

The Clusters - One Of The Most Effective Forms Of Tripartite Cooperation

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Abstract

In the last time there is a trend of specialization of the localities within a region in certain industries through the territorial concentration of the industrial activities, which creates the premises for the formation of natural clusters. These clusters represent an innovative form of regions' development, where they are created, and of entrepreneurship in this region. But these aren't the only benefit as a result of cluster formation. Because at the base of the cluster is tripartite collaboration between the academic environment and scientific - Local Public Administration - the business environment, this type of entrepreneurial structure can be considered to be the most efficient form of tripartite collaboration with the most effects to multiple recipients.

Key words: cluster, innovations, regional development, tripartite collaboration.

Under the conditions of globalization and the growth of competitors on a free market can survive only an economy based on knowledge. Thus, knowledge becomes a primary factor in economic processes, representing the key element of economic competitiveness, both at the micro level, meso, and macro. We may highlight as the pillars on which rests the knowledge-based economy:

- the technological innovation and the costs of research - development;
- the learning from the practice and dissemination of knowledge;
- the accumulation of capital;
- the improvement of education and vocational training - which would generate the increasing of labour productivity, as the engine of sustainable economic growth. [1].

From three elements, which form the so-called „triangle of knowledge”, education, research, innovation, the latter is the element with the greatest impact on welfare and also the most problematic in terms of related policies. The innovation is a complex process with many variables, and which is based on collaboration between industry - research and development. That's why, in order to contribute to the growth of welfare, developed countries have sought solutions, proposing more complex forms of interaction and collaboration, to create bridges between the two sectors and to allocate for this purpose, public financial resources becoming more substantial. [3]

One of the most effective forms of interaction and collaboration between the academic and the business environment is the cluster. The cluster concept has a long history, during which it was also awarded several names: „pole of competitiveness”, „industrial agglomeration”, „industrial district” and others. Perhaps the most appropriate definition given in this sense belongs to Philippe Lefebvre of Ecole des Mines in Paris, who says that „there is no real definition of a cluster. In reality, there is a number of types of clusters that involve various partners from industry, research, education, political sphere, but are totally different not only in terms of the approach, but also in terms of links between stakeholders” [9].

As the parent of economic policies based on cluster development is considered Michael Porter, he was author of the following definition: „clusters are geographic concentrations of

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interconnected companies and institutions, belonging to a particular sector. Clusters include a group of related industries and other major entities from the point of view of competition. These include, for example, suppliers of inputs, such as components, machines and services or providers of specialized infrastructure. Often clusters extend downstream to various distribution channels and customers and laterally by the producers of complementary products and related industries through qualification, technology or common inputs. Finally, some clusters include governmental institutions and other types-such as universities, standardization agencies, think tanks, professional training providers and employers-providing specialized training, education, information, research and technical support” [5].

A slightly different approach can be found in the works of Thomas Andersson, that defines clusters as „a critical mass of skills, resources and organizations (in absolute terms-in comparison with other clusters in other regions-but also to other clusters in that region), able to support long-term links between stakeholders in cluster activities” with an „interaction between Member firms which show not only signs of cooperation but also of competition”. [9].

The first economist who described clusters from the perspective of „supply chains” was Alfred Marshall in 1920, which, by analyzing the industrial agglomerations in Great Britain has found that these geographical concentrations of firms in a particular sector create positive unintended economic effects (externalities):

1. the effects on employment: the fact that a large number of enterprises shall be supplied from the same pool of labor has as a consequence, not just the increase of salaries, but also specialization and their increasing skill levels;
2. the effects concerning specialization of suppliers: in order to avoid competition, enterprises from an industrial agglomeration tend to specialize on a certain segment of the chain of creation of added value, leading to increased product quality and cost reduction;
3. the technology transfer: Marshall found that information and knowledge "floating through the air" between existing businesses within the geographic concentrations [4].

The European Commission Communication ECC (2008) 652/2008 towards world-class clusters in the European Union – “implementation of the innovation strategy” defines the cluster as a group of interconnected firms, economic actors and institutions located in a geographical proximity and who reached the rank of largest specialized expertise required for development, services, suppliers and skills.

The cluster is defined for the first time in Romania in 2006, in HG 918:2006-Program “Impact”. Thus, the cluster is a grouping of producers, users and/or beneficiaries, with the aim of implementing best practices from the EU, in order to increase the competitiveness of economic operators.

In his work, “The competitive advantage of nations”, Michael Porter showed that in order to be able to explain the economic success of a country or region is not sufficient just to recourse to the classical theory of production factors, but it depends on a complex interaction of factors come together in what today we call “Porter’s Diamond”: the demand, the strategy of the company and competition, the production factors, the chains of suppliers horizontal integration.

All these considerations have led to the widely accepted model of the “triple helix” that group together within a cluster representative of:

- enterprises - representing the economic side of the cluster;
- universities and research institutes - representing the innovative solution providers applicable to the real needs of enterprises in cluster;
- local public authorities, regional etc. [8]

The concept of the Triple Helix of university-industry-government relations has been initiated in the ‘90s and represents the transition from an industry-governmental dominant position in the industrial society to a controlling triadic relationship growing between the university-industry-government in the knowledge-based society.

The Triple Helix concept is that the potential for innovation and economic development in a knowledge based society is concentrated in collaboration between University, industry and

Government to generate new institutional and social formats for the production, transfer and application of knowledge. This vision encompasses not only the creative destruction that occurs as a natural dynamic of innovation (Schumpeter), but also creative renewal that appears in each of the three institutional domains of the University, industry and Government, as well as at their intersections.

The concept of Triple Helix can be seen from two complementary perspectives:

- an institutional perspective that examines the growing importance of the University among the actors of innovation through case study by national and regional historical and comparative analyses. These studies examine the various aspects of the third mission of the University to commercialize academic research and participation in socio-economic development, such as transfer of technology of University and entrepreneurship and contribution to regional development, government policies aimed at strengthening the links between universities and industry, etc.
- a neo-evolutionary perspective inspired by social systems theory of communication and the mathematical theory of communication, sees the University, industry and Government as co-evolutionary sets (for example, markets and technological innovations). These interactions are part of the two processes of communication and differentiation: the first is functional, between science and the market and institutional one between private and public control at the level of universities, industry and Government, which allow different degrees of mutual adjustment.

The University is a central concept of the Triple Helix. It takes a proactive position in putting into service and knowledge in the creation of new knowledge. Collaborative links with other actors in the field of innovation have increased the presence of universities in producing scientific research. As firms raises its technological level, they engage in a higher level of training and knowledge exchange. The Government acts as a public contractor, generator of risk capital, as well as the promoter of the state policies and laws concerning the establishment and implementation of such relationships. Rather than serve as a source of new ideas for existing firms, universities combine the capacities for research and teaching in new formats to become a source of formation of new firms, particularly in the fields of science and technology. Universities are becoming more and more a source of regional economic development, and academic institutions are deflected or grounded for this purpose. From the perspective of the Triple Helix systems, consolidation of spaces and non-linear interactions between them can generate new combinations of skills and resources that can advance the theory and practice of innovation, particularly at the regional level. [7]

Development of geographical regions through tripartite Association of enterprises, universities and regional administration is also promoted in the legislation of the Republic of Moldova. In the concept of cluster development of the industrial sector of the Republic of Moldova, the cluster is defined as an association of interconnected firms, located in geographic proximity, usually belonging to a sector or related sectors, as well as scientific research institutions, universities and other organizations, activity of which is focused on innovation, and their cooperation allows to enhance the competitive advantages of enterprises.

The aim of this Concept is to determine the necessity and possibility of implementation and development of a mechanism for associating economic units, in the form of a cluster, for the development of efficient and competitive industries of the economy of the country.

In general, the objectives of State policy to support the cluster development of the industrial sector are:

1. the development of industries;
2. the economic development of the regions of the country;
3. the strengthening of cooperation between businesses and educational and academic institutions;
4. the development of science and education;
5. the development of small and medium - sized enterprises;

6. the accelerating process of development and implementation of innovations in the real sector;
7. the improvement of financial indicators of enterprises and, as a result, the increase in budget revenues at all levels;
8. the raising of qualification of employees involved in industrial activities;
9. the strengthening of the image of the Republic of Moldova by increasing investor confidence, as well as domestic and foreign partners toward business - cluster members;
10. the consolidation of the business community;
11. the development of partnership relations between businesses and local and central Government authorities [2].

It should be noted that for the proper functioning of the cluster it is important to ensure a “healthy” functioning of elements of the cluster, or such called pillars:

- Economic pillar (industry and/or services): a significant number of enterprises from the field in that cluster are active. Besides these, the cluster may include organizations representing enterprises groups (professional associations, etc.).
- Educational pillar – Research - Development: universities, research institutes (or any other institutions engaged in research and development).
- Pillar of public authorities, at national level (Ministries, etc.), regional (ADR, regional councils), local (APL, town halls, etc.).

It is believed that it is very useful as the classic model to be completed with catalyst organizations: entities of technology transfer and innovation, chambers of commerce, consultancy firms, etc. [8].

Although the phenomenon of cluster appears spontaneously, as a reaction to the demands of the market and the use of interconnectors between firms, yet its development is strongly influenced by the policies pursued by Governments. On the basis of the rapid development of clusters in the practice appears a paradox: lasting competitive advantages, in the global economy, are linked to increasingly more aspects, are manifested at the local level - knowledge, motivation, relationships, connections, which are not within the reach of geographically dispersed competitors.

The formation of clusters and their development are currently seen as the central pillars of local development. The inefficiency of local results is due mostly to the fact that Government policies and local ones are not focused on economic clusters. On the other hand, the initiative for the formation of clusters requires implementation of strategies based on economic logic. Dynamic clusters are characterized by three factors: local dynamics, global appeal and access to the global market [6].

We can point out that successful businesses are becoming increasingly dependent on the environment that promotes cooperation and innovation. The mode of cooperation between different organizations will depend on the extent of innovation and progression. There are following models of collaboration for clusters and networks of firms:

1. Cooperation and management cooperation. Cooperation between firms designates a collaboration contract established on medium-term or long-term, between companies, independent self-employed persons in legal terms, signed in order to solve certain problems in common. The main forms of cooperation between enterprises are established according to the shape of the interaction between these horizontal cooperation, vertical cooperation and cooperation within the chain.

2. Collaborative Models for economic clusters.

- agglomeration model, that distinguishes three types of clusters: *Cohesive Clusters*, *New Industrial Districts* and *Innovative Milieux*;

- from the point of view of the structure of clusters of Markusen (1996) delimited three types of clusters: cluster of chain (industrial district), clusters of type node and links (hub and spoke), and satellite clusters. Subsequently, they were added to the institutional type cluster.

- the model of cooperation within the cluster presents a simplified scheme with three main factors that have a significant impact on specific collaborative relations economic clusters. These

factors are represented by the cluster management, cooperation (opportunistic behavior), and the dominant organization within the cluster.

- the innovative performance model is explained through the intensity and diversity of competition and using collaborative relationships between enterprises, for instance, cooperation with customers and with suppliers within the cluster. Thus, the location of innovation process is influenced by the pressure imposed by competition and the synergy resulting from the cooperation.

- the model of cooperation within the cluster. Coordination structure of a cluster is defined by a set of responsibilities assigned to various institutions in the process of formation of the cluster policy. At ministerial level can be formulated overall strategy, with a budget and with programs devoted to implementation. Government agencies or specific regional leadership can take a leading role for the development and coordination of these programmes. Programmes include, in this case, a number of project initiatives for a particular region. Initiatives of this type may exist on the part of all institutions in the region.

- the life cycle model of clusters. By analogy with the theory of life cycle of the product, it can delineate the formation and development of clusters in several stages presents a theory of regional cycle of the product, the following phases: exploratory phase, the activation phase, structure phase (launch), growth phase, the integration phase (stabilization) and the phase of restructuring.

3. the collaborative models for chains. The main features of the chain organization are described below:

- each partner of the cooperation acts in order to obtain a competitive advantage,
- interest business is more important than ownership,
- information network and structure is more important than physical connection (virtual enterprises),
- coordination has precedence over integration (within the meaning of the merger),
- there is no a central enterprise,
- the roles are distributed polycentric,
- businesses are independent from each other from the legal point of view, but dependent from economically points,
- the stability of the chain depends on the quality of the mutual dependencies of the partners.

In the strategic chains exchange relations represents the core of the organization. In the case of the comparison with business relationships, chains may find similarities that in both situations the two organizations are in a dependent relationship to each other. In the context of business relationships, activities, resources or persons participating may be joined by a relationship. The sum of all business relationships can be compared to a network. The organizational form of the kind of strategic chain allow small businesses that are flexible, to reap the benefits without installment to lose its independence. [6]

World practice of using cluster mechanism, as a specific form of cooperation of the business environment, allows to highlight the special features, it offers considerable advantages, including:

- 1) the geographical focus of the cluster members. The territorial proximity of enterprises allow to use infrastructure created the joint task force to examine problems encountered;
- 2) the existence of "nucleus" of cluster - large market operators, and concentration around it to small and medium enterprises, operating in the same sector of the economy, and are connected to a single value chain through supplies of raw materials and other resources used through the production manufactured and through reciprocal services;
- 3) the presence of an innovative component in the cluster activities, which is provided by research institutions or universities;
- 4) maintaining full legal independence of the members of the cluster;
- 5) maintaining competition between members of the cluster, which is performed in the form of "competitive co-operation";
- 6) maintaining the flexibility of small and medium enterprises, under the conditions of the emergence of new needs in the economic activity of the cluster. [2]

The general advantages of the clusters, regardless of their shape and type, can be represented schematically (Figure 1).



Figure 1. The general advantages of the clusters.

Source: developed by the author.

Therefore, the benefits of the various actors in the context of innovation clusters can be grouped as follows:

- *For businesses*

- intra-sectoral cooperation for economic benefits;
- cooperation in the acquisition of technology and production;
- facilitating an increased flow of information and transfer of technology;
- developing an integrated marketing;
- access to funds dedicated to associative structures: European, national;
- support from the authorities;
- increased competitiveness;
- cost savings.

- *For public authorities:*

- supports economic and social development of the region;
- contribute to reducing unemployment;
- supports the promotion of the region internally and internationally;
- supports the development of infrastructure.

- *For universities and research institutes:*

- adaptation of the school curricula to economic realities;
- stimulate research and innovation;
- development of new laboratories and research infrastructure modernization with the help of enterprises;
- stimulate applied research and technology transfer, through close cooperation with the economic environment
- stimulates scientific cooperation, the transfer of know-how.

- *For intermediate organizations:*

- broadening of clients;
- development of new products and services;
- competitive advantages.[9]

In fact, the cluster development will contribute to the development of the region and of the economic and social growth through the increase of salaries, increase living standards and consumer requirements, development of enterprises, products and their quality.

References:

1. Carmen Nastase, Economia Cunoașterii, note de curs, 2010, www.seap.usv.ro/.../Ec%20cunoasterii_Master%202010.doc
2. Hotărîrea Guvernului Nr. 614 din 20.08.2013 cu privire la aprobarea Concepției dezvoltării clusteriale a sectorului industrial al Republicii Moldova Publicat: 30.08.2013 în Monitorul Oficial Nr. 187-190 art Nr : 726 *MODIFICAT HG632 din 11.09.15, MO258-261/18.09.15 art.723* <http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=349315>
3. Luț Dina Maria, Rolul și importanța clusterelor în contextul economiei bazate pe cunoaștere, <http://www.quaestus.ro/wp-content/uploads/2012/03/D.-Lut.pdf>
4. Marshall, A., Principles of Economics (8th Ed.) Macmillan, London, 1925
5. Porter, M.E. “Clusters and the New Economics of Competition”, Harvard Business Review, 1998
6. Tanțău Adrian Dumitru, Ghid de bună practică pentru clusterare și rețele de firme, Print Group, București 2011
7. Triple Helix Research Group, Stanford University https://triplehelix.stanford.edu/3helix_concept
8. <http://clustero.eu/despre-cluster/>
9. <http://www.trec-cluster.ro/ro/ce-este-un-cluster>