

INNOVATIV CLUSTER – A CONCEPTUAL ANALYSE

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Abstract:

The phenomenon of clustering, in general, and innovative cluster, in particular, are relatively vague concepts from semantically point of view, even if are used more than ever, especially in the context of new economic development policy based on "competitive agglomerations". In these conditions, the main objectives in this work are: elimination of semantic ambiguity on innovative cluster, identify sufficient predicate of innovative clustering phenomenon, identifying the necessary predicate of innovative clustering phenomenon, proposing a new definition of innovative clustering phenomenon.

Key words: cluster, competitiveness, inovation, innovativ cluster, industrial policy

JEL classification: O30, O25

1. Defining aspects of innovative cluster concept

Started as a finding of Alfred Marshall regarding the advantages of the companies that focus on a particular region, passing through neo-classical economists' approaches and other scientists in related fields, clusters have become "trendy topics".

Global competition has evolved from competition between companies to competition between regions. In this context, clusters play an important role representing the poles of concentration skills. Cluster initiatives are concerted efforts to enhance welfare and competitiveness of a region including companies, local government, research and training company.

Cluster formation and development are now seen like pillars of local development. Inefficiency of local results is mostly due to the fact that governmental policies and local ones are not focused on economic clusters. On the other hand, training initiatives clusters requires the implementation of strategies based on economic efficiency.

Clusters there are a new economic phenomenon. New are the forces that cause this phenomenon and its correlation with international economic activities [Krugmann, 2001]. In recent years, flows of direct investment focused in regional areas where there is skilled labor, capital, experience, business traditions, specialized suppliers, institutions and research institutions competitive capital and adequate infrastructure.

As defined by Michael Porter, "Clusters are geographic concentrations of companies and institutions in interconnect and manifested in a particular sector / industry. Clusters comprise a group of related industries and other entities important in terms of competition. These include, for example, suppliers of specialized inputs such as components, machinery and services, or providers of specialized infrastructure. Often, clusters extend downstream to various distribution channels and customers and laterally to manufacturers of complementary products and to industries related by skills, technologies or common inputs. [M. Porter, 1998]. Clusters can be found within governmental or educational institutions, vocational training providers and employers who provide specialized training, information, research and technical support [Porter, 1999].

There are two central elements in Porter's definition. First, the emphasis is on the interconnections between actors and the positive externalities arising (eg. Skilled labor available locally, low transport costs, external economies of scale, transfer of know-

how, etc.), elements that integration determines the cluster actors. Connections are both vertical (chain buyers and sellers) and horizontal (complementary products and services). The second fundamental characteristic is the geographical proximity of firms in the cluster group. Porter's diamond model plays a critical role in directing innovation and improves company's competitive advantage [Porter, 1990].

Companies in the cluster have access to specialized inputs. The improvement factor is endogenous and type actually is dictated by competition and demand specific cluster. For long-term performance cluster to attract companies, venture capital (venture capital), new skills and other resources from outside.

Dynamic clusters are characterized by three factors: local dynamics, the overall attractiveness and access to global markets. Even if major clusters are characterized by high costs (eg. labor and land) it is characterized by innovation and sustainable development and resource companies.

Another definition that prioritize the competition-cooperation duality present cluster as "a geographic concentration of interconnected companies, of specialized suppliers, of enterprises from related businesses or organizations "type support" in certain areas, which are in competition each other and cooperate in the same time"[Sternberg and others 2004].

These definitions do not refer to the size of enterprises in a certain area and believes that clusters have to focus attention on the exchange relations that appear both in the field and beyond. The concept of cluster analysis determines a company transition from isolated to a network of companies [Staber, 2001].

2. Errors can be made regarding the definition of innovative cluster

The main errors that can be made regarding the definition of innovative cluster are:

1. error of allocation: clustering is not only economic and financial environment, but can make the "object" clustering process and entities from natural or artificial, approach in terms of existing funding sources;

2. error in composition (aggregation): simple agglomeration and economic growth in congestion is not enough to declare that this is an innovative cluster;

3. interpretation error (check): not every cluster / cluster is innovative / innovation, the existence of several names that designate the whole or pertaining to the same concept: cluster competitiveness pole, pole of excellence, urban growth pole.

In our universe infinite in space-time, resources, cluster systems are becoming real systems that generate (progress / stagnation / decline) in all areas of space-time resources from natural habitats and / or artificial, from macrocosm to microcosm. Clusters have an infinite hierarchy are organized source complexities increase, the default start-up innovation (a new structure in their external environment). But, sustainable progress in any field is determined by inoclusters.

Inoclusters (innovation clusters) are systems of real systems that generate progress in natural environments and / or artificial, from macrocosm to microcosm, in different time horizons (ephemeral, temporary, sustainable). Inoclusters generate sustainable progress in all natural environments and / or artificial, from macrocosm to microcosm, indefinitely through successive generations-parallel real innovate integrative systems (resources, processes and structures, and self-management, culture, competitiveness). Humanity plans and perseveres in becoming a sustainable macro-inocluster from 21 century.

Innovative Clusters / inoclusters include: natural (created without human intervention planned) and / or artificial (created with planned human intervention). Regardless of category, clusters innovate thus at least temporary, by creating critical masses of components that make generating systems of becoming real systems. Infinite

universe and the complexity of living environments are determined continuously determine and will determine clustering and cluster characteristics, specifically:

- Universe, infinite in space-time-generated resources, generating and will generate cyclic-parallel successively, mainly relatively slow, all categories of clusters / natural inoclusters:
 - non-living (physico-chemical clusters), the entire universe / multiverse,
 - living (bio-clusters, bio-socio-clusters, etc..), the planets / satellites that provide favorable living environments and
- Life planetary environments more complex, intelligent beings progressively generated, generates and will generate cyclic-parallel succession, at a time, categories of clusters / artificial inoclusters, specific for human civilization:
 - spontaneous (self clusters in external environments - companies that cooperate in networks and increase their competitiveness),
 - planned, designed, accepted and performed in different external environments (sustainable clusters - for example, the cluster consists of a transnational company in the global market leader).

Clustering is a continuous process of establishing, operating with periodic restructuring, dissolution-parallel successive generations $g = 1, 2, \dots, n, n + 1, \dots$, cluster / clusters of clusters in space-time-resource areas of the Universe / Multiverse are created conditions for the existence of systems of systems. Clusters / inoclusters existing generating sustainable progress in space-time-resource areas considered. In any field, we can determine the optimum level of clustering, in function of maximum integrative (sustainable) competitiveness.

3. Aspects regarding the sufficient predicates and necessary predicates for define the concept of innovative clusters

Most SMEs in particular, shows a lack of resources, facilities and technical knowledge. Therefore, a strategy to turn real prospect of success in product innovation and services in the current knowledge-based economy has become increasingly clear that companies need to participate in networks, alliances and collaboration to reduce costs increasingly more high technology transfer. There are different types of research agreements, development and innovation by enterprises can be made directly with R & D institutes, universities and other organizations, public-private partnerships, which may be different according to the financial nature of each party, type assumed protection, etc.

In this context, innovative regional clusters provides a higher step because it assure the economic growth at regional and national level through high level inter-connection of companies inside the cluster, leading them to function in an integrated system. Such way, are accumulate at a higher plane the advantages of diversity and complementarity of the network with the intense interpenetration of activities involved, largely similar to those of a large organizations. The main feature of clusters is flexible organization, every company meeting certain activities according to market demands and cluster strategy.

Cluster is also the ideal way of presenting a lot of companies under one brand, according to joint marketing policies, to capitalize common resources and skills. Also, in a cluster, "young" companies have the chance to learn from the companies with experience, participating together in outreach, training, marketing, purchase of fixed or mobile, production / sales joint construction of common infrastructure.

In terms of sufficient predicates identification of the economic inoclusters phenomenon mention the following:

- The combination of the following entities, resulting in either a person or an entity which operates under a formal agreement of association between members of the pole:
 - A) Internal Community - Business Networks production / service offering consumers highly competitive types of target markets, and consist of:
 - A1) Companies / groups of leaders in business networks;
 - A2) Business innovation, production / service, marketing, human resources training, etc..;
 - A3) Company R & D and innovation (universities, institutes and companies R & D,);
 - A4) Financial institutions (banks, grant funds, investment funds, etc..)
 - B) Internal facilitators - institutions / organizations / networks for cooperation and competition with
 - B1) Competitiveness Councils and Centres
 - B2) Territorial Development Agencies (regional, county, local)
 - B3) Territorial Development Agencies (regional, county, local)
 - B4) Other enablers: regulatory bodies, employer organizations, professional organizations, unions, etc.
 - C) Determinants of self-determined conditions of the internal environment of the cluster - local government:
 - C1) local
 - C2) regional
 - C3) euroregional
 - C4) national government
 - D) External environments proximate target - markets / segments / niches target specific consumers, changing their behavior (consumers), Nature, other external media artificial
- The nature of relations between actors of inocluster, cooperation relations (relations of competition and / or cooperative internal / external)
- Geographical area (local, regional, national, etc.)
- Inocluster's development strategy, which is a document formally endorsed by all members of inocluster.
- Project / innovative projects / common e / e - Some companies promote innovation projects defined as developing and introducing a new product, while the other performs continuous product improvements, processes and their operations. Innovation is implementing a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method. Minimum requirement of an innovation is the product, process, method of marketing and organizational method to be new (or significantly improved). Innovative activities are all those who have scientific, technological, organizational, financial and commercial and updates, or are directed to lead the implementation of innovations. Innovative company is to implement an innovation in a certain period of time. Innovative company in products and processes is to implement a new or improved product or process in a certain period of time.

It is possible that sufficient predicates, once checked (once generated the inoclusters phenomenon) to generate a number of necessary new predicates (the set of necessary predicates is the union of the sufficient predicates and the set of necessary new predicates) [Dinga, 2011]. Regarding the inocluster were identified the following new sufficient predicates:

 - Availability of resources (material resources, human, financial, information)
 - Having a "critical mass" in terms of members / players of inocluster

- The focus on innovation - the pressure on actors to innovate, invest, integrative innovation resources, concern for the development of innovative products, competitive national and global market. Product and process innovation are closely related to the concept of technological innovation of product or process. Product innovation is the introduction of a good or services that are new or significantly improved with respect nature or intent of using them. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness and other operational characteristics. Innovation of product can use new knowledge and new technologies, or may be based on new or on combining existing knowledge and technologies. Marketing innovation is the implementation of a new marketing method involving significant changes in design - and the product packaging, promotion or pricing it. Marketing innovations are aimed at better addressing customer needs, opening new markets or new products to market positions. Organizational innovation is implementing a new organizational method in business practice firm, the organization of jobs and foreign relations. At the same time, organizational innovations can be designed to increase business performance by reducing administrative or transaction costs, improve work climate or decrease acquisition costs.

These steps lead us to propose a new definition of innovative cluster / inocluster as an association, in a defined geographic area, between enterprises and research organizations or educational institutions with research which have relations cooperation (collaboration and competition), in order to create synergy around innovative projects within a common development strategy in order to make innovative products targeted at one or more national or international markets.

4. Conclusions

Taking into account the views expressed in the literature and own researches has proposed a definition of inocluster/innovative cluster, being underlining the necessary and sufficient predicates that characterize this phenomenon.

Thus, key stakeholders should be involved in collaborative processes of inocluster type are from industry, government, research and development, education and entities within technology transfer. Theirs integrated action must be supported by regional chambers of commerce, by organizing conferences and workshops to inform companies about the importance of inoclusters for regional and national economic development. Public authorities can not directly form clusters, but should provide support for the establishment of inoclusters by specific programs, through partnerships, through specific policy or a specific strategy.

Inoclusters arise both as a result of private initiatives and by promoting national and regional investment. Innovation effort represents a dimension to be considered by all partners of inocluster to increase its chances of success and create conditions for sustainable development.

Each cluster must be dynamic and have the ability to respond to new conditions. This provision and designing strategies for future success are the results of implementation of an organizational culture of a brand and strategic management of a specific cluster.

Efficiency of inoclusters function consists in the existence of a national strategy in this area, coupled with clear policies, including action plans for promotion. Currently there are different forms of promotion for clustering phenomenon and also for inocluster one, through a series of policies and programs. It should be noted that cooperation within clusters should be based on trust and maintaining the legal independence of each partner, they can still be competitors in areas not affected by cluster objectives.

Inoclusterele offers businesses a range of benefits, including stress: increased productivity and employment rate of working through regional networking of people, skills, competencies and knowledge, stimulate innovation due to rapid interaction with customers, creating new ideas and provides a pressure on innovation, the framework of collaboration inside the inoclusters facilities the decreasing of experimental costs, increase economic efficiency of firms due to quick and easy networking with customers and suppliers, increasing the chances of success for start-ups and innovative spin-off, prerequisites to successfully face new economic challenges, the opportunity to influence education profiles corresponding human resource skill requirements, innovation is the decisive factor in competition, and knowledge is the key to success in the light of global market and production systems sustained change.

In conclusion, it should be noted that inoclusters are a long term solution (not suitable for a limited thinking short term) because it has a strategic dimension that underlies the integration of all stakeholders and is a prerequisite for their competitiveness.

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