

# Cluster - Smart Specialization Relationship\*

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## Abstract

*Knowledge, the adoption of new organizational solutions and new technologies, continuous innovation help ensure the economic development, the competitive advantage, the activity of the research-development sector and the capacity of economies to implement its results being determinant for innovation.*

*The emphasis of the role of territories in terms of competitiveness and innovation has been accompanied by the development of the phenomenon of clusters, a process associated with the new model of territorial development - smart specialization, the goal of which is to increase the efficiency and effectiveness of the economic system, to contribute to sustainable development.*

*The paper refers to the relationship that is created in the regional economic space, between the cluster phenomenon and that of the strategy of smart specialization; in the process of transformation of the regional economy, the smart specialization strategies take over clusters' policies and clusters integrate activities specific to areas of technological knowledge.*

**Key words:** cluster, smart specialisation, strategy, competitiveness.

**J.E.L. classification:** O30; R11.

## 1. Introduction

A successful economic development means a continuous upward process, in which the business environment of a nation evolves in order to support and encourage complex and productive competitive methods.

The advent of new theories on the endogenous economic growth taking into account other growth assumptions as compared to the neoclassical model has led to the change of the perspective on the determinants of competitiveness, among the key elements of influence being considered expenditure on research and development, increase of innovation capacity, education level, investment in human capital etc. .

Knowledge, the adoption of new organizational solutions and new technologies, continuous innovation are elements which help ensure the economic development, the competitive advantage, the activity of the research-development sector and the capacity of economies to implement its results being determinant for innovation.

## 2. Clusters, conceptual approaches

The cluster, a widely debated topic among entrepreneurs, politicians and scientists, has developed and strengthened its position through globalization, the competitiveness of clusters influencing the economic development of the regions in which they are located. (European Commission, 2009 cited by Mempel-Śnieżyk, 2013).

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\*Acknowledgement: This article is part of the scientific research paper, for 2015, of the Institute of National Economy, Romanian Academy - "Creșterea competitivității economice și specializare inteligentă, la nivel regional în România", achieved by PhD. Daniela Antonescu – coordinator, Florina Popa.

The study of clusters has gone through several stages in time, theorists bringing different contributions based on the role of regional resources with local specificity, and the importance of division of labour in clusters. (Storper, 2000 cited by European Commission, 2002).

The first mentions of a cluster were found in the study performed by Alfred Marshall, on the industrial agglomerations in England, (Marshall, 1920), in which he finds that these geographical clusters of businesses in a particular sector create positive involuntary economic influences (so-called externalities): *labour force* (wage growth, specialization and up-skilling), *specialization of suppliers* (increase of product quality and decrease of costs), *technology transfer* (flow of information and knowledge between existing businesses within the geographic concentration).

Towards the concept of industrial cluster, Michael Porter has a different approach (Porter, 1990), considering **clusters** “geographic concentrations of interconnected companies, specialized suppliers and service providers, firms in related industries, and associated institutions (eg. universities, standard agencies, and trade associations) in particular fields that compete but also cooperate”. (Porter, 2003, p.253) According to this vision, the clusters are appreciated as a component of any economy, particularly those in the areas more economically developed. The author emphasizes the role of clusters in the conditions of globalization of markets and the increase of complexity of economies based on knowledge (Porter, 2000, 2003).

Clusters are considered “regional concentration”, but also an “*innovation environment*” (The European Cluster Memorandum, 2007), some of its definitions being relevant:

- “Clusters – regional concentrations of specialized companies and institutions linked through multiple linkages and spill-overs – provide an environment conducive to innovation. They enable “open innovation”, the creation and refinement of new ideas in networks of cooperating companies and institutions” (The European Cluster Memorandum, 2007, p.1).
- „Clusters are powerful engines of economic development and drivers of innovation in the EU. They provide a fertile business environment for companies, especially SMEs, to collaborate with research institutions, suppliers, customers and competitors located in the same geographical area”. (Part of the 5<sup>th</sup> European Innovation Summit, 2013 - *Towards world class clusters: policy support and funding instruments at EU and regional level*)

### **3. The implications of clusters in smart specialization**

The economic growth, important objective of any nation, involves changes in knowledge, new technology, which assumes establishing certain correlations systems in the structures of regions.

The emphasis of the role of territories in terms of competitiveness and innovation has been accompanied by the development of the phenomenon of clusters, a process associated with the new model of territorial development - smart specialization, the goal of which is to increase the effectiveness and efficiency of the economic system, to contribute to its sustainable development.

The globalization of markets has increased the tendency of investment of resources in regions with economic potential, attractive for industry, the clusters becoming one of the important factors in economic development, influencing the growth and specialization in the region (European Commission, 2009 cited by Mempel-Śnieżyk, 2013).

Smart specialization is a new strategy of economic transformation, at local level, which aims to promote the efficient and effective use of public investments in research, based on stimulating innovation at regional level, which should lead to economic growth and prosperity of the regions.

The concept of smart specialization refers to finding new forms of sustainable development, being an alternative of the promotion of investments on areas and sectors and in this regard, one can identify two models of approach to regions` competitiveness (Ketels, 2013 cited by Mempel-Śnieżyk, 2013) (Table no.1).

Table no. 1 Models of approach to competitiveness

| Types of approach to competitiveness | Way of action                                                                                                                                       | Consequences                                                              |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Traditional approach                 | Identifying and trying to penetrate old markets.                                                                                                    | Failure to reach an intensely competitive market (without unique values). |
| New approach                         | Identifying local values, including a base of existing clusters.<br>Studying opportunities of adjacent areas, which leads to increased added value. | Developing long-term competitive, sustainable advantages.                 |

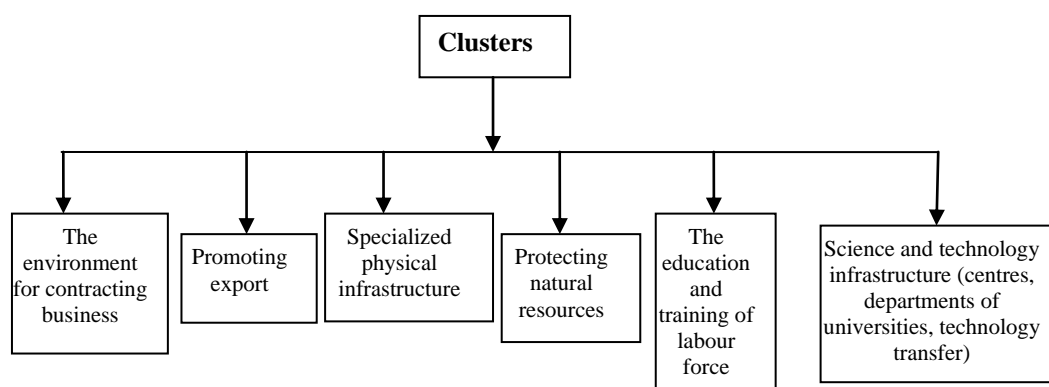
Source: adaptation from Mempel-Śnieżyk, A. 2013, Smart Specialisation and Clusters in Economic Growth

The importance of the concept comes from one of the main objectives: identifying the areas of the region having a high competitive potential, which can help regions access global markets and the international value chain by strengthening and promoting specialized areas.

Debates on smart specialization highlighted the need to clarify the role and purpose of clusters in improving the entrepreneurial process.

The establishment of clusters is achieved by using local forces, their priority areas of impact being exemplified in the chart below (Figure no.1):

Figure no. 1 The main areas of influence of clusters in the regional development



Source: Ketels, Christian, H., M., 2013, Clusters and Cluster Initiatives: Recent Learnings, Current Challenges.

The manifestations of clusters in the regional economy are expressed in areas such as: infrastructure of knowledge, science parks, export promotion, increasing network relations between regional authorities, businesses environment, universities, (Mempel-Śnieżyk, 2013). By facilitating the dissemination of knowledge and increase of innovation, specialization, competitiveness of companies and productivity, the promotion of clusters is an argument of their relationship with the smart specialization process or a motivation of their usefulness in the context of smart specialization.

The implementation of smart specialization requires innovation, depending on the potential of the regions, and its materialization is achieved by engaging stakeholders, the business environment, research centres, universities. Thus, a strengthening of the existing scientific, technological specialization model, of the business environment is achieved, stimulating the emergence of new fields of economic, technological activity.

In the regional economic space, the cluster phenomenon is directly related to the strategy of smart specialization, but with no equivalence, the two concepts showing both similarities and distinctions (Table no.2):

Table no.2 Some common features and distinctions between the concepts: smart specialization strategies and clusters

| Smart specialization strategies S3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Clusters                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>The common elements</b> of both concepts refer to:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                      |
| <ul style="list-style-type: none"> <li>• Considering the factors of productivity and innovation as basic determinants of competitiveness and sustainable growth.</li> <li>• Considering the advantages of proximity in local spill-over processes. By making cross-sectoral connections, smart specialization involves innovation in new connections, which leads to the dissemination of knowledge in various fields, the process falls in line with theories on clusters that include business networks and associations, leading to "emerging clusters".</li> </ul> |                                                                                                                                                                      |
| <b>Distinctions</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                      |
| 1) Facilitating the spread of knowledge by exploiting the related variety between its areas.<br>Searching for market opportunities, stimulating the development of new markets at the level of an area.                                                                                                                                                                                                                                                                                                                                                                | 1) The focus is on groups of companies from related industries having infrastructure and resource bases, respectively, inputs markets.                               |
| 2) Determining extensive action aimed at transforming regional economies, incorporating innovative practices in the economy and society and the emergence of new knowledge-based fields.                                                                                                                                                                                                                                                                                                                                                                               | 2) The objective generally is to enhance the performance of a group of companies, members of the cluster, as clusters are elements of the innovation system.         |
| 3) The focus is on Research, Development and Innovation, representing the basics, essence of the concept of smart specialization; the large group of innovation processes includes relevant processes corresponding to those of the cluster category.                                                                                                                                                                                                                                                                                                                  | 3) Even if Research, Development and Innovation are important elements of the cluster, there are clusters that require no guidance based on research and innovation. |
| 4) Highlighting the significance of local entrepreneurs taking the lead in innovation, the ability to make connections in the fields of knowledge, crucial for competitiveness.                                                                                                                                                                                                                                                                                                                                                                                        | 4) Considering the role of entrepreneurial actors, but emphasizing links, networks, social processes, as key elements of competitiveness.                            |

Source: adaptation from European Commission - Directorate-General for Research and Innovation, 2013, The Role of Clusters in Smart Specialisation Strategies

### 3.1. Some practices of clusters used in smart specialization strategies

Smart specialization strategies take over clusters' policies in the process of transformation of the regional economy and clusters integrate activities specific to areas of knowledge and technology. The process involves adaptation to regional environment, corresponding to the capacities of approach of new emerging areas, in various sectors.

The promotion of smart specialization strategies by national and regional governments results in the strengthening of the competitiveness of companies and thus of clusters and hence, the approach based on innovation clusters is an element of integration of strategies. (OECD, 2012).

We can exemplify some leverage practices of clusters, by means of which they offer elements capable of being used in smart specialization strategies:

**Prioritization.** In order to identify areas of intervention, of priority for smart specialization, one uses quantitative and qualitative approaches also considered in the case of clusters for selection of new areas of knowledge that go beyond the limits of traditional industry; interventions by means of cluster elements can lead to the dissemination of knowledge between areas.

**Multi-level governance.** Clusters have different funding sources in terms of origin, some of them having experience in harmonizing sources from public funds, which can be an element of information for smart specialization.

**Cross-border cooperation.** Cluster's boundaries are defined, usually based on economic research, but the geographical outline of the cluster is often set administratively. The challenge now is to consolidate the international dimensions of clusters and of areas of smart specialization. Smart specialization strategies that go beyond regional borders are based on complementarities, as cross-clusters can be used to define areas of smart specialization.

The contribution of clusters to smart specialization, the possibility of adequacy and integration of cluster tools in a regional specialization strategy depends on the level of regional competitiveness:

- In **more developed regions**, the higher presence of share capital and of an advanced business environment provides favourable conditions for the emergence of clusters that can help organize and improve the region's economic policy;

- In **less developed regions**, the lower level of resources and the presence of a weaker business environment do not encourage the formation of strong clusters.

EU policies can help increase the efficiency of clusters contribution to smart strategies by:

- promoting transregional knowledge in cluster policies;
- developing data infrastructure on clusters and cluster policies;
- promoting better use of the territorial cooperation programme for cross-border cooperation.

The integration of cluster policies in smart specialization strategies requests the intervention of policy makers, on identifying existing clusters in regions which apply their own principles of smart specialization, based on stakeholders' consultation and on the analysis of regional values, on the interaction between sectors, clusters, technology. The aim is to stimulate the development of areas with a critical mass of growing activities with value added potential and the orientation of the economy towards employment. At the same time, the existence of developed clusters can prevent one exceeding the traditional boundaries of clusters, the shift to new areas of specialization, which may hamper the implementation of smart specialization process in a region.

#### 4. Conclusions

Smart specialization contributes to the strengthening of traditional industries with new technologies, to the finding of new market niches, leading to the increase of the competitive advantage of regions; this process can be also an instrument to overcome social, environmental, climate, energetic, resource efficiency challenges.

The strengthening of internal connections, the strengthening of cooperation and connection with other regions, clusters, actors in the area of innovation can stimulate and develop innovation policy.

The approach of smart specialization is a guarantee of the effective use of funds and of an efficient coordination between regional, national and European policies, helping to increase the EU's competitiveness by upgrading their potential, which will allow it to face and withstand international competition and challenges globally.

Innovation contributes to a better development of clusters, determining an increase in competitiveness, and hence, in welfare and employment, which reveals the influence of clusters on the degree of economic development of the territory.

Clusters are included in the mix of instruments of smart specialization strategies, but they are not equivalent, the latter having a higher area coverage and wider competence.

The formation and association in clusters is important in order to achieve smart specialization, reflecting the capabilities and shortcomings of the business environment in the region, achieving the interaction between the innovative system structures in the region, responding to the growth requirements of the knowledge-based economy.

The trend of combining cluster policies with those of the specialization strategies presents the potential advantage to develop common strategies, focused on entrepreneurial discovery, innovation and new technologies, finding market opportunities.

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