

## Creating competitive poles – the sustainable model for obtaining the competitive advantage

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**Abstract.** *In a global economy that has as its own competitive advantage the transfer of information and goods around the world in real time, the annexes that surround the ecosystem are the centers for innovation founded on hedge & mutual funds, investment scenarios and the development of biotechnology (for developed countries) or for the development of aircrafts or equipment used for the manufacturing of tangible goods (in emergent countries). For these to create synergy there is the idea of clusters, because they offer to the companies the possibility to change and to add dynamism to the microeconomic open system. Although globalization offers the power of global trading, clusters are found in developed countries with economies that can support multidisciplinary interactions, and their creation must be followed by the emergent countries that want to progress in this area. This paper represents a review and a research in progress on creating competitive poles (or clusters) as a sustainable model for obtaining the competitive advantage.*

**Keywords:** competitive advantage; competitive poles; innovation; knowledge; sustainable model.

**JEL Classification:** D80, F63, O10, O30, Q55.

**REL Classification:** 17E, 17H.

## Introduction

In the context of global competition for markets, Europe must act quickly to compete internationally on the basis of excellence. According Ministry of Economy, Trade and Business Environment (METBE, 2011), European industry needs a strong, competitive and innovative clusters and networks based on clusters, because they are recognized as key drivers of innovation and economic growth by developing collaborative and multi-sectorial approach and stimulate interactions between innovation actors. At European level (COM614/27.10.2010 “Industrial Policy in the Globalization Era” and COM546/6.10.2010 “An Union of Innovation“, two initiatives of strategy “Europe 2020”), “innovative clusters” or “top level clusters” are considered the “engine” of economic development and innovation, because they are a framework for business development, collaboration between companies, universities, research institutions, suppliers, customers and competitors in the same geographical area (local, regional, national, transnational). The competitive poles is considered a key driver of innovation and growth, an instrument of industrial policy and research, as well as a generator of competitiveness and inter-cluster cooperation projects at national, European and global level. According to Ministry of Economy, Trade and Business Environment (METBE, 2009), innovative clusters or competitive poles is a successful solution because it offers a combination of entrepreneurial dynamism, intensive linkages between companies and institutions that have knowledge of top level, and proactive synergies between the main actors of innovation. The benefits of belonging to a competitive pole resulting from the quick and easy access to research results in their production implementation and creating of innovative products using advanced technologies and joint development strategies, from cooperation in the production and purchase of technology and advanced equipment for shared use, up to the marketing.

## 1. General framework

### 1.1. Conceptual approaches: cluster/competitive pole

The concept of “cluster” has a long history, giving it the several terms, including “competitive pole”, “industrial district”, “industrial agglomeration”. Currently the terms that were imposed are “cluster” and “pole of competitiveness” (in France and Belgium). Although originally there was no difference between the cluster (Anglo-Saxon branch) and the competitive pole term (French branch), however, they tend to be used differently, requiring a conceptual distinction of these terms (Table 1).

**Table 1.** *Conceptual distinction: cluster/competitive pole*

Term	Features	Theoretical foundation
Competitive Pole	Complete structure "triple helix" or "four clover" Strategy generated from objective to act on one or more markets Export orientation Focus on innovative projects National and international impact Focus on production	Porter's diamond
Cluster	Industrial cluster, focusing on the relationship between businesses and structures in various stages of maturity	Marshall's theory

**Source:** Made by author.

In the literature there are several approaches to the concept of cluster. According to Porter (1998), the cluster is defined as "a geographic concentration of interconnected companies and institutions in a particular field". In his view, clusters contain a group of interconnected companies, companies in industries related by skills, technologies and common inputs and other important entities in terms of competition, suppliers of specialized inputs (components, services), suppliers specialized infrastructure, distributors, customers, manufacturers of complementary products, government, universities, standards agencies, vocational training providers, employers, research institutes and trade associations, local government in specific fields that compete but also cooperate. European Commission's Communication 652/2008 define cluster as a group of companies of related economic actors and institutions located in a geographical proximity and reached the degree of magnitude for the development of specialized expertise, services, skills and suppliers. According to "The Community Framework for State aid for Research, Development and Innovation", cluster is a group of independent companies (innovative start-ups, SMEs) and research organizations, working in a field in a given region, to stimulate innovative activity by promoting intensive interactions, access to shared facilities, exchanges of experience and knowledge and helping technology transfer, networking and dissemination. In Romanian legislation (HG 918:2006 – Programme "Impact"), the cluster is defined as a group of producers, users and/or beneficiaries, in order to implement best practices to increase competitiveness of EU economic operators. Thus, the term "cluster" refers mainly focus on industrial agglomerations concentration of firms in the same field or related fields, with economic effects as they were identified by Marshall (on labour, the specialization of suppliers and in the technology transfer and innovation). They may or may not complete structure "triple helix".

The definition of "competitive pole" is similar to the cluster's definition: a geographical concentration of public and private agencies, research organizations and training and development (research centers and educational institutions), working in partnership, under a common strategy development, to generate synergies and collaboration on innovative projects in the interest of one or more markets. The

competitive pole unifies businesses of all sizes, research laboratories and training institutions with the purpose to develop synergies and cooperation in a given area. It can associate other partners such as national and local authorities, and business services companies. The challenge is to build on synergies and innovative collaborative projects and allowing businesses engaged in these partnerships take a position at the forefront of their fields, both nationally and internationally. We consider therefore that a competitive pole can have a complete structure of triple helix (authorities, industry research, and development) or four clover (triple helix + institution catalyst).

## 1.2. The competitive advantage

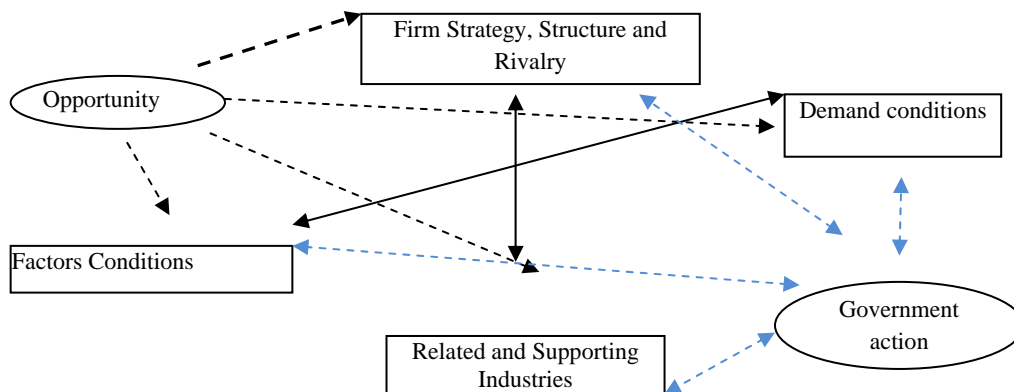
Competitive advantage is a complex concept used in many areas and has many definitions depending on the level of its approach. Looking in the strategy literature, we find that approaches for competitive advantage varies for different levels of analysis of the concept. Thus, some researchers address enterprise-wide competitive advantage level (Barney, 1991), the transaction (Williamson, 1985) or activity level (Dunning, 1993 and others), in a business unit (Rumelt, 1991), industry (Porter, 1980) or even at the nation level (Porter, 1990). Although most researchers in strategy literature suggests that competitive advantage should be addressed at the firm level, Porter argues that competitive advantage is a “multilevel” construction that need to be investigated at different levels from activity level to country on. The company is a connection point between these multiple levels of analysis. It is recognized the fact that competitive advantage theory and research basis is found in the work of Michael Porter (1990), “The Competitive Advantage of Nations”, work that attempts to answer the question: “Why [do] nations succeed in particular industries, and [what are] the implications for firms and for national economies?” According this, “a nation’s economic environment, institutions and policies” play an important role for successful competitive industry development. Porter (1990) sustained that “the home nation takes on growing significance because it is the source of the skills and technology that underpin competitive advantage”. Also, Porter underlined the fact that “differences in national economies structures, values, cultures, institutions and histories contribute profoundly to competitive success”.

## 2. Issue: The competitive pole and competitive advantage relationship

According to Porter (1990), economic success can't be explained only by recourse to the classical theory of economic development, but also it depends on the complex interaction of factors, grouped in what was then called “Porter's Diamond” (Figure 1): demand conditions, factors conditions, related and supporting industries, and firm

strategy, structure, and rivalry. According to Porter, the determinants above, addressed both individually and as a system, create context for achieving competitiveness at organizations level. This context is characterized by a number of issues such as: availability of resources and knowledge to achieve competitive advantage within an industry; providing information that reveal emerging opportunities, and directions of focusing resources and knowledge; help create scope owners, managers and employees involved in the competition and not least the pressure exerted on companies to invest and innovate.

Based on Porter's approach, it can say that the competitive advantage resulting from the way an organization manages its activities (from product design and procurement of raw materials, through to sales and service) and constituted a basic element of “value chain”. Supply chains and horizontal integration also relieve resource availability, access to information on companies that decide to act one direction, with those resources based on strategies, and pressure on companies to innovate and invest. Many of these activities involve interactions with other entities – suppliers of raw materials or parts, specialized services, research and innovation services, schools, distributors, customers. In such context, Porter (1990) points out that geographical position of the company is important in defining its strategy, and he underlying the fact that the importance of supplier-customer relationships increased with distance companies’ vertical integration model.

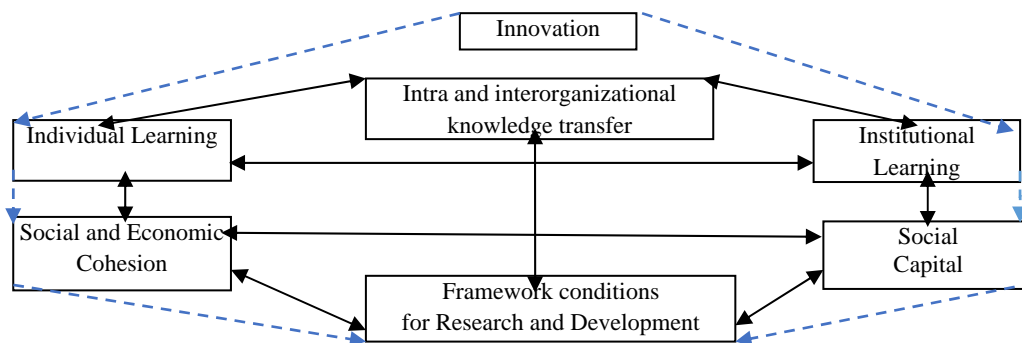


Source: adapted from “Porter’s Diamond”.

Figure 1. Determinants of competitive advantage

A common element of theories related above can be that geographical proximity of entities within a cluster is a central feature of a cluster. If in the past

geographical proximity of entities within a cluster must be understood in terms of transport and communication opportunities and cultural identities, traditions and preferences of customers, today it has another dimension, because the modernization of transport and communication means (for instance, Internet). Particular emphasis is placed on technological proximity (how close are the technologies used by companies within a cluster), complementary to the workforce, complementarities of customers and social proximity (the level and types of interaction between managers and employees of companies within a cluster). Based on Porter's competitive advantage theory and concepts of individual and institutional learning, Centre for Innovation and Technology of North Rhine Westphalia-ZENIT (Germany) has recently developed the “New diamond of innovation” (Figure 2).



Source: METBE (2009).

Figure 2. New “Diamond of innovation”

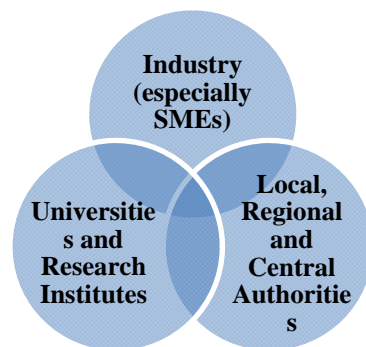
According METBE (2009) there are several existing aspects on the basis of “New innovation diamond” development model:

- Innovation is based on extensive scientific knowledge supported by modern infrastructure and it appears only when knowledge is applied in a product/service/process or a new management tool;
- A condition for the implementation of innovative processes is the economic and social cohesion, because technology transfer and innovation processes can't perform in a polarized economic and social environment;
- Innovation is built on individual and institutional learning. Individual and institutional learning can take place in a context of a common set of norms, rules and visions.

Another practical approach of “innovative cluster” is the paradigm of “triple helix” (Etzkowitz, 1997, Leydesdorff, Etzkowitz, 1996, 1997) of innovation and technology transfer that can be considered an application of innovation systems theory combined

with the concepts of individual and institutional learning. Economic practice has validated the “triple helix” (Figure 3) in a cluster which brings together representatives of:

- Industry, especially SMEs (including start-ups and spin-offs) -representing the economic side of the cluster or innovation demand;
- Universities and research institutes, training centers, representing providers of innovative solutions and technologies applicable to the real needs of enterprises existing in the cluster or in other words the supply of products, processes and services (technological pole);
- Local, regional and central authorities with competencies in order to facilitate innovative processes and to provide the harmonious development.



**Source:** adapted from Etzkowitz (1997).

**Figure 3.** *The “Triple Helix” model of innovative cluster*

Potential effects of intangible innovative clusters within an industry are very important because it stimulates the growth of competition and cooperation between firms in order to produce more innovative ideas and shape a “win-win” environment that generate performance. Because of clusters effects embedded in network externality, companies grow and contribute to the industry development, generate also increasing economic regions, attractiveness for investment firms and the degree of international competitiveness. According to Zhao et al. (2009), industry clusters, viewed like a series of interconnected firms in designated geographic concentrations, provide competitive advantage because they are rooted in local institutional systems including government, industry and academia aspects. The effect of network closure on the competitive advantage of organizations and mediation role of knowledge-based processes were also reflected by Chai et al. (2011). They suggest that a holistic level “of network closure” may affect the capabilities of the organization that aims to identify, transfer, protection and institutionalization of knowledge, capabilities that in turn

affect the organization's competitive advantage. Network closure may affect competitive advantage by exerting a negative effect on the identification of knowledge and a positive effect on protection. Moreover, positive or negative character of network closure effects depends on the importance given to the identification and protection of knowledge process. Shim and Lee (2012) argue that network effects and technology sustainability must be considered from the perspective of resource-based decisions in order to formulate decisions for technology development, which means that a sustainable competitive advantage is generated by a system of innovative goods in a market characterized by network effects and new threats.

### 2.1. The possible solution for creating and maintaining competitive poles

In the book from the year 1990 entitled “The Competitive Advantage of Nations”, Michael Porter defined clusters and competitive poles as having the following main characteristics “geographical concentrations of interconnected companies, suppliers of services, companies that come from related industries and that are in a continuous competition, but they also cooperate”. The most known cases are the cases of Hollywood and Silicon Valley. In a global economy there is the environment for companies that compete in related industries to establish their area of domination, their distribution markets with the help of developing their headquarters near their relevant market. In an interview from 1999, Michael Porter underlined the fact that in a global economy transferring or moving goods or services or even plain information around the world is fast and simple, this way the process represents on their own a competitive advantage that is available as a derivate asset for all companies, but if all companies could use it that means that it isn't framed anymore as a competitive advantage according to economic theory. As a result there are needed some decisive advantages, that could be seen as super-competitive advantages like creating the framework for developing innovation centers, by attracting mutual funds, seed capital and biotechnology research centers, the global pillar being Boston, Massachusetts or by developing aircrafts and their ecosystems, building ships and other models of water related crafts like Southern France, Alabama or Seattle, Washington for aircrafts, or Rotterdam, Holland or Piraeus, Greece for boats. Because of their proximity to other clusters, companies could collaborate without developing a new corporate entity or mandatory legal relations. According to Porter (2000), this flexibility offers many possibilities for creating a dynamic and developing environment that represent the foundation for a modern economy where sustainable growth depends only on innovation.



From what was presented earlier in this paper an idea emerges, the fact that local economies still do matter in an era of globalization. Although clusters are seen only in developed economies, they represent the primordial sparks that appear where emergent economies or countries want to reduce the gap between them and developed economies.

The case of emergent countries could be brought into the spotlight. The case of Romania could be a successful one if they will follow the steps of other emergent countries that succeeded. A good example is Costa Rica, a country with an immaculate investment strategy. They started almost two decades ago their investment in education and they transformed the country nowadays in a pole for information technology. On Costa Rica there were done many papers, even Michael Porter stresses the fact that Costa Rica was a third world country that could be considered a second tier country at best, but today is a pole for technology. Intel opened a factory there, but with Intel there came the mandatory development of local infrastructure (transportation – roads and airports) and the economy opened to new investors (the suppliers of Intel started to see in the local market a huge opportunity for their company: as a market for their products and as a resource for their human capital). Until today the Costa Rica information technology pole isn't developed completely, maybe there will pass another twenty years until the development and deployment process will be completed, but the continuous improvement creates small competitive advantages that help develop the local economy before the private sector grabbing the competitive advantage for their sake.

## 2.2. Creating competitive poles for the sake of developing competitive advantage

The investment in developing competitive poles is proof of the fact that different focused entities that have similar long term objectives must collaborate to ease their business model. Successful collaboration for creating competitive poles doesn't appear overnight and it must be prepared, sometimes failure is part of it because of the individuals that aren't prepared for collaboration (Bodislav, 2012).

To create and successfully deploy a competitive pole four major domains in a country or a company must be stimulated:

- Human Capital/Human Resources;
- Processes;
- Platforms;
- Programs.

*Developing human capital/human resources*

The training path of individuals is different in creating a competitive work force for a country or for a business' framework, resulting in different skills and work paths for individuals that are in similar positions (be them social or work related).

*Redesigning processes*

Innovative countries and companies were based on a learned model for understanding how a competitive pole is created and developed. This model can be implemented through experimental projects that have as a purpose obtaining the same result, but through different ways, and the most efficient solution can be used on the entire country or organization scale. A good example is Siemens through hiring the Research – Development Center from Princeton for leading a global project (this represented the hypothesis and final result node of all Siemens' partner universities chosen for participating in the project). As results there were observed the best ways to approach teams by their cultural context (the same approach of an Irish team and of a Chinese team can offer different performance – Bodislav, 2012).

*Creating platforms*

Innovative countries and companies create informatics platforms for labor/work coordination. They maintain under control and streamline the work and its distribution, integrates outputs of external partners, guarantees divided property rights between partners and systematization of knowledge management for creating an aggregate with high efficiency (business integrator). This system of business integrator creates the inner fire for the fusion of elements that develop the synergy that represent the competitive advantage of creating a competitive pole that at its turn represents a competitive advantage in front of other countries that could be considered as a comparative advantage brought to life in the information economy.

*Programs management*

Innovation appears by calculating future trends of the elaboration way of creating future skills for streamlining future processes that need a high degree of collaboration of countries that created some small competitive advantage that could evolve into competitive poles or at the same level for niche companies' network. Simplifying procedures and processes create large and complex processes easier in approaching, these being on the same trajectory with already developed skills (Bodislav, 2011). Through programs management is followed the creation of a general knowledge framework for simplifying future project needs. Through a project there is understood the idea of higher meaning of what a project is not only at microeconomic level, but also at macroeconomic level.

### 3. Instead of a conclusion – Some rules for creating a favorable environment for the development of competitive pole

Creating a local competitive pole or a cluster, depending on what views exist between these two concepts, is based on ten rules that could bring the edge for creating the right environment for deploying a sustainable model for competitive poles:

1. *Meritocracy* – a competitive pole must continuously attract new “brains”;
2. *Fail & try again policy* – failure is part of the development process and mustn't be abolished or severely punished;
3. *Tolerance for traitors* – secrets and personnel come and go, they are cyclical and represent momentum flow;
4. *Collaboration* – for the short run alliances are created between individuals, companies or individuals with companies;
5. *Attractiveness for risk* – the failure from the 2<sup>nd</sup> rule do not come without a cost;
6. *Reinvested profits in the competitive pole* – what happens in the business area stays in the business area, this way the warranty for durability of the competitive pole is created;
7. *Change embracers* – countries and corporations are created by people and individuals are afraid of getting stuck in the daily routine, usually the daily routine transforms into bankruptcy on the long run;
8. *Obsession for the deliverable* – the final product or service for corporations or the created and maintained competitive advantage for countries attract new partners or new investors and differentiate businesses between them;
9. *Generous opportunities* – success is wanted and admired, not envied;
10. *Welfare distribution* – when countries or corporations that cohabitate in a competitive pole are fully developed, the profits or the added value must be shared with the people or the employees.

### Acknowledgements

*This work was cofinanced from the European Social Fund through Sectorial Operational Programme Human Resources Development 2007-2013, project number POSDRU/107/1.5/S/77213 “Ph. D. for a career in interdisciplinary economic research at the European standards”.*

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