for SMEs because they contribute in increasing their power and their capacity to compete and also in stimulating of their process of innovation, ensuring so the efficiency and performance of activities and the achievement of economies of scale.

The competition within a cluster has a major influence on its overall performance, because of the following reasons (Porter, 1998): increases the productivity of firms from a local area, motivates the creativity and innovation and the direction towards they are moving and also stimulates the creation of some new businesses. When the firms compete within a cluster, this aspect has an effect over the national competitive advantage, which is gained through the development of cluster. The government and generally the state can play a very important role in the formation and later in the development and sustainability of clusters and they can act as a catalyst factor for the formation of clusters in order to ensure the economic sustainability. Porter (1998) mentions that it takes about ten years for a cluster in order to achieve the expected competitive advantages, so that once this advantages are achieved, the clusters will bring success for decades to come.

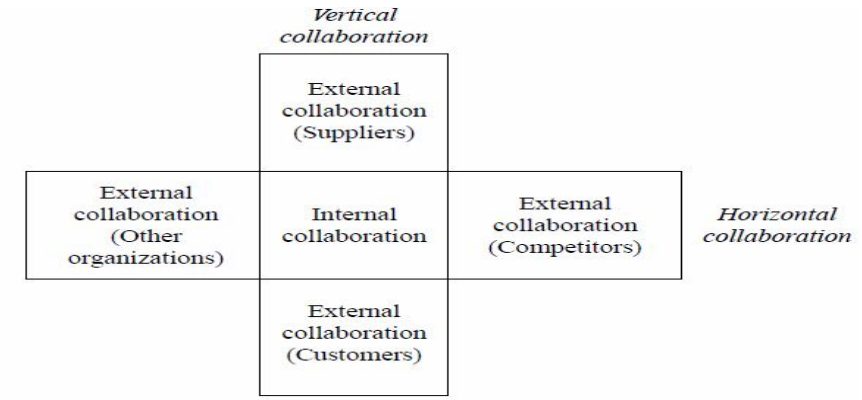

Figure no. 2 – The horizontal and vertical cooperation

Source: Jahre, M., Jensen, L. M., 2010. Coordination in humanitarian logistics through clusters, International Journal of Physical Distribution & Logistics Management, Vol. 40, No. 8/9, p. 665.

Porter (1998) defines the cluster as being "the geographical concentration of companies and interconnected institutions in a particular field" (p. 78), which "allows to each member to benefit such as being on a larger market or as they would be joined with each other without sacrificing the flexibility" (p. 81). In accordance with this, Patti (2006, p. 266) admits that clusters include upstream and downstream customers and often "are extending horizontally towards producers of similar and complementary products requiring the same basic skills, raw materials and specialized equipments". "The clusters benefit from competition and from cooperation through the increase of productivity because they provide a better access to employees, suppliers, public institutions and specialized information, increasing so the availability of complementary products and services" (Patti, 2006, p. 267) and providing a better motivation and performance measurement through the process of benchmarking. Related to this process of benchmarking, I will address in next chapter the issue related to other similar mining projects around the world, projects that have contributed to the sustainable development and to the welfare of the region within they have been conducted.

DeWitt et al. (2006) mention that cluster theory builds on the advantages of inter-firm cooperation promulgated by the theorists of supply chain. The supply chain management integrates processes and builds long term relationships among the companies involved in the flow of products and services from their source to the end users. The supply chain may consist between the company and its immediate supplier and customer (a direct supply chain), or it can be extended to all organizations upstream and downstream starting from raw materials suppliers and finishing with the final customer (end supply chain). For example, IBM is a part of a network of supply chains, since it is a customer in a supply chain (for server components), a provider to another (to the CompUSA for laptops), a partner to another (Linux software) and competitor in another chain (Apple for desktop PCs).

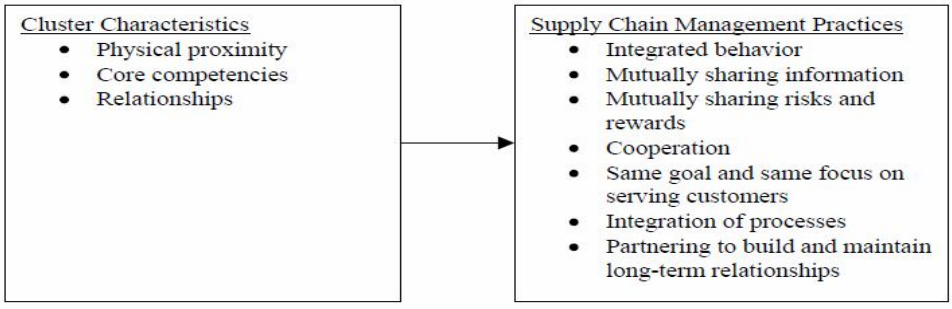

Figure no. 3 - Relationship of Cluster Characteristics to SCM Practices

Source: DeWitt et al., 2006. Clusters and supply chain management: the Amish experience, International Journal of Physical Distribution & Logistics Management, Vol. 36, No. 4, p. 295.

The SMEs sector is generally considered the backbone of the economic structure in many developed and developing countries (Campaniaris, 2011), being important to increase both the regional economies but also of the national economies, because it creates workforce, contributes to economic growth and it is a model of transition for the emergence towards the large companies. The gradual decline of trade barriers forces the SMEs to think globally and it's becoming increasingly necessary for them to be internationally oriented and to be competitive in the perspective of being effective in their domestic markets, but also in the international ones. This suggests that in order to succeed, the companies must in the same time compete and cooperate, this fact being more important as these firms are integrated within a regional cluster. With other words, we can conclude that SMSs represent the main actors of a cluster and also, according to Szabo (2003, p. 19), SMEs are considered to be the main driving forces in the economic development perspective, because of the following reasons: SMEs stimulate the private property and entrepreneurial skills; SMEs are flexible and can adapt quickly to the change of market demand and to the supply situations; SMEs generate employment, through this contributing to the poverty reduction and combat; SMEs contribute to the diversification of economic activity and have a significant contribution to exports and trade and not ultimately SMEs contribute significantly to local and regional development.

"Roşia Montană Project" – the strategic stimulus of generating a regional mining cluster within "Apuseni Mountains"

The mining project from Roşia Montană is a project of a primordial strategic importance for the mining industry and for the economic development in an emerging country like Romania. The gold and silver minerals resources from this area, in the case that the project will receive the positive opinion for exploitation, will generate the largest mass of precious metals deposits within the largest project of this type in Europe, so in this context the "Roşia Montană Project" could be a motor of development of "Apuseni Mountains" and "a springboard" of what the regional cluster concept means. Once with the start of this so publicized mining project, besides Roşia Montană, it could be reopened other mines of gold and silver from area, such as those of Gura Barza-Brad, Baia de Arieş or Certege, where there is overall reserves of gold, silver and other minerals even higher than in Roşia Montană and perhaps it could be reopen some coal mines from Jiu Valley, which could provide to Romanian country some more cheaper energy reserves. Besides these, Zlatna or Abrud, localities in the vecinity of Roşia Montană, with old mining experiences, but where the activities are currently suspended, could represent reference points in reviving this industry within area. These aspects could contribute to the creation and to the development of what is called a regional cluster, which would bring together firms and profile institutions, universities, research and development centers as well as local and national public authorities. In this context, is very probably to be triggered latent synergies and energies specific to the concerned zone, because all this area is practically a mining one, with tradition and experince behind, but one which has not been exploited in consistent parameters from the time of the old communist system of Romania, existing so a real need for introducing of some viable and healthy principles of capitalism in area, with emphasis on the private property and on the creation of SMEs and having as finality the formation of a regional mining cluster. In the centre of this framework and accordingly to the ideas of Zelbst et al. (2010) related to the location decisions within a cluster, the "Roşia Montană Project" could be the main pawn and the triggering factor of reviving the mining industry in the area.

Karaev et al. (2007) mention about the fact that although there is an abundant literature about the topics related to cluster, many of them referred to the experiences from industrialized countries in which the clusters have brought positive effects, but regarding the emergent countries, in reality there is no strong evidence that a cluster policy brings an additional positive effect to the existing policies for SMEs, fact that in my opinion is not entirely real. I say this because I think that

the performance of each type of cluster is conditioned by the typology of industry that it is developed and by the existence of some latent energies and synergies, so that in an emerging country like Romania and especially in a former mining area strongly industrialized more than a decade ago, can be triggered these latent synergies and energies, having at base the clear objective of sustainable economic development through the exploitation of natural resources and through the development of support and related industries within a competitive cluster. Of course, the previous statement of Karaev et al. (2007) have somehow an objective cover, in the sense that the developing countries require a period of time for adapt to the contextual framework of cluster policies and for the implementation of some paradigms and appropriate directions with this concept, in a context of mutual trust between cluster's members and of support from the relevant competent institutions, but not only.

According to figure no. 4 below, for forming of a cluster into a certain region is needed of cumulative fulfillment of at least four objectives: geographic proximity, entrepreneurial culture, a critical mass of companies as well as developing of a mutual trust between cluster partners. If at least these four features are fulfilled, there are all chances for ensuring of an increased competitiveness of firms within cluster, which is manifested by productivity, specialization, innovation, costs reduction, the increase confidence between cluster's firms or other features. Moreover, the specialized personnel that exists in the area of Roşia Montană, especially miners, doubled by the mining culture and tradition of the zone, could facilitate a faster conversion of the mining activity within a performant industrial cluster.

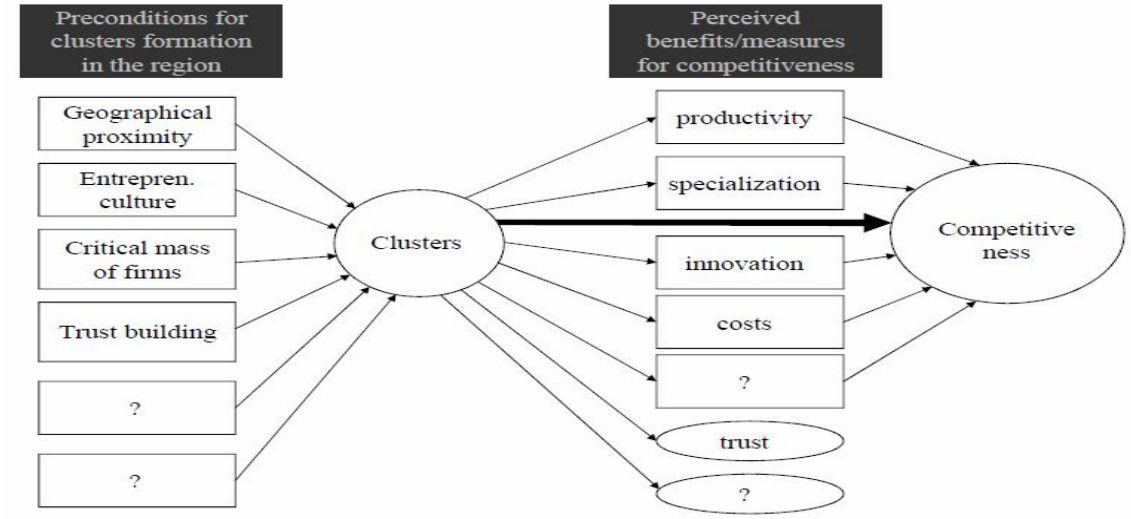

Figure no. 4 - Conceptual model of the relationships among cluster variables
Source: Karaev et al., 2007. The cluster approach and SME competitiveness: a review, Journal of Manufacturing Technology Management, Vol. 18, No. 7, p. 831.

The firms can take advantage of economies of scale when they co-reside, co-sell and co-produce in the same geographical location (Frisillo, 2007), thus becoming synergistic between them, although they are independent (Rosenfeld, 1997). Referring to this synergy, it has to be mentioned that the firms will have only to gain by associating with other firms which are stronger and better than them. These can learn from each other, thus making that the competitive advantage of cluster to increase. When firms are clustered, there is a concentration of different experiences from many different people, who share and display to each other the knowledge and information, because every firm has its own characteristic set of expertise, experience and resources. When these are combining with those of other firms, these interconnected companies will feel themselves much safer and released to adopt other strategies for business, in a much diminished context of risk

(Lorenzen and Maskell, 2004). Much more, the idea of cluster will increase the competitiveness of firms not only at local or national level, but also at international level, because it will contribute to the creation and consolidation of strong relations with other countries, fact that inevitably will lead to the increase of prestige and performance of cluster and of the component firms on the international markets.

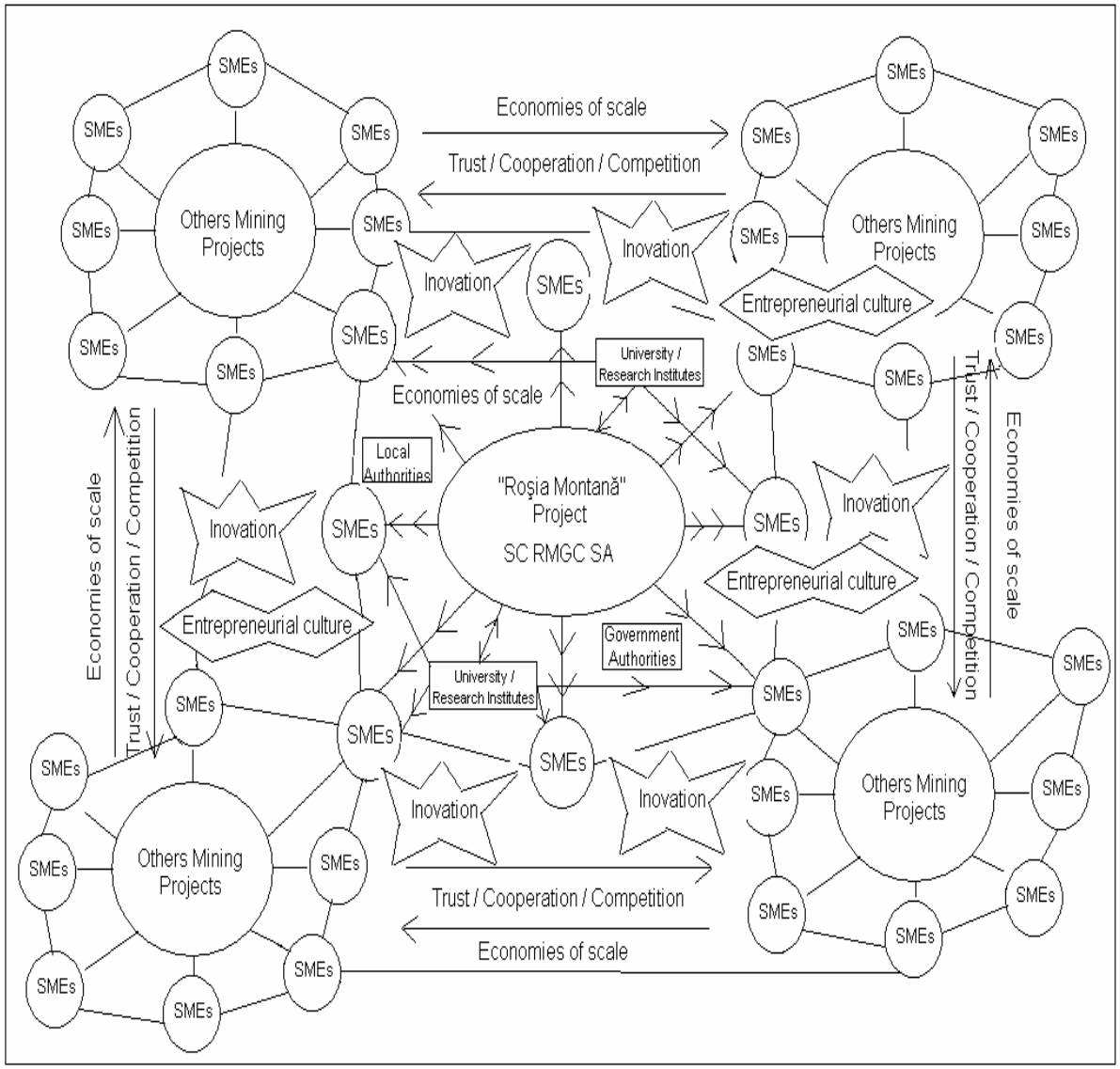

Figure no. 5 – The implementation of regional clustering having as nucleus the "Roşia Montană Project" by the innovation of spatial organization of its related activities

Related to the economic advantages and to the potential development of region and country after all, by creating a regional cluster, resulted from the innovation of spatial organization of the activities related to "Roşia Montană Project", it should be mentioned that this mining project aims to contribute to the stimulation of creation and of development of SMEs, to the growth of Romania's credibility and to the attraction of other large investors (eg. the Renault invest from Piteşti). In the same time, from the point of view of SMEs, this project will have advantages on at least three plans for SMEs from Romania. The first plan is related to the SMEs that will be created

in the local area and these have already started to be created. An exploitation of the size and complexity of this one from Roşia Montană involves dozens of types of complementary and related activities of maintenance, repairs, security and others that undoubtedly will be made, as world practice shows, by SMEs. The second plan refers to the creation of a large number of workplaces, aspect that will increase the local demand and implicitly the number of SMEs in the related branches, not necessarily related to the ”Roşia Montană Project”, but about the fact that in the area will be a solvable demand, more larger and more complex. There will be premises for developing all kinds of services for population, like touristic, commercial or ecological ones. Thirdly, this project will be a reference model. Always when an investment is made by a great company, with a strategic project, it increases the credibility of the country and attracts other entrepreneurs interested in investing. The Renault investment from Piteşti has brought to Romania thousands of foreign companies and created thousands of subcontractors. The investment from Roşia Montană may have the same effect, in the sense that it will trigger an emulation in the plan of SMEs and of foreign and Romanian investors to invest in area in similar mining projects, but not only. It is even more important since in this crisis Romania has lost more than 100 000 of SMEs.

Basically, in the context of the implementation of regional clustering having as nucleus the “Roşia Montană Project” by the innovation of spatial organization of its related activities, it has to be pursued a logical axis that must lead to an overall sustainable development in the area, for all parties involved within mining cluster, as it can be seen in the figure no. 6 below:

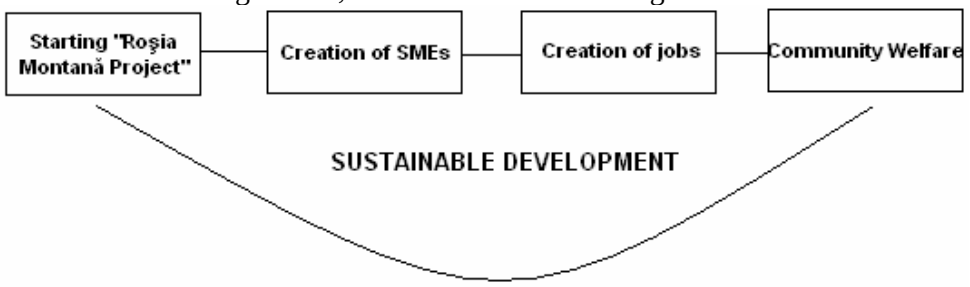

Figure no. 6 – The logical axis towards sustainable development within the mining cluster

For knowing or predicting precisely the success of the sustainable development achievement through the creation of a mining cluster in the “Apuseni Mountains”, I think that there is a directly proportional relationship between the amount of subsoil wealth (gold produced) within an area and the number of jobs and of SMEs that will be created within the mining exploitation and which in their turn are correlated with the welfare of the communities from the area, especially in the case of indirect employment. In this context, I will conduct a process of benchmarking related to this aspects, respectively between Martha Mine from New Zeeeland and the proposed project from Roşia Montană. Why I chosed this fact, because the same projects has in their shareholding the second largest gold producer in the world, respectively Newmont Mining Company. In the same time, I included in my analyse other two examples of mines, this time from Europe, respectively Kittila Mine (Finland) and Svartliden Mine (Sweden).

Table no. 1.

The correlation or the directly proportional relationship analysis between amount of subsoil wealth (gold produced) and communities’ welfare (indirect employment) within benchmarking process

Mines	Amount of gold produced / year	Number of direct / indirect employment
Roşia Montană Project	700 000 ounces (estimated)	880 / 2800 (estimated)
Martha Mine (New Zeeland)	100 000 ounces	300 / 350
Kittila Mine (Finland)	250 000 ounces	600 / 1800

Svartliden Mine (Sweden)	55 000 ounces	100 / 300

It can be easily seen from this table that it is estimated within "Roşia Montană Project" an amount of gold produced of almost seven times bigger than within Martha Mine, fact that materializes in the increase of indirect employment, almost with the measure of seven times. From this analyse, it can be concluded that in mining industry of exploitation of gold and silver exists a directly proportional relationship between the quantity of precious minerals deposits and the number of indirect employment involved in this kind of projects. The number of indirect employment is often related to what is called the multiplier effect, consisting in the creation of SMEs and jobs and finally in the sustainable development of the region.

As it can be seen in table no. 1 and if we talk about the multiplier effect in the case of "Roşia Montană Project", the input-output analysis of Oxford Policy Management specialists considers that this project will bring a multiplier effect equal to four, fact that it means that this project will create four indirect jobs at every one direct job within the mine. Basically, the multiplier effect is the one that gives the real value of a business. An investment has not only immediate effects and its impact dimensions increase with the horizontal expansion of investment. Thus, there appear indirect jobs, in some cases much more than those of initial investment. As more as a business produce important effects around it through related businesses, suppliers and partners, the more it will be considered as having a multiplier effect more pronounced. For example, at Kittila mine from Finland are currently working 600 people, but the multiplier effect is equal to three. Also, at Svartliden mine from Sweden, 100 people are directly employed, and the index of multiplier is still three, which means that a job at the mine supports three additional jobs in the community. Mostly have benefited the local transport companies, constructions, services and trade companies.

Related to this aspect of SMEs, the company that intends to exploit the mineral resources of gold and silver in the area, respectively "Roşia Montană Gold Corporation", has already made a first step in this demarche of stimulating of SMEs, in the sense that it launched in 2007 "Roşia Montană MicroCredit", a microfinance institution intended to contribute on community's development by providing consulting and flexible financing to small local entrepreneurs. As part of consulting services, Roşia Montană MicroCredit offers, depending of requirements, individual or group training in launching and managing businesses, both for local entrepreneurs which are interested to consolidate their companies, but also to those who want to start a business.

The mining project from Roşia Montană it is estimating that will have a significant economic impact for region (especially for Alba county) and for the entire Romania. Once the project will start to develop, the regional economy will have to gain due to the investments in infrastructure, due to the taxes to local budget, due to the contracting of local suppliers, due to the creation of workplaces in the area and so on. In terms of strategic and economic impact that will bring the "Roşia Montană Project" in Romania, the professor Ovidiu Nicolescu (2011) states: "…it must be said that this project aims to provide a sure plus of GDP in Romanian economy, is a project that it will mean a strong injection of capital in the Romanian economy, is a project that suppose an injection of technology and knowledge, so it is a project that will generate a pole of excellence that the economy needs. This fact happens in the conditions in which the investor is not the Romanian state, because we know that unfortunately the state is not a good investor, but the investor is this company, Roşia Montană Gold Corporation, which is professional managed and which presents the requisite quarantees".

Conclusions

This article had as purpose the design and development of a model of a regional mining clustering implementation for the "Apuseni Mountains" area through the "Roşia Montană Mining Project". In this context, I revealed the features of such an industrial conglomerate, emphasizing

only those more important and suitable for the practical case from chapter five. Regarding to this very publicized mining project, it can be said that in the conditions of implementing the best practices and techniques available in the field, the project could have a significant economic and social impact over the entire geographic area within it will be implemented, contributing so to the stimulation of the emergence of hundreds of SMEs and large enterprises from mining domain and related fields, which in turn will produce a lot of jobs and finally welfare for the local community and around it. Related to this fact, I analysed and I found that in mining industry of exploitation of gold exists a directly proportional relationship between the quantity of gold and silver deposits (gold and silver produced) and the number of indirect employment involved in this kind of projects.

Moreover, besides social and economic benefits that could be generated by the implementation of a cluster policy in the area concerned, the power of example manifested by this pole of interest called the "Roşia Montană Project", in the case that it implements the best available practices, can represent the triggering factor or the spark that should generate the creation of a regional mining cluster by reactivating the former mining exploitations within region and by creating new ones in neighboring localities of Roşia Montană, due to the investments of other interested firms, due to the revival of some "latent mining" energies and synergies and due to the creation of new ones at geographical level, because this area in practically a mining one by tradition. These aspects, doubled by the support of local and national political factors and of universities and research institutes, could certainly lead towards a high national and international competitiveness and performance of the regional mining cluster and of SMEs within it, in the context of ensuring the continuous sustainable development at local, regional and even national level.

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