

Clusters, Innovation and Entrepreneurship at the Danube

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Abstract: The objective of this paper is to present the importance of the clusters and innovation for the entrepreneurship in the zone of the Danube. It is important to underline these aspects in order to point out that the engine of developing in this area could be the clusters and their corollaries. These concepts, together with the research or experiences in this field are rather new, or better said young, and our study tries to add something to it. In this line, in order to capture the evidence we used survey and observation. The key results from this research try to emphasize the importance of the clusters both for innovation and for entrepreneurship, and their consequences upon the economical development. The implications of this paper could be as for the researchers, academics and also for the entrepreneurs. As for the key contribution of it is about the comparative approach of this matter in order to result the importance and the necessity of the topic. And this might be its added value that it is thoroughly researched.

Keywords: competition, concentration of resources, research, technical support

JEL classification: O14; O32; F02; L16.1; O18; O25; O52

MOTTO:

“Cluster policy will continue and will require following that during next there groups of companies, not large corporations like now.”
Alvin Toffler: *Creating a new civilization*

1. Introduction

What is a cluster? The concept of cluster (cluster or constellation companies) is not as new as you might think, being circulated as early as 1890 and having therefore more than a hundred years old. Entered for a long period in obscurity, the Cluster concept has a long history since the first mention made by Alfred Marshall in 1920. Supporter of neoclassical economic school, Marshall observed and analyzed the economic area around London and came to conclusion that organizations and businesses in the area were interrelated by three main factors. They are labor pool,

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suppliers specialized and easy access to knowledge and information and are known called “Marshall’s Trinity” (Dan, 2011). This concept of cluster was only revived in the 1970’s and later on, in 1990’s it was removed in the first plan and popularized in Michael Porter’s studies. He is considered today “Spiritus Rector” economic policy based on development of clusters and who made the following definition: “Clusters are geographic concentrations of interconnected companies and institutions, in a particular area. Clusters include 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 specialized infrastructure providers. 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. Finally, some clusters include governmental and other institutions - such as universities, standardization agencies, think tanks, vocational training providers and employers - that provides specialized training, education, information, research and technical support. Porter describes as a “diamond of competitive advantage” must be the basis of any cluster” (Porter, 1998). That is what now they call “Porter’s Diamond”: demand, business strategy and competition, factors of production, supply chains and horizontal integration. This model, which attracts by its simplicity, turns today exceeded. Innovation is a complex process based on the interaction of the actors involved in the innovative systems.

All these considerations led to the widely accepted model “triple helix” that brings together within a cluster representatives:

- enterprises - representing the business side of the cluster;
- universities and research institutes - representing providers of innovative solutions applicable to the real needs of enterprises cluster;
- local government, regional etc.

However, experience has shown that in Romania the three partners natural model “triple helix” were not cooperating; moreover, they do not know and do not get to talk to each other. There is a need to adapt the model and its transformation - a model “our leaf clover” - “four leaf clover”, the fourth actors being the catalyst organizations - consulting firms specializing in technology transfer and innovation, technology transfer centers etc. (Cosnita & Guth, 2010).

The “Triple Helix” is a conceptual framework of regional development, mainly due to its ability to describe a spiral model of innovation that captures the mutual relations between these three institutional spheres (Etzkowitz & Leydesdorff, 1997).

As far as the innovative clusters are concerned, literature believes that they are

equivalent to industrial clusters or cluster initiatives (Simmie & Sennett, 1999), (OECD, 2001). In practice, they represent the concentration of enterprises, suppliers, associated institutions, local and regional authorities, all being in an interconnecting relationship

A definition of the cluster is also found in the Romanian legislation (HG 918:2006 - The "Impact"); it precises that the cluster is a group of producers, users and/or beneficiaries gathered together in order to implement best practices in the EU, in order to increase competitiveness operators. As for the European Union's level - the European Commission Communication COM (2008) 652/2008 - "To the cluster of world class EU" - the implementation of the strategy based on innovation defines a cluster as a group of companies and economic actors of related institutions located in geographical proximity, and having reached the degree size necessary to develop specialized expertise, services, skills and suppliers.

The new economic geography (NEG) promoted by Krugman argues that attracting new firms and specialized workforce and effectively exploiting economies of scale and consumer preferences for diversity are playing an important role in the development of a region (Krugman, 1991).

Links established between organizations belonging to a cluster allows each of the participants to be more productive and innovative than it would have been if he had remained in isolation, and this becomes possible because the companies and institutions of a cluster benefit from collaboration between them (Ketels, 2004).

A slightly different approach we can find in the works of Thomas Andersson, who defines clusters as "a critical mass of organizations, resources and competencies (in absolute terms - in comparison with other clusters in other regions - but also to other clusters in region question), capable of supporting long-term linkages between actors involved in cluster activities "with" interaction between the member companies showing signs of not only cooperation but also of competition" (Andersson et al, 2004).

By enhancing competitiveness, stimulating innovation and generating entrepreneurial initiatives in order to rejuvenate and diversify businesses, the clusters are acting as local development tools (Fundeanua & Badeleb, 2014).

2. Contents

The literature depicts different approaches to the cluster evolution process, highlighting that clusters are subject to a life cycle that emphasizes different sets of activities in various stages of their development.

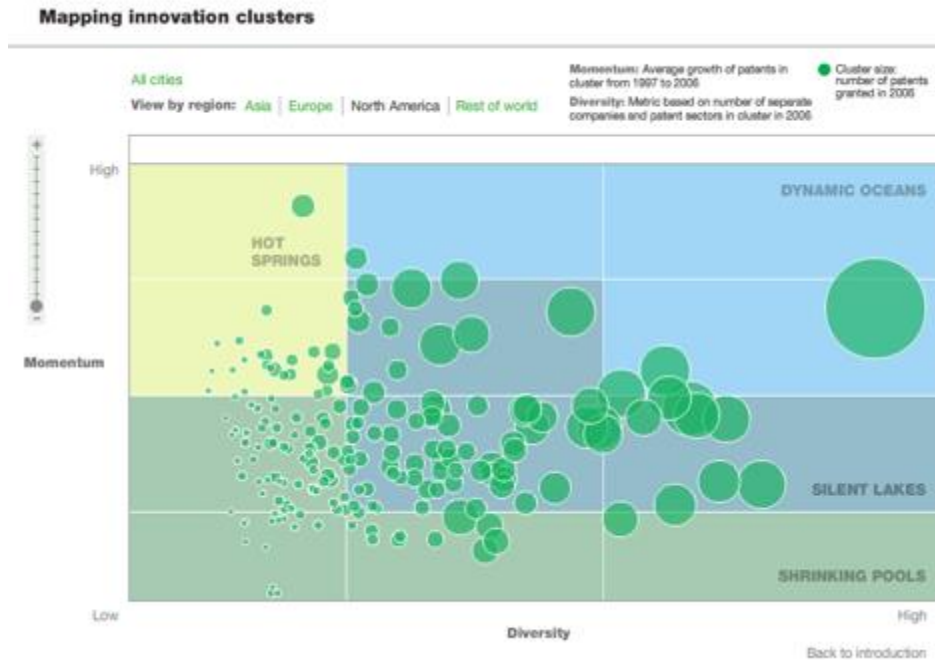
Sarmiza Pencea appreciates that: "Regardless of their size, companies tend to become more effective when competing with each other and more creative when

they cooperate with each other. This seems to be essentially economic structures appearance motivation cluster.”

Ernest J. Wilson III has studied innovation clusters in more than a dozen countries for the last 15 years. He argues that clusters can be vitally important to a country's innovation and prosperity, but when they are misunderstood, they do not realize their potential. To generate one groundbreaking technological development after another, innovation must be embedded within long-lived social institutions and networks. Four different sectors must be linked together: government, business, civil society (not-for-profit organizations), and academia. This is what the author calls “the quad”. In such an environment, creativity needn't wait for the unpredictable “aha” moment.

M. Martins (2015) published a report that examines the life cycles of five innovation clusters and the factors that determine success. The report is based on desk research and ten expert interviews.

The case studies have been selected to cover both established and emerging markets and to explore a range of cluster success factors such as demographics and talent, infrastructure, quality of life, policy and geography. According to the report: “Innovation clusters are crucial laboratories in which novel tools, technologies and techniques are created and applied. But they are not just the ‘background’ to innovation; they are living organisms integral to everything that happens within their ‘walls’.”



Graph 1. Map of R & D potential of innovative clusters

Source: McKinsey maps the world's innovation clusters/McKinsey Digital: Mapping Innovation Clusters

Vertical: Increase (annual growth of patents)

Horizontal: diversity (the number of sectors or businesses in the cluster)

Size representation is proportional to the number of patents

William R. Kerr and Scott Duke Kominers (2010) develop a theoretical model for analyzing the forces that drive agglomeration, or industrial clustering. The model highlights how agglomerate concentrating forces lead to localized, individual connections among firms, while interaction costs generate a defined distance over which attraction forces.

There are numerous examples of clusters throughout the world, both in the field of material production and services. Among the best known are: Silicon Valley or Route 128, Boston - USA (information technologies communication); Detroit or Route 66 (car industry); Wall Street - New York, London, Tokyo (financial services), Hollywood (cinematography); Fleet Street - London (press); Cambridge - Oxford U.K. and Massachusetts US (services education); Paris, Milan, New York (fashion); Bangalore - India (technology information); Netherlands (flowers), Germany (machinery and equipment), Hong Kong (business services), Norway and

the Netherlands (logistics and transport) etc.

As for clusters in Romania for the Danubian zone - a special mention is devoted to the VICLI¹ (Virtual Clustering Identification and Dissemination of Strategic Territorial Planning Best Practices for Certain Countries of Danubian and Southern Europe) developed under the European program.

INTERREG II C - CADSES (Central Adriatic Danubian South Eastern European Space). The project started in 1999 and it lasted until 2001 and tried to identify and support the development of clusters, through a regional exchange of know-how. Romania was a partner in the project country and Transnational Group of Experts to Harghita identified as a pilot area suitable for implementation of the project methodology. Methodology used was based on the following criteria²:

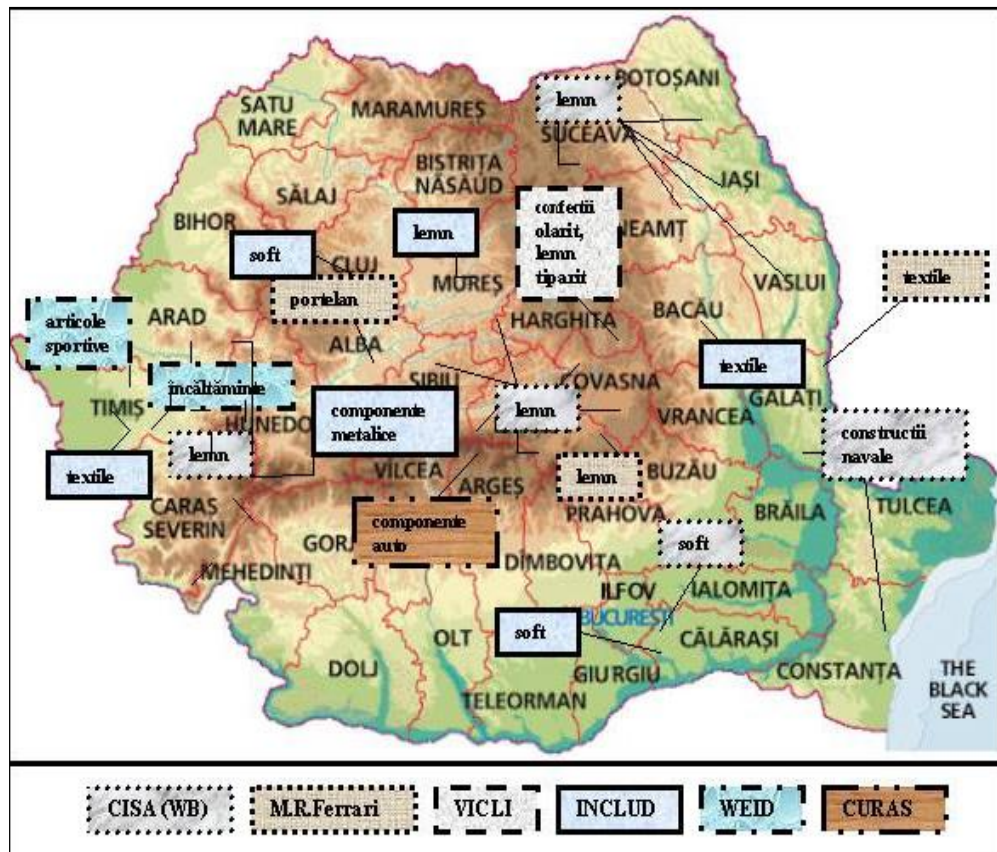
- endogenous entrepreneurial development, traditionally based on specific production local;
- restructuring and /or privatization of large businesses, spin-off business;
- analysis of FDI that led to development.
- SME characteristics cooperation inter-relations firms and subcontracting in a particular area;
- productive specialization areas.

Countries target chosen partner for possible future transnational cooperation.

Besides these general criteria it has been considered and statistical criteria specific for the development.

¹ VICLI (2001). Virtual Clustering Identification and Dissemination of Strategic Territorial Planning Best Practices for Certain Countries of Danubian and Southern Europe, INTERREG II C – CADSES, Bruxelles.

² <http://www.informest.it/Vicla/>.



Graph 2. Romania emerging clusters

Source: "To cluster or not to cluster? The potential for competitive economic growth through cluster development in Romania" (Pislaru & Aristide, 2004)

3. Clusters Danube

Clusters represent a valuable potential of growth for the region, because they are effective tools for boosting technological advances, competitiveness and economic development.

Given these considerations, Industrial Park in Galati, Romania - The Romanian Association of CLUSTERO, APITSIA (Association of Industrial Parks, Technological, Scientific and Business Incubators in Romania), together with the two Universities in Galati, that is: "Danubius" and "Lower Danube" facilitated the establishment of the First Cluster Consortium South-east Region Consortium "Lower Danube".

For the establishment of this consortium is to contribute by means mainly economic in the economic, social and cultural development of all the geographical areas where clusters States activates Industrial Park Galati is the main promoter as perceived by the one of its roles is to support your transfer technology between academia and business.

The consortium was formed by the 5 clusters of Southeast Region - namely regional cluster "Health on Lower Danube" represented by "SMURD" Association of Galati, regional cluster "Green Solution Low Danube" represented by Regional Association for Environment and Energy Lower Danube (RAEE - Low DANUBE) in Manchester, "Med-Green" cluster represented by Association "cluster business promotion specializing in environmental technologies and alternative energy sources - Med-Green (South - East and Bucharest - Ilfov region), "Medgidia cluster - "Manufacture, Traditions, Future", cluster "Romanian River Transport" represented by Union Romanian Inland Ports (UPIR) of Galati and clusters Association of Romania, CLUSTERO. Romanian River Transport is a cluster that was formed in order to create a coherent framework for cooperation and collaboration among its members, conducting missions/objectives of common interest for setting up the cluster for inter-modal transport of goods ecological Romanian interior.

Another cluster on the Danube and Black Sea zone is the Center for Renewable Energy Cluster Black Sea and the Danube (CERMAND). The main goal of Cluster for renewable energy is to catalyze a group of members from the fields of industry, research and administration in order of cooperating in green energy and energy efficiency in the selected area, the a complete package of sustainable and competitive: providing consulting, development of joint projects, exchange of experience of cluster members, supporting members' common interests and develop their own structures for training the very highest level. Also, the cluster aims to harmonize and represent the interests of enterprises, research, administration and entities catalyst for economic competitiveness and creating competent, sustainable development and sustainable internationalization members, participation in national and European networks of projects, growth potential innovation of enterprises in the sectors: renewable energy, energy efficiency and Bio economy.

The "Bio Danubius Cluster" aims to harmonize and represent the interests of enterprises, research, administration and entities catalyst for economic competitiveness and creating jobs, sustainable development and sustainable Region Southeast, internationalization members, the professional development of managers and employees, administration of a common database, participation in national and European networks, increase innovation potential of enterprises in the sectors: bio-agriculture, fisheries, tourism, logistics, transport, environmental protection and conservation, renewable energy, creative and cultural sector, social

innovation. The “Bio Danubius” cluster is concentrated on the region of the Danube Delta and Tulcea county, but this does not mean that entities interested in participating in this cluster do not have access to membership. At the level of regional development strategy is referred to as the modernization of existing ports: Tulcea, Sulina, Sfântul Gheorghe, Isaccea, Chilia Veche, Măcin, Mahmudia and creating port facilities type tourist port in Tulcea, common Sarichioi, Murighiol and Jurilofca.

The “Danube Delta Cluster” purpose is to present Danube Delta as a place with numerous opportunities worth discovering, to involve new target groups and increase the number of overseas visitors to Danube Delta, offering an integrated experience. To support institutions and entrepreneurs operating in the field of tourism and to promote Danube Delta, declared a biosphere reserve in 1990. The objectives of this cluster are: to promote the participatory management approach among tourism stakeholders; to develop the operational capacity of institutions and people dealing with tourism development or integrated tourism, in the private sector of the travel and tourism industry and at the local authority level; to raise awareness about the importance of creating a sustainable and integrated management in the planning and management of tourism activities in the Danube Delta area.

4. Conclusions

Cluster development initiatives are a new direction in economic policy importance. Building on earlier efforts in macroeconomic stabilization, privatization, market opening, and reducing the cost of doing business, enhance competitiveness clusters are based on knowledge. Thus, popular initiatives in Romania and announced funding had already led to the initiation and the development of dozens of clusters in the country, in various fields.

Participation in initiation and development of an enterprise can result in tangible benefits related to visibility, customer base expansion, new product development, innovation and access to economies of scale in obtaining resources. Why clusters? Research has shown that these benefits in times economically uncertain reflect nature of the real economy what a nation means a clearer view of the sources of growth, a framework for rethinking, restructuring and reform efforts of regional and national development. Clusters affect productivity, innovation, entrepreneurship, businesses and industries, the performance of the regional economy, their impact is quantifiable. Although Romanian inventors and innovators in various fields dealing systematically top ranking on the nation's annual salons of inventing - for example, in terms of integrating innovation in circuits profitable and efficient, Romania as a European Union's member state has dropped year by year, reaching currently in last place. Despite the big potential of

the Danube zone, this is not enough used even in such new and advantageous formula, like clusters.

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