

POTENTIAL OF SMART SPECIALIZATION OF CLUSTERS IN ROMANIA

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Abstract:

Clusters are now seen as the most effective way out of the crisis and of economic recovery and also a way to increase competitiveness. The EU clustering policy has proved effective in many countries where the process began a long time ago and is now closed. Romania is in the process of clustering, so that our country records in territorial plan a dynamic which is now changing due to the creation of new clusters. The work captures both initiatives to identify potential clusters in Romania and their fields of activity, carried out over a period of several years and the current status of existing clusters in Romania. The areas identified are different, from traditional industries of Romania, to new areas of smart specialization which the EU aims to promote mainly in the 2014-2020 in order to support the amplification of research and innovation, support of competitiveness in the world.

Key words: cluster, fields of clusters, potential fields of clusters, smart specialization, Romania

JEL classification: O30, O52, Y91

I. INTRODUCTION

As far as terminology is concerned, the concept of cluster began to be used more often by experts in various fields from the 50s through various attempts to define the concept and characteristics they present. There were settled factors to determine the appearance of clusters and the effects of training in the region in which they are located. For example, specialists in urban believe that cities play a key role in setting up a cluster, while economists and specialists in regional development attach more importance to the infrastructure in a given region, natural and human potential, workforce skills, industries prevailed.

Alfred Marshall seems to be considered the "father of clusters" being known his work of studying the London region companies. Its findings have concluded that companies in this area are specialized suppliers and make permanently exchange of information in their respective fields, being characterized by a high degree of labor employment in the area (Marshall, 1920). These features are currently the main indicators for identifying clusters.

In the sense of M. Porter, clusters are "geographic concentrations of interconnected companies and institutions, in a particular area" based on the interaction of common factors resulted in competitive advantages for companies in composition. They are based on the extensive network of suppliers of specialized inputs, such as parts, components and finished products, or of infrastructure or specialized services, being part of the related industries (Porter, 1998).

The support of the creation and development of clusters has effects on multiple levels. On the one hand, clusters achieve synergistic effects for SMEs (small and medium enterprises) within them, thus contributing to their success and also to the economic prosperity of the region in which they are located (Fujita et al., 2001, Glaeser, 2011). Cluster analysis leads to ways to support regional development because the cluster is seen to be the pillar of regional economic development and not isolated firms (Cortright, 2006). On the other hand, clusters are important for the national economy as they contribute to a significant increase of competitiveness of countries (Ketels, Memedovic, 2008).

In the European Commission's view the cluster is a group of economic entities (mostly SMEs), companies and associated institutions (universities, research institutes) with concerns in the same field, located in the same geographic area and which develop between them same policy

providers, workforce qualification, services, specialization and concentration in a particular economic sector. They create links between them through supply and distribution chains and supply mainly the same product (European Commission, 2012).

SMEs in a cluster configuration support each other and cooperate in terms of research, development and innovation, in support of increased competitiveness. The cluster is the ideal medium providing support for specializations in the areas of comparative advantages of the country and also the implementation of smart specialization strategies (European Commission, 2010).

Within clusters, firms and associated institutions (e.g. universities, professional organizations and local government) can work more efficiently and can innovate faster due to technology sharing, common infrastructure or common fund of knowledge and skills (Delgado et al., 2014).

In the Romanian legislation the concept of cluster appears specified for the first time in 2006, being "groups between performers, users and / or beneficiaries for the implementation of best practices at European level in order to increase the economic competitiveness of economic operators" (GD 918 / 2006).

II. A PERSPECTIVE UPON CLUSTERS IN ROMANIA

In Romania research on cluster theory and their application is modest and firm-level concept is, in many cases, still unknown and therefore not addressed in the formulation of management policies.

One of the first studies on the cluster concentrations of Romania belongs to a Italian researcher (Ferrari, 1999) which sought to identify the "industrial districts", after Italian terminology, using a few basic criteria, including industrial areas and concentration of firms them in a certain geographical area. He identifies during his study three sectors, namely, wood industry (Covasna County), ceramics (Alba) and textiles (Galati) capable of developing cluster structures.

In a parallel research of Ferrari (Ionescu, 1999) the author uses as criteria for identifying industrial agglomerations (calling them at the time of the study - emerging clusters) the geographical demarcation of cluster and the performance and management strategies both at emerging clusters level and at SMEs level in their composition. The research results bring out the potential existence of two clusters, one in the ceramics industry in Alba County and the second in Bucharest specializing in ITC.

Other attempts of identification of potential clusters in Romania based on industrial agglomerations were made during the years 1998-2010, in particular by certain European programs or supported by certain international economic institutions.

In 2010 a Romanian-German team (Guth, Coșniță, 2010) conducted an identification of clusters and potential clusters on the eight geographic regions of Romania and on the areas of competitiveness, based on local advantages and areas where they can activate. They built their cluster model based on five criteria: regional concentration, labor, cooperation, research and development and service providers.

The research has led to the identification of 55 clusters or potential clusters (industrial groups) in the eight regions of Romania. The fields of activity identified for these clusters, on regions of development can be traced in Figure 1:

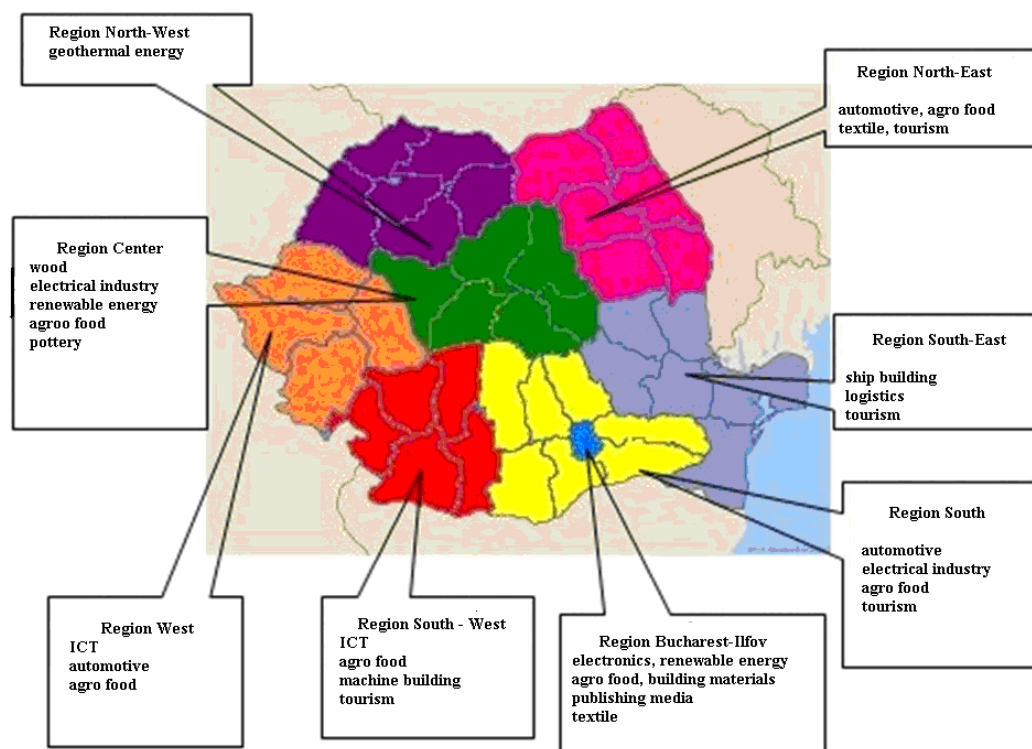


Figure no. 1. Fields of clusters and potential clusters in Romania, 2010

Source: Adaptation after Guth, Coșniță, *Clusters and potential clusters in Romania – A mapping exercise*, 2010

Efforts of the study revealed that human capital endowment is favorable, in many regions labor showing a high level of skill, which is an advantage for the country. In terms of research and development there are enough universities and research centers that can support innovation capacity within the clusters. However, in terms of the criteria of cooperation and availability of specialized service providers the situation is very poor, of the 55 clusters identified only 22 meeting these criteria. This indicates a significant lack of trust between economic actors in Romania. The direct consequences in terms of the economy are poor calling and utilization of specific innovation in specialized units.

Inov Cluster II is a project initiative conducted between 2011-2012 in Romania, with the main objective performance assessment of manufacturing sectors in Romania and the formulation of policies and strategies for the harmonization of the country's industrial policy with EU policies and strategies, comparative analysis on the role of cluster structures in the EU and Romania, addressing specific tools to support innovative partnerships within clusters, finding solutions to improve the competitiveness of industries in Romania. On this occasion www.clustero.eu platform was created by Cluster Association in Romania, founded in 2011 in order, among other things, to develop a national strategy regarding the establishment and development of clusters in Romania, how to accredit them, their facilitation of access to external funds, establishing international partnerships, etc.

Running all of these projects implemented in our country led to the mobilization of business and decision-makers in national and regional policy and the establishment in Romania of a few tens of clusters, others certainly being set up in the future.

The fields of activity of these clusters are different from traditional wood processing, food, shipbuilding, metal, textile or tourism to electronics and ICT, automotive, construction and renewable energies. Many confirm the studies of researchers in identifying those areas, but there are new areas, surprise areas, we might call, such as health, biotechnology and mechatronics. This proves, once again, the huge potential of Romania, unknown and untapped enough.

At the beginning of 2015 a territorial division in the areas of Romania clusters is shown in Figure no. 2:

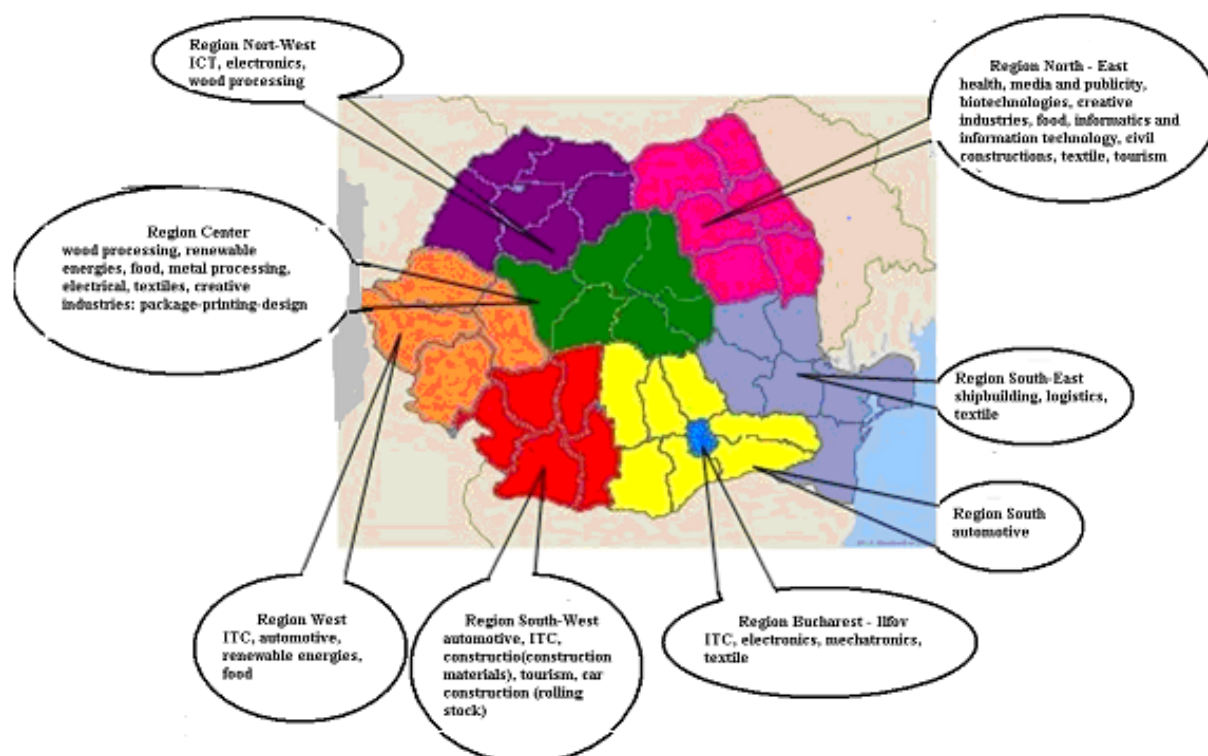


Figure no. 2. Areas of clusters in Romania, January 2015

Source: After data provided by RDAs (Regional Development Agencies) and Cluster Associations in Romania, www.clustero.eu

By making a comparison between the potential areas for creating clustering identified during research between 1998-2010 and currently existing clusters in Romania, we can draw the following main conclusions:

- In the Bucharest-Ilfov region is already exploited the existing potential in electronics and textiles, creating clusters in these areas; remain at potential level areas such as construction materials (which has great potential in terms of employment in the field of new materials), media-advertising, renewable energy and food industries. Gratifying, but not surprisingly, is the emergence of domains ITC and mechatronics on the cluster map of the capital, confirming once again the huge reservoir of skilled labor and capabilities of SMEs in the region.
- South Muntenia offers, as expected, the automotive clusters based on tradition of Dacia plants in the area. There is still in potential phase the establishment of clusters in areas such as electrical industry, tourism and food industry.
- South West Oltenia region confirms the potential identified in the ITC and machine construction, namely, rolling stock, in turn, provides initial unidentified clusters in areas such as food, tourism or automotive, the latter certainly due to polarization of SME in the area around Ford company in Craiova.
- West Region certifies studies for all three areas identified by the year 2010, existing from the beginning of the year 2015 clusters in ITC, automotive and food industries. In addition, currency exceeded forecasts because in this region activate clusters in the field of renewable energy.
- Initially identified as an area for the creation of potential clusters only in the geothermal energy sector in North West, it is also at the beginning of 2015 in a potential phase. Instead, the region now offers concrete clusters in sectors such as ICT, electronics and wood processing. ITC is supported by the high education system of Cluj, offering yearly skilled labor in the field, making Cluj "the Silicon Valley of Europe" (Paris Match Magazine, October 2014).
- Shipbuilding and logistics related to shipping transports, typical ranges of Southeast Region offer clusters predicted by experts in 2010, alongside the textile sector. It remains to be harnessed the immense tourism potential of the area.

- The central region presents clusters in the areas of wood processing, electronics, metal processing and renewable energy, confirming the expectations of research, less capitalized being the traditional ceramics sector in Alba County. In addition, the huge potential of the area in which means natural resources and workforce qualification gave rise to clusters in areas such as food, textiles and creative industries, the latter by the existence of SMEs in the packaging, printing, design sector .
- Finally, the North East, along with traditional textiles and tourism sectors expected, offers many surprises, from areas such as ICT, biotechnology and health to civil and media advertising in any of the areas identified in previous studies. What could be the explanation? Maybe another vision of young people following studies in the strong university of Iasi and their orientation towards areas with great prospects for future, improvement of regional policies regarding cooperation of SMEs, sustained activity of RDA North East regarding cluster policy and permanent connection with the business of the region as a way of raising the economic area, knowing that the region is almost in all in rankings at the bottom or all of these reasons combined.

In Romania there are currently (Jan. 2015) identified 23 fields of activity for clusters and potential clusters from the primary sector of agriculture, to manufacturing industries, energy or tertiary sector. Their representation compared to the year 2010 and the beginning of the year 2015 can be traced in dynamics in Figures no. 3 and no. 4:

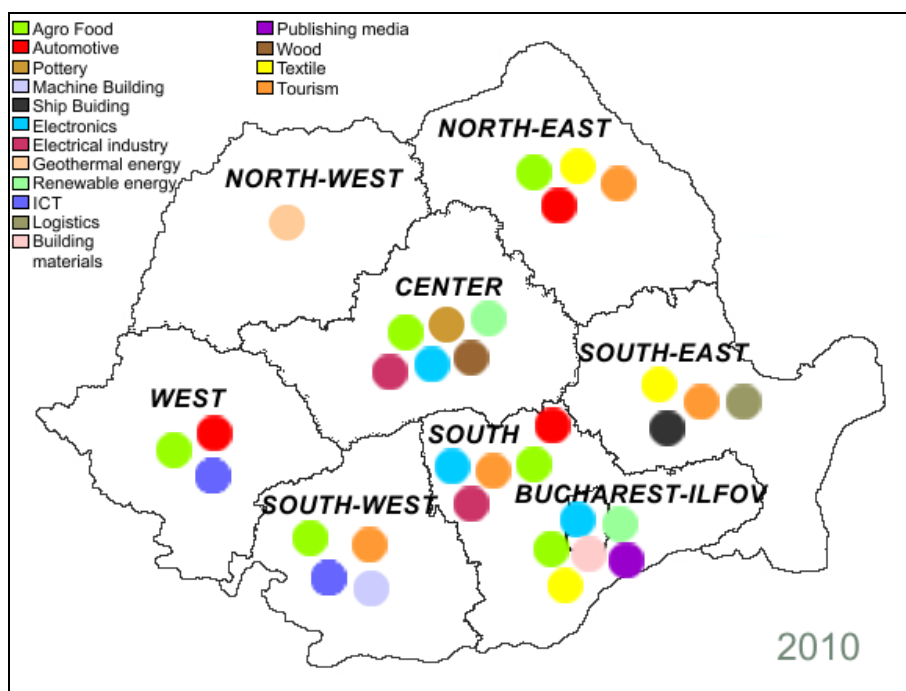


Figure no. 3. Potential fields of clusters in Romania expected in 2010

Source: after Guth, Coșniță, *Clusters and potential clusters in Romania – A mapping exercise*, 2010

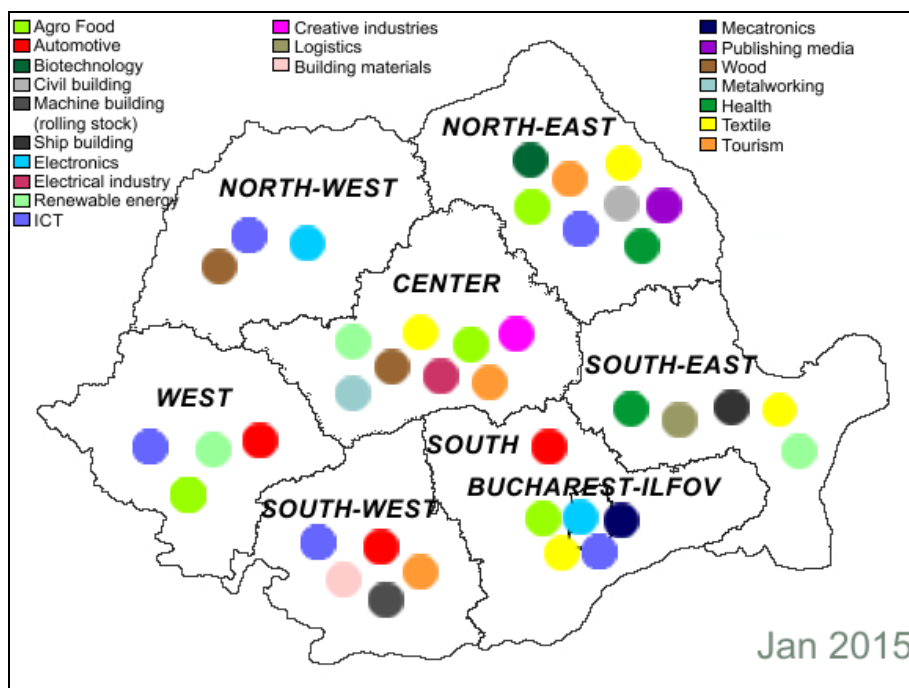


Figure no. 4. Fields of clusters in Romania, January 2015

Source: After data provided by RDAs and Cluster Associations in Romania, www.clustero.eu

By comparing the maps in Figures no. 3 and no. 4 we can see that in most of the regions were established clusters in several areas than predicted from studies conducted in 2010, which shows a very positive development of the economic situation of Romania at least at the level of initiative. Realizing the economic analysis in the areas where these clusters are found, we can issue some conclusions:

- Automotive industry focused in three regions of the South of the country, respectively, South, South-East and West, where there is a tradition in this area. It remains to be seen whether North-East Region will confirm predictions;
- Leading ICT technologies are on the map of 2010 only in two regions, West and South-West. Current developments in this field show clusters in five regions of the country, so that there were added North-East, North-West and South-West, as representatives of the great universities of the country. This development exceeds all expectations, making Romania an international competitor;
- The food, predicted for six of the regions, namely North-East, Central, West, South-West, South and Bucharest-Ilfov, is found in 2015 only in three of them, North-East, Central and West. It is known that Romania's potential in this area is very high, given the geographical location, with large areas of farmland, so it is necessary for our country to capitalize on this advantage, since the food is a strategic area, in our opinion, and, moreover, is among the areas of future in the EU agenda;
- Renewable energy crosses the country from west to east, covering West, Central and South-East, although initially forecast identified potential clustering in this area in the Centre and Bucharest-Ilfov regions;
- Textile sector is confirmed in all three regions predicted, North-East, South-East and Bucharest-Ilfov, to which in 2015 added the Central region;
- Tourism for which there were four regions initially nominated, North-East, South-East, South and South-West, is found in 2015 only in two of them, North-East and South-West. It remains a great potential to use in this sector of the Romanian economy;
- There are new areas that were not originally identified in the study in 2010 and found in 2015: biotechnology, health and civil engineering in North-East, mechatronics in Bucharest-Ilfov, creative industries: packaging, printing, design in the Center region;

- Geothermal energy potential remains untapped by one or more clusters in North-West, even in the West, because Romania has large geothermal deposits in this area.

Concluding this brief analysis with a general note, we can say that Romania has the potential in many areas of the economy, much of it highlighted by the establishment of a number of clusters to date. There are other areas remaining to be confirmed and it is expected that in the next period new clusters to appear on the map of the country. We consider this process as still in its infancy and it will take several years before it will stabilize and the map of clusters of Romania will be of a form about completed.

In developed European countries the cluster formation process is completed for some time, there is a good part of them targeting the areas that produce high added value and are intensive in innovation, such as the ITC. In contrast, in the emerging economies of the EU there is still more emphasis on traditional areas of manufacturing, food and tourism (Lindqvist et al., 2003; Ketels et al., 2006).

The areas which European Union is promoting as the future within clusters by smart specialisation are ICT, life sciences/healthcare, energy, tourism, environment, food industry and innovative materials because these areas are, par excellence, carrying high added value, based on a broad outreach regarding compartments of research, development and innovation, mandatory to support EU in the global competition for competitiveness. During the 2014-2020 financial frameworks EU will mobilize large funds in these directions.

The fact that Romania has already today clusters in areas such as mechatronics, biotechnology, ICT, life sciences/healthcare, renewable energy or we can conclude that tourism is on the right track, that there is great potential in these areas that need to be valued, supported by appropriate policies and measures at the national and regional authorities and policy makers. This aspect also means that Romania could face competition for international competitiveness in cutting-edge technologies.

III. CONCLUSIONS

In Romania there have been made in recent years more research in order to identify potential clusters specialized in various fields, varying on the geographic frame, existing natural resources in the area and, not least, the qualification of human resources supported by the existence of large academic centers. The results of this research led to the identification of 55 clusters or potential clusters (industrial groups) in all regions of Romania.

Studies have revealed that human capital endowment is favorable, labor in many regions showing a high level of skill, which is an advantage for the country. In terms of research and development there are sufficient universities and research centers that can support innovation capacity within the clusters.

The fields of activity of these clusters are different from traditional wood processing, food, shipbuilding, metal, textile or tourism to electronics and ICT, automotive, construction and renewable energies. Many confirm the studies of researchers in identifying those areas, but there are new areas, surprise areas, we might call, such as health, biotechnology and mechatronics. This proves, once again, the huge potential of Romania, unknown and untapped enough.

The areas which the European Union is promoting as the future within clusters by smart specialisation are ICT, life sciences/healthcare, energy, tourism, environment, food industry and innovative materials because these areas are, par excellence, carrying high added value, based on a broad outreach regarding compartments of research, development and innovation, mandatory to support EU in the global competition for competitiveness. During the 2014-2020 financial frameworks EU will mobilize large funds in these directions.

The fact that Romania has today clusters in areas such as mechatronics, biotechnology, ICT, life sciences / healthcare, renewable energy or tourism we can conclude that it is on the right track, that there is great potential in these areas that needs to be capitalized, supported by appropriate policies at national level and at regional level by authorities and policy makers. This aspect also

means that Romania could face competition for international competitiveness in cutting-edge technologies.

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