

INNOVATIVE CLUSTER, MODEL OF BUSINESS COOPERATION IN THE SOUTH-WEST OLTENIA REGION

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Abstract: In the global economy, the cluster is considered one of the most important models for cooperation of the business environment, which generates a strong impact on the competitiveness of enterprises, accelerates the process of upgrading industry structure, stimulates the development of innovative process and increases the attractiveness of investment in the regions.

Clusters are tools to increase companies' performances, with effects on regional development and competitiveness of countries and it is therefore important to consider their potential in various fields.

The public-private partnership through cluster responds to the challenge of exploiting economic potential existing in the region, as elements of the territorial plan.

Competitiveness is ensured by a common use of the existing potential of cluster members through the exchange of knowledge and technology transfer, as well as through actions to improve innovation of enterprises activity components. Collaboration and the cooperation between companies play a decisive role in the creation of competitive advantages.

Under the terms of the new economic realities, the research paper aims to identify a development model of South-West Oltenia region which to determine the increase in value of economic processes in the region, through its dynamic economic characteristics, economic and spatial layout functionality of the activities.

JEL classification: M10, M21, O32, O41

Key words: innovative cluster; model of cooperation; partnership; pole of competitiveness; South-West Oltenia Region

1. INTRODUCTION

The role of clusters in the globalized economy is changing, thanks to a new strategy which places the clusters as system integrators within policy, sectors and regions. The prosperity of the European Union rests on its ability to offer to SMEs and industry a favorable business environment and personalized support to create growth opportunities.

Clusters represent a tool for achieving EU objectives for reduction and elimination of inter-regional disparities through fostering intersectoral cooperation and innovation, support for SMEs to access funding, create new industrial value chains and internationalization.

The changing of key elements of financing mode of projects in the EU for the period 2014-2020 determines potential users to connect to the new system, based mainly on clusters, public-private partnerships and networks of partners.

The regional and local partnerships are preferred by the European Union, because the effects of endogenous processes lead to consensus between local entities, allowing access to resources and key skills, common strategies, coordination of activities, create and promote innovation, identify actors in the local environment, increase competitiveness of local and regional entrepreneurship.

The cluster is an organization in which cooperation partners provide a synergistic effect in a relatively short time. Partners are a group of companies and associated institutions that are spatially concentrated and operating in a specific business area, supporting and complementing each other. The result of the cooperation is expected to be greater than the sum of the results of individual activities.

What gives uniqueness to cluster is not just that companies with similar interests, skills and needs are focusing in it to get benefits, but the whole value chain that creates a association include: suppliers, manufacturers, distributors, academic institutions, research, and those providing relevant support services.

Research assembles existing competitive and cooperative relations between businesses, institutions with a role in innovation, training, local development, a conceptual framework partnership to highlight how intra-regional and competition cooperation forces lead to economic development and social.

The base of the research paper is the fact that the critical mass organizations concentrated in a region stimulates collaborative relationships to achieve competitive advantages and local development competition between organizations is essential.

Research is focused on highlighting the potential clustering of Oltenia region, aiming to analyze the characteristics of innovative clusters and present a model for collaborative development of business for increasing the competitiveness of the region.

The objective of the study is to propose a solution integration and cooperation of industries with potential for development in the region and examine the functional relationships between factors within and around the cluster.

2. CLUSTER-COMPETITIVE FORM OF ORGANIZATION

There is a great controversy around the concept of cluster; the definition is ambiguous (Fernandes, 2008), because it varies between its industrial and geographic definitions.

Formal definitions of cluster gravitate around the definition given by Michael Porter (1994, 1998) in which clusters are geographic concentrations of companies and institutions in a given sector of activity, whose relationships strengthens the competitive advantage. According to his theory, competitive advantage in a global

economy depends on local factors: resources, knowledge, relationships, motivation, with geographically distant competitors cannot compete.

Swann and Prevezer (1996) did a simple definition of clusters as groups of firms within an industry in a particular geographical area. Bergman and Feser (1999) have reinforced this concept, defining clusters as a group of companies, business organizations and other organizations, for whom membership in the cluster is an important element for the competitiveness of the company. Feser (1998) points out that the relationships between industries and institutions lead to the increase of their competitiveness.

Porter (2000, 2003) completes the description, defines the cluster as a group of interconnected companies, located in a geographical area, vendors, service providers and associated institutions, linked by analogy and complementarity. It alleges that between companies of the cluster there is competition but also cooperation. Firms compete to win and keep their customers, and their cooperation is present in most vertical, involving companies in related sectors and local institutions. The competition and cooperation coexist in different sizes and between different participants in the cluster. The same author notes that clusters cover a wide range of related industries, as well as important entities, as suppliers of components, machines and services, as well as specialized infrastructure.

It should be noted that many groups include governmental and public institutions, such as universities, which are specialized in education, information, research and technological support.

According to Michael Porter (2002) the clusters are synonymous with the competitiveness, because they contribute positively to innovative processes, facilitate relations between firms and other institutions, so that diversified consumer needs are known and information contribute to the development of technology.

One of the reasons of the study of clusters is the impact on performance, regional development and competitiveness of countries (Rocha, 2004). By definition, a cluster is a system of interconnected companies and institutions whose value as a whole is greater than the sum of its parts (Flowers and Easterling, 2006).

An innovative cluster is defined as a large number of industries with a high degree of collaboration, which operates in the same market, with the same features (Simmie and Sennett, 1999). According to Simmie (2004), the characteristics of the clusters are agglomeration and relationship interconnection, which are based on cooperation-competition that shall be determined between the local actors.

Clusters are important for competition, because lead to increasing productivity, introduce innovation and stimulate the formation of new businesses. The geographical concentration allows companies to operate with greater productivity in search of specialized manpower, equipment suppliers and specialized components, facilitating access to information and technology.

Porter appreciates in 1998 that clusters affect competition through productivity growth companies, through the rhythm of innovation that underpins productivity growth and by stimulating the creation of new businesses that extend and enhance the

cluster. Porter's theory on the competitiveness of nations and the cluster concept was considered one of the successful theories, applicable to local development patterns in industry and services.

While the literature on competition is focusing on the nature of the offer, Porter pointed out demand conditions, its sophistication in national context, which enables rapid response to changing needs of the domestic and international markets. Professor Porter pointed out that improving competitiveness clusters depends on the rate at which firms within a cluster are moving away from competing based on their own endowment to a strategy based on competition advantages arising from processes and goods with higher benefit, which make companies to be effective and different.

Within firms, such a change will require the innovation of products, processes and markets, adopting new technologies, new partnerships with suppliers, service providers, and the clients (customers), and in the changing business environment will cause mobilization of private sector actors and institutions and public.

Lately the management literature presents the bottom-up type of cluster, where market and cooperation intra-regional and cross-regional forces have key role in the development of the business environment, in a model of organization and formal collaboration, under the coordination of a nonprofit organization. (Arbuthnott, 2011).

In recent years political efforts have focused on sustaining partnerships, public-private type, on reducing the risk of investments, for providing a strategic understanding of these types of association and benefits offered. (Itoga et al, 2014).

The cluster is a form of association which includes the four pillars in relationships of cooperation and competition in order to obtain competitive advantages: business, research and development environment-innovation, public administration and the catalyst organism that interconnects the first 3 pillars.

In Romania, according to the existing regulations in the applicant's guide for obtaining grants through POS CCE in the 2007-2013 financial exercise, the cluster presents itself in two forms:

- The emerging cluster: a cluster of enterprises including SMEs, universities and research institutes, local public administrations that are in an early stage of collaboration and/or institutional organization.
- Innovative cluster with advanced collaborative activities, consisting of the exchange of expertise, aiming to boost the business of innovation and effective contribution to technology transfer and the dissemination of information between members of the cluster.

The cluster is an associative structure, which provides facilities for its members at discounted prices for testing, certification and promotion of new products and technologies, access to information and training.

The industrial agglomeration cause the formation of a critical mass of similar companies that becomes the beneficiary of labor force with a common set of qualifications, and the access to sources of financing through the development of joint investment projects is improved. The cluster, as association of companies within the

entire value chain, facilitates the competitiveness of current markets, specialization and opening new markets.

The involvement of academia and research development allows the access to innovation for the business field of the cluster. Within the "business agglomerations", the ideas and knowledge are spread more easily from one company to another.

The catalyst organization brings with itself, but also benefits from the transfer of expertise.

Clusters can be categorized in terms of the task force as follows:

- Regional industry cluster;
- Cluster based on a professional institution founded by cluster members, supporting cooperation;
- Cluster based on network: it's a long-term cooperation, usually closed, between enterprises with complementary activities in related industries that support each other;
- Oriented cluster knowledge which ensures the exchange of information and experiences, with a mentor that ensures knowledge transfer between the participating enterprises;
- Dynamic cluster based on cooperation synergies and informal relations, access to advanced technologies and to research results, close relationship with research centres, sharing experiences and knowledge with industrial firms from the core business.

Among the expected outcomes from clusters are: improving the economic competitiveness of a country or region, development of enhanced cooperation between enterprises, institutions, authorities, promotion of cooperation opportunities, analyzing the conditions for cooperation, participation of enterprises from different common events by providing information.

The cooperation between members is the essence of cluster. Experience in managing clusters showed the following factors preventing the cooperation:

- The lack of uniform policy regarding-clusters;
- Lack of cooperation;
- Lack of confidence;
- Lack of recognition of the interests of the common minimum;
- Lack of legal framework to govern the cluster;
- Bureaucracy "daunting";
- The situation of competition in a particular branch;
- Infrastructural differences;
- Different needs for investment;
- Entrepreneurs' wish to make profit in short term.

To eliminate factors that prevent cooperation it is necessary the creation the information environment which stimulates cooperation, lobby activity about possibilities for cooperation, obtaining the funds for cooperation. Possible solutions in this issue of cooperation are:

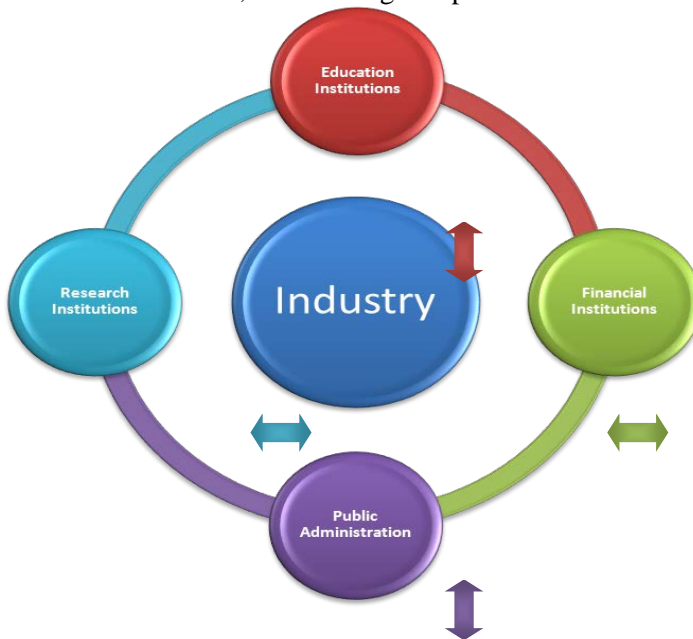
- Involvement of decision makers;

- Promotion of clusters policy;
- Funding of cluster management organizations;
- Dedicated financing sources for cluster development;
- Enhanced participation of entrepreneurial cooperation in research and development programs;
- Supporting the active involvement of research centres.

3. CONCEPTUAL MODEL OF INNOVATIVE CLUSTER

Clusters are beneficial for innovation including various actors who cooperate to obtain common advantages (Ketels et al., 2012), such as:

- Firms that innovates to face competition on the market;
- Research organizations that produce advanced knowledge and innovation;
- Educational institutions where universities have a dual role as both research and educational institutions;
- Financial institutions: business angels, venture capital firms and banks, which provide the financial resources necessary for the exploitation of inventions and the funding of new business models;
- Public bodies that are involved in making and implementing decisions of public investment for innovation, in financing and promotion of the cluster benefits.



Source: adapted from Ketels, C., 2012

Figure no. 1 Cluster model with 5 players

The cluster as a whole and each of the cluster actors are relevant for innovation because, in an industrial area, there is a critical mass, and the various actors use flexibly the common resources and they support each other. The existence of the critical mass is not sufficient (Ketels et al.,2012), because the actors have to cooperate in order to benefit from the mobility and flexibility of resources and skills. Each of the actors has a determining role cluster in the cluster functioning.

Universities have researchers who produce new knowledge in the relevant areas, transferred to companies in the cluster. Education institutions offer specialized training programs, and young graduates of the faculties will acquire skills and competences to work within the cluster.

Financial institutions are specializing in risk assessment and the business opportunities of the cluster and can thus provide resources for financing of the cluster.

The public administration develops policies and strategies that promote and finance the activities and supports the cluster members.

Businesses interact with other firms, both buyers and suppliers/innovation partners as innovation sources or imitate innovative other companies to fulfill the objectives of growth.

Figure 1 shows the existing interactions in a cluster. Among the five categories of actors are established connections: between research organisations and enterprises, between enterprises and training institution or between government and companies.

In a model of an ideal cluster, there are multiple links of interdependence between actors. People exchanges ideas and experiences and disseminates knowledge. The collaboration makes the resources to be used in the best way and coordination of actors and interests aligns their different actions.

Figure 1 shows a model of the ideal cluster, because in reality, the communication between different types of actors is difficult. Small businesses think they have the capacity to appreciate the innovation and think there is no need to cooperate with large firms. Large enterprises seek international suppliers even if they can find innovative SMEs nearby.

RTD policy elaborates policies and strategies without knowing the real needs of the business environment, and researchers are more interested in the publication of research results, than the application of research results in practice, selling the discoveries or working with business people.

Educational institutions will adapt their curricula according to the qualifications required by the industry. Entrepreneurs find it difficult to persuade banks to invest in innovative businesses. Business people do not address to the university to apply new technologies.

Putting these actors in connection requires a catalyst force in order to present the benefits of the Association. The different types of actors have distinct roles in society:

- Universities must do research rather than to address directly to the research departments of companies. Even if researchers wish to innovate and sell the results,

they are aware that their career depends on published works and this interest prevails in their work.

- Policy makers have many responsibilities, not only supporting the business environment.

- The companies aim to gain profit, are not intended to provide unselfish support for others. Business people do not have much information about the results of researchers in universities. Even if business people and researchers will sit together and will discuss their work, will find that they speak different languages and live in different worlds, which make difficult the interaction between them.

- Education institutions wish to use the businesses to place pupils or students in practice or to identify a job for them, rather than to adapt their curricula depending on the skills required by the labor market.

The obstacles of communication between these actors make difficult the communication, the mutual provision of information, the initialization of collaboration, and knowledge. Coordination and collaboration between these actors could bring great benefits.

Application of the model in Romania and in the region of Oltenia is difficult but possible, because there is potential of cluster, universities and research institutions, and even if there was not a cluster policy, the RTD policy and business environment show interest for the development of the clusters.

Research activities in universities and trading of academic research results should be strengthened, because universities have weak ties with the businesses and are providers of education, their research activities represents only a small part of the activities. Concepts such as “entrepreneurial university” or “college-industrial consortiums” have emerged recently and support measures should be applied, in order to have real impact.

The local research has a greatly reduced role in economic development, which makes difficult the transfer of results in the economy. Establishing strong links between research and the economy, and the growth and innovation is the means of ensuring a sustainable development of the economy of the South-West area, promoting a model of partnership development.

Cluster management entities have status as NGOs and they are not private companies, therefore cannot obtain loans from financial institutions, so that grants and their own contributions represent the sources of income of the clusters. On the other hand, the lack of confidence between the cluster actors makes difficult the partnerships, even in the context of grants that they can access only if they form an association, in which every organization keeps its independence. So far, in Romania were accessed grants by members of clusters and not by their coordinating entity.

The clusters have a great potential in theory. Even if clusters have a huge potential, in most cases, this potential remains largely untapped. Cluster organisations need to focus less on the development of business between member firms (export promotion, trade cooperation and joint procurement) and to put the emphasis on building an identity, a brand strategy, cluster, on strengthening innovation through

collaboration to eliminate gaps in the innovation and to accomplish joint projects for research and development.

4. FINANCING THE CLUSTER UNDER PERIOD 2014-2020

An essential element of financial period 2014-2020 is supporting partnerships between enterprises and research institutions in order to increase the transfer of knowledge, technology and personnel with expertise in the development of products and processes based on the RDI and on market demand.

The European Commission's initiatives targeting clusters in the period 2014-2020 are included in the programs COSME, Horizon 2020, INTERREG EUROPE 2014-2020.

COSME program specifically aims at improvement of conditions for competitiveness and sustainability of enterprises by supporting:

- internationalization of clusters for SMEs by giving support for the establishment of a new strategic partnership between European Clusters and to promote cooperation between clusters and international business networks (with a total budget estimate for 2014 worth 1,500,000 € and 3,500,000 € for 2015);
- excellence clusters management (with a total budget estimate for 2014 worth 1,250,000 € and 1,000,000 € for the year 2015) which funds benchmarking and training activities for consortiums composed of at least one independent legal entity representing a cluster.

The goal of the COSME axis "clusters excellence management" is to strengthen the management capacities of the European cluster organizations, in order to develop more world-class clusters in Europe, to be able to offer an excellent support for European SMEs.

The action will help cluster management organizations involved to improve the management and market analysis capabilities, as well as to provide high quality services to local SMEs.

Horizon 2020 Programme funds clusters in the European Union for the development of new industrial value chains, and the first call for proposals will be in the first quarter of 2015, worth €24.9 million.

EUROPE INTERREG Programme 2014-2020, with a value of 359 million Euros from the European Regional Development Fund, funds EU Member States, Norway and Switzerland. The programme will strengthen research, technological development and innovation and will provide support for innovative clusters, triple helix cooperation and technology transfer, exchange of best practices among agencies of the technological transfer and innovation for the development and management of clusters.

The programme will be completed with plans of action for the establishment of new regional clusters and/or through cross-border projects in the framework of programmes for growth and jobs.

In Romania, the funding is provided through Operational Competitiveness Programme 2014-2020, approved by the European Commission in December 2014,

with a financial allocation of 1,329 billion Euros and that will finance projects that will support the growth of competitiveness of the Romanian economy, in particular by supporting research, development and innovation (<http://www.fonduri-ue.ro/poscce/>).

Through this program are financed:

- Increase of capacity for research, development and innovation in the areas of smart specialization and in health;
 - Increasing participation in Romanian research at EU level;
 - Increasing private investment in research, development and innovation;
 - Increase the transfer of knowledge, technology and personnel with expertise in research, development and innovation between public research and private sectors;
 - Extension and development of communications infrastructure in high-speed broadband;
 - Increase the contribution of information technology and communications sector for economic competitiveness;

Priority axis 1 - research, technological development and innovation in support of economic competitiveness and business development has a financial allocation of 797.872.340 €, representing 60% of the Operational Competitiveness Programme 2014-2020.

Investments in research-development-innovation of OCP 2014-2020 action 1.1.1 aim supporting and strengthening the integrated initiatives, such as innovative clusters and improving infrastructures for research and innovation and excellence, capacity to harness the potential of the cluster in the competitive sectors of the economy.

Action 1.2.1 intends to stimulate demand for innovation by enterprises of CDI projects conducted by individual enterprises or in partnership with the institutes of CD and universities.

Through the clusters, their members can access funding for:

- Innovative technological Projects;
- RDI projects for innovative starts-up and spins-off;
- For temporary hiring highly-skilled personnel to enhance research and innovation capacity of enterprises.

Clusters are becoming supportive environment in order to attain the objectives of the new OCP 2014-2020 the concentration of resources in the relevant economic sectors, aiming at streamlining the public sector research and approaching the market.

In the 2007-2013 financial exercise, in Romania were financed through POSCCE 8 competitiveness poles in the fields of automotive, IT, renewable energy, robotics and autonomous systems, furniture, pharmaceutical, which have attracted through investment, research-development-innovation and software projects, a grant worth over 55 million euros.

5. CLUSTER IN ROMANIA

Cluster policy in Romania was established as a component of industrial policy for the period 2010-2013, aligned with the Europe 2020 strategy. One of the objectives

of industrial policy is stimulating the creation and development of innovative clusters with internationalization potential in order to produce value-added goods, competitive on national and international markets.

Clusters development in accordance with EU industrial policy initiatives is achieved by specific programmes for the identification of areas with potential for clustering and supportive to the development of innovative technologies and products and high quality; to support the development of the cooperation between education/research environments and economic operators from a given area.

In Romania have crystallized the emerging clusters in areas such as software production, wood industry, shipping industry, textile industry, ceramics industry. Most clumps of clusters are located in the west region of Romania, Timis and Arad counties. These foreign investments of Italian counties have led to the emergence of clusters as "industrial districts" by Italian firms, internationalization accompanied by delocalization of clusters in Italy, which by finding in Romania of a well-drawn relationship have enabled the transfer of knowledge within the network.

In Romania, the terms cluster and pole of competitiveness have different approaches. Industrial agglomerations, indicates the cluster of enterprises in the same field or related fields, the economic effects on employment, suppliers and specialization in terms of technology transfer and innovation, according to Marshall's theory. Cluster structure is the "triple helix" (research, industry, public authority) or four leaves clover, including catalyst.

The pole of competitiveness is an association of businesses, research and development organizations and training, acting in partnership based on a common strategy, built around innovative projects with the ultimate goal of the market penetration including international.

Clusters, in the sense of industrial agglomerations were formed spontaneously, in two ways:

- On the basis of industrial concentrations in certain geographic regions, specialized labor, natural resources, research centres, business infrastructure;
- On the initiative of entrepreneurs who initiated the process of clustering and agree to the cluster members, by promoting the benefits and funding available for these structures.

One of the main problems of the business environment in Romania is the lack of trust between market actors: entrepreneurs, Government, public institutions and educational institutions and even among businesses. The level of association between large firms, as well as between SMEs, within the same industrial sector or value chain is reduced, which impede the promotion and solving common problems the lack of collaboration between the private sector and institutions of research and innovation, has as consequences:

- Braking the technology transfer from universities to the industry and the potential for commercialization of research results to the public;
- Lack of concordance between the specialties of the education and skills required on the labour market.

Between businesses and local governments, the partnership is underdeveloped due to bureaucracy and to a weak financial support. Under these circumstances, it is a priority to stimulate collaboration between the private sector and the public, through innovative clusters, support forms of public-private partnership that ensures the transparency of the actions and empowering stakeholders.

Obtaining competitive advantages through industrial agglomeration is a concern at public level that can be achieved through training of the poles of competitiveness initiated since 2009 by the Ministry of Economy, trade and business environment through industrial policy direction.

Formation of clusters in Romania is based on a partnership agreement, and a non-profit or a limited liability company provides the management of the cluster. Although there are no legal regulations in this respect, the Ministry of Economic Affairs, responsible for cluster policy, accredits the clusters in Romania through a system of qualitative and quantitative criteria, with many factors, totaling 35 points:

- Cooperation (the forms and contents of cooperation within cluster)-10 points;
- Members (type and number of cluster members)-2 points;
- Economic results of SMEs participating in the cluster (market, export results, value added)-5 points;
- Performance in research and development-4 points;
- Strategic and operative plan (vision and strategy of enhanced cooperation, the Elimination of irrelevant cluster)-14 points.

According to such criteria, in Romania work 21 approved clusters. Agglomerations with the most important role at the national level, with regard to the performance of exports and employment, are those in the steel sector in the county of Galați, shipbuilding in Tulcea, automotive industry in Argeș and shoe production in Bihor.

In terms of life cycle, clusters can be in the following stages: development, generation, excellence, internationalization. At European level there is a gap between clusters in Western and Eastern Europe. Most of the clusters in the old Member States tend towards internationalization for the conquest of new markets in Japan, China, South East Asia, India, and Brazil.

In Romania, of the 47 clusters contained in the records of the Ministry of economy, 20 are in the stage of generating and 27 in the development phase.

Regarding clusters estimation, the methodologies applicable to various countries were based on benchmarking. The objective of the analysis is to assess the degree of development of the clusters, to compare the stage of an individual cluster, with the group average. Thus, determine the strengths and weaknesses of the cluster and can be made recommendations for improving the management and operation of individual cluster.

In Poland, the Polish Agency for enterprise development performed and published the analysis. In 2012 they published a comparative analysis and the study included 49 indicators with emphasis to the following areas (Holub-Iwan et al., 2012):

- Cluster resources (human resources and know-how, financial resources, infrastructure);
- Processes in clusters (marketing, public relations, internal communication, know-how and innovation);
- Cluster performance (human resources development, increase competitive advantage, innovation, internationalization, improvement);
- Potential for increasing the cluster (regional conditions, associated institutions, leadership, public policy support for the development of the group).

This method can assess the performance of regional clusters of Romania, by reference to the existence of a national average in the sector in question. Because in Romania clusters are in emerging or growth phases, analyses can be conducted over 5-10 years.

For evaluation of clustering, Cluster Association of Romania conducted a methodology consisting in a combined analysis, quantitative and qualitative, which take into account a number of factors: geographical focus, research-development, manpower, cooperation, internationalization, institutions of the catalyst (in qualitative terms) and the contribution to the GDP, number of employees, innovation (Innovation Scoreboard Methodology suited) and exports (in quantitative terms).

Quantitative analysis shows the vehicle sector and transport equipment as being the most important, according to a ranking that uses both a "competitiveness index" and a "method of granting of stars". The automotive sector is the only sector granted with three stars considering its contribution to the VAB, innovation and exports.

Experience of European economies showed that clusters provide great added value. Cluster policy implementation is hampered in Romania by a series of obstacles in terms of legal, institutional, financial, managerial, but the assistance of the European Union destined for financing these partnerships will contribute during the period 2014-2020 to the diminish and removal of these obstacles.

6. THE CLUSTERIZATION PROCESS IN THE SOUTH-WEST REGION OF OLTENIA

Romania has eight development regions referred to in the law 315/2004 concerning regional development: Northeast, Southeast, South, Southern, Southwest Oltenia, West, North-West, Center and Bucharest-Ilfov which correspond to NUTS-II level in the EU. The objectives of development are spelled out in regional development strategies, which are included in the National Development Plan.

Regional development agencies are entities, which propose regional development strategy and implement national policy at regional level, in cooperation with the managing local government institutions to identify less-favored areas as target for regional development funds.

According to the development strategy of the region, the economic sectors in counties are as follows (www.adroltenia.ro):

Dolj (means of transport);

Gorj (plastics, rubber and products made of these materials);

Mehedinți (means of transport);

Olt (base metal and products made of these materials);

Vâlcea (plastics, rubber).

SWOT analysis of South-West Oltenia region highlighted areas that may be exploited by creating public-private partnerships and overcome the weaknesses they have in the region.

Strengths concern connectivity with Europe through the three priority axes of European transport network TEN-T that crosses the region, through the bridge Calafat-Vidin, ensuring connection with the South of Europe and the International Airport Craiova.

The region is an area rich in mineral resources. The region is the largest producer of energy in Romania with energy resources reused. Timber industry and transport services in the region are competitive. The aluminum industry in Slatina is modern, with international capital investment. Ford Motor Company is the second largest automobile company in Romania. University of Craiova is one of the most important universities in the country, and the work force has a proper initial education. Agricultural lands are suitable for modern agriculture.

Oltenia region has tourism potential and is cultural diversified. Danube River is an important resource for industry and tourism. The weaknesses of the region are insufficiently developed infrastructure: transport; business, industry and agriculture; utilities and the environment (water, sewerage, sewage treatment, waste management, gas, communications), in rural areas, but also in many cities; tourism and recreation; research and innovation with a low degree of putting into practice the results of research innovations; health.

The region has a large share of the population employed in agriculture and low profitability of agricultural activities. The ability to attract foreign direct investment is low. The region occupies the last place in the country as the number of SMEs and the smallest number of SMEs with foreign capital in the country. In the region, there are geographical areas and single industry areas with low population density and serious problems with poverty, poor social services. There is a gap between the training provided by the school and the requirements of the labor market, educational disparities between urban and rural areas and a low degree of urbanization.

High value-added industry is poorly developed. The region can achieve competitive advantage through exploitation of opportunities: the potential of the Danube as a transport corridor with low cost, harnessing the Calafat-Vidin Bridge for trade with the South of Europe; favorable development of the touristic potential of a sustainable tourism in the region in various forms. The development of services sector lead to the creation of new jobs.

Non-reimbursable funds allocated by the EU through the operational programmes determine the economic and social development. The region has a high potential for organic farming and agro-tourism. Authorities show interest for the establishment of clusters. The region's labor force is available for retraining and skills development.

Threats that plague the region consist in increase of inter and intraregional disparities; the unemployment rate increased due to privatization and industrial restructuring; increasing competition for agricultural products, in preference to the traditional sectors, currently competitive for export; the massive migration of the youth due to lack of jobs.

South-West Oltenia region has important advantages for improving competitiveness in the fields of:

- Agriculture, the rural population representing 52% of the population of the region, and part of the urban employed population in rural areas. industry: energy, non-ferrous metals, automobiles, shipbuilding, chemical industry, light industry, an area where you have to put the emphasis on agriculture, through industrial production of tractors, agricultural machinery, commercial vehicles, chemical products, construction material and other agriculture itself.
- Tourism, whose potential is insufficiently exploited.

The priorities of the development strategy of South-West Oltenia region for the period 2014-2020 aim the economic competitiveness of the region through:

- Quick development of the business infrastructure, strengthening research, technological development and innovation, supporting the activity of SMEs;
- The modernization and development of the regional infrastructure: transport, health and emergency situations, educational, social, rehabilitation of urban areas, development of administrative capacity;
- The development of tourism, exploitation of natural assets and cultural-historical heritage through the preservation, protection and exploitation of the natural and cultural heritage of the region and by modernizing the infrastructure of tourism in order to increase the attractiveness of the region
- Sustainable Rural Development and modernization of agriculture;
- Human resources development;
- Environmental protection and increasing energy efficiency.

To become a promoter of competitiveness through the development of an efficient business environment, South-West Oltenia region needs development models starting with:

- Use of own resources;
- Supporting business environment, infrastructure and services in order to reduce existing disparities between the South-West region and other regions of the country, for raising the living standards of citizens;
- Skilled human resources;
- Innovative technologies.

The development models of the region must capitalize the existing potential, primarily in the fields of industry, agriculture, tourism and improve the infrastructure and to provide the region capacity for research and innovation.

Such a model is regional innovative cluster that utilizes the strengths of the region and can overcome its weaknesses, especially relating to infrastructure development, to increase the level of implementation in practice of the results, attracting foreign investment, the creation of competitive advantages in the region, which lead to economic growth and social prosperity.

Through the clusters can be made an integrated approach, bottom-up type of economic and social development of the region, which has as foundation a partnership, a constant dialogue and cooperation between the participants in economic activities.

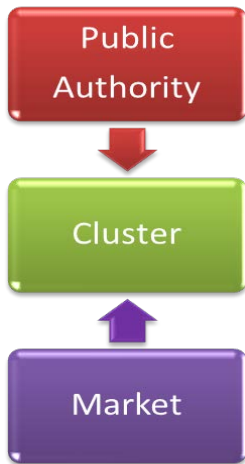


Figure no. 2 The Integrated Approach of type bottom-up the region's development

As is highlighted in Figure 2, a connection between the research and development sector and the enterprises carrying out productive activities to harness research results is possible through associative forms based on cluster, because it starts from the market needs which set public policy priorities, and not vice versa.

In the South-West region of Oltenia there is potential for clustering due to the existence of industrial agglomerations of manufacturers and suppliers, research institutes and a major University Center, as well as interest from the authorities for the formation of clusters. Considering the competitive and comparative advantages of each county, we can highlight a concentration on certain sectors and activities, depending on the criteria of complementarity and competitiveness. The profile of the counties of the region highlights this component the following agglomerations:

Dolj County - University center with national impact, thermal energy, cars and agricultural machinery industry, ecological agriculture;

Olt County - non-ferrous metals, auto parts and products, wheat, corn, wine;

Gorj County - building materials, extractive industry, thermal energy, horticulture, animal husbandry, mountain tourism, crafts;

Mehedinți County - hydro energy, shipbuilding, viticulture, saker tourism;

Vâlcea County - chemistry, horticulture, vegetable production, tourism and health.

Research infrastructure in South-West Oltenia region Oltenia consists of 26 institutes and research centers, of which half in agriculture and forestry.

The region comprises research and development units in innovation:

Dolj County: National Institute of Research-Development and Testing for Electrical Engineering (ICMET) Craiova, IPA-CIFATT Craiova, Fruit Research station Craiova, Agricultural Research Șimnicu, Research station Ișalnița, Vegetable Research station Dăbuleni, Experimental Teaching station Craiova;

Vâlcea County: Institute of Cryogenics and Isotopic Separations within which it works and the National Research Center for hydrogen and fuel cells, Research and Development in Horticulture, Viti-wine research and development Drăgășani;

Gorj County: Fruit Research and Production Tg-Jiu, Fruit Research Strejești.

Accredited entities for innovation and technology transfer in South-West Oltenia region are:

- Technological Information Center CIT-C.C.I.A Mehedinți accredited for the following areas: meat processing, flour and bakery, wood processing, grain, sugar beet, logging.

- Technological and Business Incubator IPA S.A. CIFATT Craiova accredited for the following areas: industrial automation, software, electronic industry, equipment and services.

- Technological and Business Incubator ITA-ICSI accredited for the following fields: Chemistry, cryogenics, energy, nuclear energy, ecology, agro-tourism, mountain tourism.

University of Craiova through CTT INCESA Inter-University Pilot Centre of Communication and Valorization of intellectual property is authorized provisionally in innovation and technology transfer in the region for the following areas: energy, environment, renewable energy, materials, mechanics, chemicals, communications, and computer science. Research and innovation infrastructure is underdeveloped, and the degree of implementation of the results of research innovation is reduced.

7. TYPES OF CLUSTERS IN THE SOUTH-WEST REGION OF OLTENIA

In South-West Oltenia clusters were formed on the initiative of individuals, who believed in the idea of clustering under the impetus of availability of grants under international projects, because there was a policy to stimulate the formation of competitive structures.

So far, according to empirical data provided by official websites in South-West Oltenia were formed clusters in the areas:

- Automotive: Automotive South-West Oltenia Pole;

- Tourism -TURINN and Tourism Oltenia Pole - Innovation and traditions TurOlt tour-InTT;

- ICT: ITC Oltenia Cluster;

- Construction: Construct Oltenia Cluster Association ;

- Rolling: INOVTRANS;

- Electrical equipment industry and optical: SIS-AUTOM-INT-POL.

Of these, 2 clusters have obtained financing from European funds: TURINN and Automotive. The formation of clusters in the South-West region of Oltenia is in its early stages, but interest for their development in the context of programmes for grants with this destination, will stimulate the cluster development.

The Automotive South-West Oltenia Competitiveness Pole established in 2012 has as founding members: RDA SW as management entity, and Local Council Craiova, University of Craiova, Romanian Ford Company.

The pole has 37 entities-members: two public authorities, nine education and research units, 21 producers of cars, other manufacturers in automotive and related enterprises, and 5 catalysts non-governmental organizations.

The pole aims to be the main brand in the domain, to attract potential investors in the automotive field and in the related fields, to develop Greenfield business in Craiova city and in Oltenia region. The pole aims to increase the competitiveness in the field of automotive, through investment for professional training Ford Company and its suppliers, through technological transfer result in collaboration between the University of Craiova and firms active in the automotive industry, for the development of joint projects of applied research in the field of electro mobility.

Tourism Oltenia Pole - Innovation and tradition in Tourism - TurOlt InTT was founded in the year 2012, having as founding members: Regional development agency South-West Oltenia, Oltenia Tourism Association (ATO), the City Hall of Craiova, Dolj County Council, University of Craiova - the Faculty of Economics and Business Administration, the Faculty of Social Sciences and the Department of Geography, Travel Agency Mapamond, SC ADA & ROBY CONSULTING SRL.

The tourism pole includes 26 companies' members, 7 public authorities, a University, 1 County Scholar Inspectorate, 3 catalysts. The general objective is the tourist sector competitiveness in the region of South-West Oltenia, by building a regional brand tourist product and innovation unit, so that by the year 2020 and improve with a position as the Romanian tourist destination on national and international level, and the annual tourist flow to grow by 15% (about 50,000 tourists a year). Specific objectives:

- The development, upgrading and maintenance of the relevant infrastructure to facilitate the development and promotion of tourism and the companies involved;
- Defining the regional tourist brand identity and the promotion of the pole;
- Development of innovative marketing tools and creation of tourist products;
- Exploitation of natural resources and development of sustainable tourism;
- The development of education and training on topics relevant to the tourism sector, in terms of stabilization and expansion of the labor market in the tourism sector;

- Improving organizational capacity and access to funding and implementation of projects on behalf of the members of the Pole.

The pole of competitiveness “Tourism Oltenia - Innovation and Tradition in Tourism” are part of the target group of the project CLUS3, which is implemented through the programme “Towards World-Class Clusters: Promoting Cluster Excellence”. The project will carry out training modules for managers of clusters, and will design a strategy of smart specialization for the development of clusters in South-West Oltenia.

Pole ITC Oltenia was established in 2011 and it has as members: 14 firms, a university, 5 research institutes, public authorities, two catalysts. The pole objectives are:

- Support in participating in economic missions, events for SMEs, brokerage;
- Business internationalization;
- Services for innovative SME, research in favor of SMEs;
- Creation of start-ups, incubation;
- Transfer of research results and the economic environment technologies;
- Intellectual property consultancy;
- Consultancy for accessing financing;
- Creating national and international partnerships, business development;
- Training of staff, particularly in the field of entrepreneurship;
- Implementation of quality assurance systems.

The pole of competitiveness INOVTRANS founded in 2012 has 26 members and Associates: 17 rolling stock manufacturers, design companies, universities, 3 research and development institutes, 2 public authorities, 3 catalysts.

The objective is the promotion and development of Romanian processing industry in Dolj, Olt, Gorj counties, by carrying out the main and ancillary activities on the manufacture of rolling stock.

The INOVTRANS purpose is to produce competitive goods with larger added value, adapted to the requirements of the national and international market, through the realization of new investments, technology transfer and the intensification of the collaboration between the University of Craiova, national research institutes and external partners in the local area of the CDI and active firms producing rolling stock, for the development of joint projects in the field of applied research, in order to use the CDI regional experience in this sector.

The pole of competitiveness “Integrated Automation systems - SIS-AUTOM-INT-POL” established in 2012 in the field of electrical equipment industry and optical has as its objective: innovative cooperation in the field of integrated automation systems and ancillary components and equipment through research-development-innovation, manufacturing, engineering and software, for strengthening the competitiveness and sustainable development of these economic sectors.

The pole has 36 members, out of which 15 Companies, 4 Universities, 5 research institutes, 2 public authorities, 10 Catalysts.

The TURINN cluster was established in 2010 to improve the competitiveness of services in the tourism sector, through an information and knowledge programme, on the basis of researches and innovations presented at international level, with direct impact on the development of the sector of active SMEs in the sector; public policies and development strategies; activating an information network for tourism agents. Increase the capacity for the promotion of innovation, competitiveness, research, technology transfer is carried out by 20 members: 10 Companies, a University and its Department of geography, 2 research institutes, 5 public authorities, 2 catalysts.

The "Oltenia Construct Cluster Association" was established in December of 2013, by joining a number of 21 entities in the field of construction industry and related sectors: design, innovation, research, training and professional training, logistics and production of building materials.

The overall objective is to increase the competitiveness of every Member of the Association and nationally and internationally through the development of services and activities that aim to promote and support regional enterprises in construction, production of materials and parts.

Strategic objectives are:

- Business environment development in South-West Oltenia region by creating business centers, industrial and logistics parks, cross-modal centers for people and goods in areas of confluence of transport networks; establishment of a research-development-innovation platform and facilitating technology transfer and innovation by the private sector.
- Introduction of innovative elements in the production of building elements and construction activities of civil and industrial buildings.
- To attract European funds for development activities and production services.
- Qualification, specialization and improvement workforce in the construction sector and in adjacent areas, in particular in the production of building materials.
- Development of a platform for research and development-innovation and facilitating technology transfer and innovation by the private sector, with the support of the academic and professional organizations.

Between May 2014 - June 2015, the Association Construct Cluster implements the project "With economic growth and development of close collaboration to Construct "Cluster With cluster", within the sectorial operational Programme Economic Growth 2007-2013; Priority axis 1: "a system of innovative and eco-efficient" production"; Major field of Intervention D 1.3 "sustainable development of entrepreneurship", Operation "Support for integration 1.3.3 businesses in vendor chains or clusters".

The general objective of the project is to increase the competitiveness of the cluster's members at European level, and it will run five campaigns aiming to promote attraction of new companies in the cluster. (<http://www.constructcluster.ro>).

Clusters, in the sense of industrial agglomerations formed based on tradition in case of tourism cluster, the existence of a multinational company in case of the automotive cluster and availability of EU grants in the case of the other clusters.

The move to the next level was made through the intervention of a catalyst that led to the creation of poles of competitiveness. Special importance had a 7th framework programme which has strengthened TURINN and POSCCE 2007-2013 that awarded funding in 2014 for Automotive Pole and for “Construct Cluster Association”.

The Ministry of Economy, Commerce and Business Environment, which initiated and supported the process of generating competitiveness in poles/clusters, have played the most important role in crystallization of competitiveness poles since 2009.

The cluster is a qualitative approach, which is constituted by the desire of some members, which aim at getting the benefits based on a strategy and on common objectives.

At the regional level, the quantitative analysis comes from the qualitative analysis, because existing clusters are analyzed by an instrument for the classification of existing clusters depending on certain criteria and indicators. Quantitative analysis is used in the evaluation of projects for funding grants.

Method of qualitative analysis on a regional level is of a special importance. Qualitative analysis is using vectors/indicators (Coșniță and Iorgulescu, 2013):

Geographical concentration - show the concentration of industries in the region;

R & D - show the existence of institutions of education and research;

The labor force - show the quantity, quality and human resources qualification at the level of agglomeration.

Cooperation - shows existence of partnership relations between members of the agglomeration and is the element that make distinguishes between cluster and a branch well represented at regional level.

Catalyst institutions - show the existence of mediators in the partnership (institute of technology transfer, Chambers of Commerce, firms of consulting, Agency for regional development, etc.).

Internationalization: show orientation to international markets.

Table no. 1 Analysis of qualitative seasonal overloads at regional level

Vector/cluster
Concentration (<i>a</i>)
Employment (<i>b</i>)
Cooperation (<i>c</i>)
Cluster (<i>abc</i>)
R & D (<i>d</i>)
Internationalization (<i>e</i>)
Strategy (<i>f</i>)
Pole of competitiveness (potential) (<i>abcdef</i>)

Catalysts (<i>g</i>)
«Four Leaves Clover» Cluster (<i>abcg</i>)
The pole of competitiveness (potentially) «Four Leaves Clover» (<i>abcdefg</i>)

Quantification of the results is done in binary form as follows:

- Proper representation of a vector has been quantified with 1;
- The inexistence of a vector was quantified with 0.

To be considered a potential competitiveness pole, «industrial agglomerations» must satisfy at the same time the indicators: «Concentration», «Employment», «Cooperation» and the existence of organizations that fall into model «Four Leaves Clover». To be considered a potential pole of competitiveness, industrial agglomerations must satisfy both indicators and "R & D", "Internationalization" and the existence of a «Strategy», and the existence of an organization catalyst they category Four Leaves Clover «model».

Analysis of the 6 presented agglomerations highlights that they are poles of competitiveness because of existence of the vectors «Concentration», «Employment», «Cooperation», «R & D» have strategies and are geared towards internationalization.

Poles of competitiveness are members of four pillars: Business; Education; Research; Public authorities, each of them having a determined role in interconnection relations, namely:

Business - are present in the five counties of the region, including the development of related industries and their suppliers that need innovation offered by institutions of education and research.

Public sector - public authorities in the region: local and county councils in the counties of the region development components. Their role will consist in supporting the infrastructure cluster operation, promoting the benefits of cluster and incorporating them into development strategies.

Research institutes in the region accredited fields, who performed the research and innovation activities, whose offer is absorbed by industry innovation. Academia - University of Craiova through the essential role in education, research and development of poles of competitiveness strategies.

Business cooperation with the education institutes, the research institutes and with public administration will determine the competitiveness of the region, through the development of industrial and innovative services, by increasing exports, attracting foreign investments, through the creation of new work places, in essence adding value to economic activities in the region.

Compared to the model of cluster with five players previously presented in innovative cluster structure are lacking financial institutions, due to the fact that the

financing is done from public funds and private contribution, because credit institutions shall not grant loans seeing that the cluster association is constituted as an NGO.

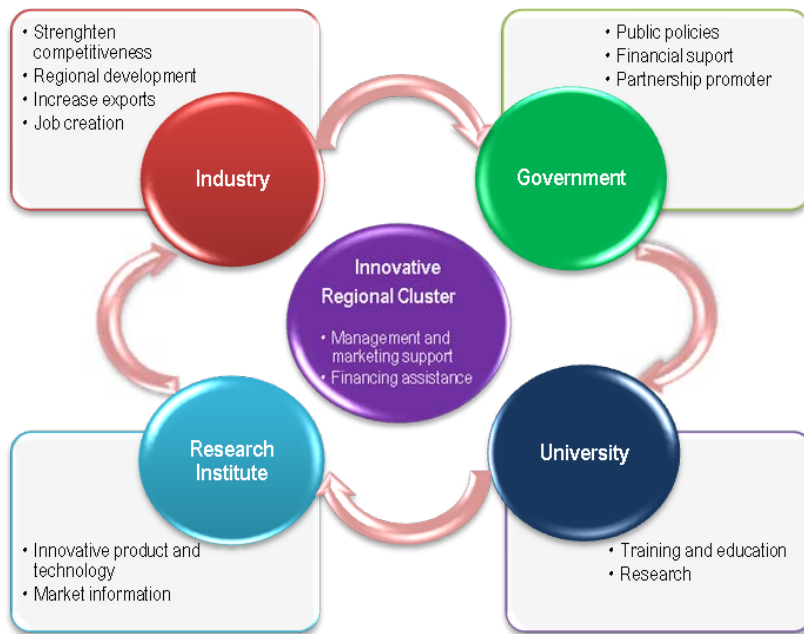


Figure no. 3 Innovative cluster Model with 4 pillars applicable in the region of South-West Oltenia

To emphasize the role of innovation in cluster distinct in Figure 3 were highlighted research institutes and academia, involved in both research and education in the work force.

Public policies can act to create an microeconomic environment favorable to innovation that lead to the emergence of clusters by encouraging collaboration between undertakings in the geographical proximity.

So far, Romania has not benefited from a policy based on the development of associative structures that could contribute to the improvement of regional competitiveness. The lack of a framework for financing their development has delayed the clusters.

The cluster development is a process driven by the market, following a bottom-up approach, based on demand and market signals and where entrepreneurial thinking is key. Public authorities have an important role in supporting the development of clusters, by reducing administrative barriers, through the promotion of clusters and their financing programmes. Their role should not be confused with clusters “governance”, public authorities need to focus on the one hand on the

coordination activities of the clusters in regional and European projects and on the other hand to support the exchange of best practices with Member States of the European Union. Public interventions need to capitalize on local initiatives, putting in contact the actors, giving incentives and providing the necessary infrastructures. Government policy must aim relations of cooperation between firms already present, and to move towards stimulating agglomeration in clusters.

7. CONCLUSIONS

Clusters combines competition between companies and organizations, with forms of cooperation and exchange of information, leading to economies of scale, improve competitiveness, economic growth and social. In this context the development of cluster policies is useful for speeding up the development process.

Clusters have a great potential to be exploited not only by using them as simple tool used by economic policy makers, but must be placed at the centre of development strategies designed as a new political model of microeconomics.

It is advisable that Romania to be drawn up a strategy of poles of competitiveness in line with the strategy of national and regional development, industrial policy and with the National Reform Plan. The key element of the strategy is the approach based on market demands, a vision built in collaboration with the private sector and the State guideline of public interventions aimed at clusters through incentives and providing the necessary infrastructures.

Regional Policy must aim at the already existing cooperation relations between companies for building clusters. For a successful collaboration it is important that companies operating in different areas of interest to act together for their common interests, for the efficient use of existing resources.

In terms of business environment, it is necessary to improve and simplify, facilitate and diversify access of SMEs to financing; to ensure a closer association between research, innovation and enterprise, notably by granting priority status of research and development activities that are likely to attract private investment. In the field of cluster financing although there are Governments tend to fund members of the clusters, it is advisable to finance management. Cluster management organisation has an important role in ensuring the operation of the cluster in the reciprocal exchange of information and continuous between cluster members, coordinating members, in the identification of external funding sources, in the implementation of joint projects, in developing a cluster being essential for the long-term functioning of the cluster

Associative structures such as cluster/pole of competitiveness is an experienced solution successfully in Europe for Romania stakeholders must take into account that the implementation of an external model, involves the first adaptation to national conditions, regulating the unified concept of operation, including financing of the Association shape.

To the South-West region Oltenia cannot speak of clusters; they are formed primarily in 2 counties (Dolj and Mehedinți) of the 5 counties of the region around some cities with high industrial potential.

With all that in the region there are conditions for the development of clusters, namely pillars needed: business environment, research and innovation, education and the public, as well as interest on the part of public authorities, NGOs, academia, for their function requires the cultivation of trust between participants. Particularly important for the operation of the cluster is the awareness of the role that innovation in realization of competitive products, as well as the modernisation of infrastructure that could be financed by reimbursable funds.

Clusters as a form of Association, which includes the economic environment, research, innovation, public institutions and public authorities can contribute to the development of regional and national economy of Romania. Concentrated in areas heavily industrialized (such as the cluster of automotive, tourism, ITC, etc.) provides a framework for the creation of regional brands and for internationalization.

In terms of evaluation of the results obtained by the clusters, because the duration of a programme for the development of the cluster is 10 years until the cluster will be able to reach maturity, the effect of the intervention and its impact on the region's economy will be felt in the next 10-20 years.

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