Institute for Economic Forecasting, Romanian Academy
"Nicolae Titulescu" University from Bucharest, Romania
1st Workshop on Modelling and Economic Forecast
"New Trends in Modelling and Economic Forecast"
9-10 December 2011

CLUSTERS – INSTRUMENTS FOR PROMOTING ECONOMIC COMPETITIVENESS

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Abstract: In recent years, territorial (spatial) development concepts in relation to industrial development are often raised as an issue that needs to be considered by those who have this authority. The increased power of regions, given by Lisbon Agenda, highlighted the existing links between development and territory, bringing to the attention of policy makers, the necessity and utility to promote measures that support all industrial agglomeration, competitively poles, and clusters in general.

KEYWORDS: excellence clusters, innovative clusters, cluster policy, cross-border networks

Introduction

The concept of cluster has gained in the last few years a large popularity, all policy makers, business men and science men are referring nowadays to this. The interest is so intense that even the number of definitions is extremely large, and the economic impact itself, both from a competitively and innovation point of view, is very well observed. Its gaining popularity is reflected in the growth of new policies and initiatives which are designed to help clusters.

In Japan and South Korea most companies are grouped together in large industrial conglomerate, connected strongly both from an economic point of view, but also in structure of stakeholders and geographical proximity. This agglomeration is focused either on one large corporation (South Korea), or one large investment bank (Japan). In both cases the central entity is the one who makes all the decisions concerning the whole formation, keeping a very close connection, also, with local

[43] The paper presents some preliminary results of research performed for the project: Consolidarea competitivităţii clusterelor inovative şi evaluarea comparativă a competitivităţii sectoarelor industriale – instrumente de politică industrială durabilă, adaptate erei globalizării, Contract No. 06/04.10.2011, Phase I/2011: Analiza comparativă a strategiilor, politicilor şi instrumentelor de dezvoltare industrială, cu accent pe rolul jucat de structurile de tip cluster/pol de competitivitate în România şi în Uniunea Europeană şi identificarea instrumentelor şi măsurilor specifice de sprijinire a parteneriatelor inovative, Contracting Authority: Ministerul Economiei, Comerţului şi Mediului de Afaceri, Contractor: Institutul de Prognoză Economică, November 2011

authorities in order to channel public funds towards the central entity. Basically, this fact is leading to the formation of industrial clusters with geographical focus, formed around a very strong and competitive entity capable to act both locally and globally. Another important aspect is the ability to innovate effectively, driving the whole value chain around this.

Nevertheless, clusters are not specific to Asia; one can find this concept also in other continents and regions (Hollywood, Silicon Valley, Medicon Valley, Stuttgart, etc.), but opposite to the Asian ones, in general, clusters do not meet such fierce on global markets (with some exceptions – auto industry, wine industry).

Taking into consideration the economic context in which the concept of cluster was born, this type of industrial organization was largely influenced by the success story of the Asian ones. Hence, the model of industrial development based on regional (geographical) clusters comes into play as a reaction to the growing competition within global markets, but also for regaining the advantage of American and European industries that was lost in front of the Asian ones.

Starting with 2003, the European Commission has begun an intensive process of study, trying to find a way to adapt and integrate this type of initiatives; this would be a part from a larger plan to support the whole European industry through excellence clusters which are driven by innovation.

Within the Community, a new concept of industrial policy was adopted. This was all about integrated vision (European Commission, 2005); that means taking a horizontal approach to all support themes along with detailed analysis of all sectorial challenges, but also integrating directory lines within the economic strategy towards macro and micro economic priorities, and of course labor market.

Within this new paradigm, the E.U.'s industrial policy is focused on unique, free market, guaranteed by institutional framework, which will favor development and creation of new partnerships, along with transparent, consistent and predictable regulations; moreover, the capital market is supposed to be more accessible, and, last but not least, the local business environment should be in permanent connection with the local labor market.

Also, territorial (spatial) development concepts in relation to industrial development are often raised as an issue that needs to be considered by those who have this authority. The increased power of regions, given by Lisbon Agenda, highlighted the existing links between development and territory, bringing to the attention of policy makers, the necessity and utility to promote measures that support all industrial agglomeration, competitively poles, clusters, and in fact all economic concentrations within the space limit.

Based on the decision of the Council 702/2006, creation of clusters should be around excellence: "bringing together all SMEs within the high-technology sector around research and technology institutes, or through developing of regional concentration around large enterprises"

Cluster policies will generate economic growth, productivity, competitiveness, innovation and new jobs. Europe 2020 strategy stipulates the importance of clusters for business, especially for SMEs.

Clusters policies should not be seen only as tools to promote research, development and innovation, but also as an integral part of industrial policy that aims to prepare Europe for global competition.

The key messages should be the following:

- Cluster policy is an important political instrument for regions and nations within their strategies for innovation and business development;
- Internationalization of cluster programs or management entities, is a very important element for regions and nations, which can be improved by sharing best practices and with continuous support from the European Commission;
- Cluster management excellence is essential;
- Emergence of new cluster programs: E.U. - U.S.A., E.U. - Japan (presented by Ayako Kawamura, Center for Industrial Cooperation E.U.-Japan), E.U. – Australia, E.U. - India. All these with one single purpose - contributing to the animation of meta-clusters and cluster communication, with futures objectives in mind (to be launched in early 2012);
- Cluster policy lobbying, by creating a group with specific responsibilities within the European institutions in order to attract investors from within and outside the E.U. towards the innovative clusters.

Cluster initiatives offer 'policymakers the possibility of addressing business demand collectively and ensuring a cost-efficient way to address a critical mass of recipients with a substantial policy impact through public-private partnership'[44].

In the US as well as in Europe, cluster initiatives are usually initiated by local and regional stakeholders that know best their own competitive advantage in the region and have privileged contacts with the regional business community and academia[45].

In addition, clusters can provide a fertile combination of entrepreneurial dynamism and contribute to the building of a knowledge-based economy, in line with the Europe 2020 strategy[46].

Inside the industrial Europe, we are facing, for more than a decade, an increasingly competition on global level, occurring from industrial concentration based in East Asia.

Under these conditions, some national governments (Sweden, Germany) were forced to experiment with new economic development strategies and policies, including the

[44] Landabaso, Mikel, Rosenfeld, Stuart. 2009: "Public policies for industrial districts and clusters" in Becattini Giacomo, Bellandi Marco, De Propris Lisa (eds) 2009, A Handbook of Industrial Districts, Edward Elger, Nottingham: 744

[45] Sallet Jonathan, Paisley Ed, Mastermann Justin, 2009: "The Geography of Innovation. The Federal Government and the Growth of Regional Innovation Clusters", Science Progress: 6 and OECD, 2009: "Regions Matter – Economic Recovery, Innovation and Sustainable Growth", Paris:12

[46] European Commission SEC (2008) 2637

encouragement of emerging clusters. There is still no consensus on how policy is defined when cluster come into play, but it can be divided into three large categories:

- Development policies focused explicitly on mobilizing and strengthening of a particular type of cluster or clusters;
- Policies that use clusters as tools for distributing financial benefits allocated to a small group of agents (e.g. allocation of grants for research and innovation only towards those companies belonging to regional clusters, where there is a high probability for the occurrence of positive externalities);
- Policies that encourage cooperation between SMEs inside a certain region, with the purpose to form new clusters within that specific area.

The year 2010 marks a new milestone for European integration, through the communication of the European Commission – Europe 2020: "A European strategy for smart, sustainable and ecological growth favorable towards inclusion" (EU Commission 2010b). An example for competitiveness and industrial policy is the package of conclusions of the Competitiveness Council on "Industrial policy: the need for industrial policy (Competitiveness Council 2010c). Another good example is the special emphasis which is placed for "a modern industrial policy framework to support entrepreneurship and help guide the industry to be able to cope with these challenges; to promote the competitiveness between primary European industries – processing and services - , in order to help them to benefit from the opportunities of globalization and green economy" (EU Commission 2010c, p. 15).

In short, Europe 2020 Strategy envisages the following:

- Developing an economy based on knowledge and innovation;
- Promoting an economy more efficient when it comes to use of resources, more environment friendly and competitive;
- Sustaining a high employment economy that provides social and territorial cohesion.

The importance of clusters for synergetic growth has been stressed by the Community Strategic Guidelines on Cohesion (CSGs) for the period 2007-2013, explicitly encouraging Member States and regions to promote strong clusters, as a means of cooperation among businesses and between businesses and public research / tertiary education institutions – a knowledge triangle in their economic reform strategies.

The analysis carried out so far allow us to see clusters as drivers of competitiveness and innovation and thereby towards economic growth and job creation. Data provided by the EU makes it clear that clusters are significantly related to prosperity, and all businesses can benefit from clustering.

The European Cluster Observatory has identified so far, more than 2,000 statistically clusters. Therefore, Europe does not lack on number of clusters, but apparently lacks when it comes to "world-class cluster" that means cluster on international level, thus of global importance

We must make a clear distinction between clusters as a real phenomenon and "cluster initiatives" – clusters that are formed as a result of an initiative – in which new clusters are build or developed or by improving the performance of the existing ones. Some of these cluster initiatives can be successful, others not. Measuring the impact of support programs for clusters through performance indicators remains a challenge. For this purpose it is required reliable and neutral information on clusters, cluster policies and cluster initiatives.

The European Commission makes an important contribution in this regard, by improving the European Cluster Observatory and by facilitating transnational cooperation between clusters, through the use of its Transnational Cluster Policy within the European Cluster Alliance.

Insufficient innovation, in recent years, has been considered by the European Commission[47] as the main cause for poor performance in terms of economic growth. Thus parts of Europe need more innovation and growth to meet global changes. Regional networks and clusters are considered as true "drivers" (engine) for development, many of them contributing to strengthening local economies, creating jobs and attracting new investors. For these reasons alone, they launched several initiatives to create new clusters. Some countries have included cluster policies in their national development plans, and others have followed regional patterns.

Clusters are important mainly because they allow companies to be more productive and more innovative, compared to them working separately from each other. Second, clusters are important because they reduce barriers related to the ability to enter and develop new business in other locations. As a result, clusters and company networks have been placed frequently in the center of debates, within the national support initiatives and academic research.

Some countries are in a better position because of their tendency to engage more intensely in networking. The Innobaromether (2006) shows that networking is most popular in Nordic countries, as: Finland, Sweden, Denmark and Norway, where most companies that make up clusters, actively participate in at least two business networks (business network), and approximately 90% of them are part in at least one business network. By contrast, many companies within existing clusters in Czech Republic, Italy, Hungary, Slovakia, Belgium, Portugal and Slovenia, are between 39% and 51% active through participation inside business networks.

Continuous success for clusters depends on their ability to change and adapt. High degree of specialization, for these clusters, carries greater risk being much more vulnerable to market shocks, especially if the region's portfolio is too concentrated, making it difficult to adapt to market changes in time.

Availability and international cooperation is the only barrier against these risks. However, a higher agglomeration of economic activates can lead to disadvantages in terms of increased labor costs, real estate costs and traffic congestion, which in time may exceed the benefits of having clusters. In the end,

[47] Aho Report http://ec.europa/invest-in- research/action/2006_ahogroup_en.htm

potential benefits of clusters can lead to increasing gaps for those regions that plan to create clusters from scratch, by making promises of growing areas, without taking into account the strengths of the region, and the lack of critical mass in the global context already defined.

For these reasons, clusters are not stable and cluster policies are not always successful. Also, for the same reason many case studies were developed in order to better understand the "success factors" of clusters.

In 2007, Brenner&Muehlig published a study in which they analyzed 159 local industrial clusters, taking into consideration 135 different local conditions and processes that can lead to cluster formation.

The study highlights three types of success factors for the emergence of clusters, namely "mandatory prerequisites for cluster development", "triggering events" and certain actions that trigger the process of making good use for the potential of development for a cluster namely "self-growth process". The results of this study, suggest that the most important "prerequisites" for the emergence of clusters is qualified workforce (105 out of 159 cases), and of course strong connections between actors.

When we speak of mandatory prerequisites for cluster development, networking was regarded as one of the most "important" factors for clusters (with a total of 78 cases), while those clusters that find this less important were in total of 37 cases. The presence of universities and public research centers was mentioned between important premises (in 70 cases). After taking into consideration all these factors, they considered as prerequisites: tradition and history (in 66 cases), industrial structure (in 61 cases) and local policies (in 56 cases)[48].

As for triggering events, the most important three events mentioned are: creating a business leader (in 62 cases), specific policy measure (in 53 cases), and finally historical events such as wars (in 52 cases); these events are a mix of opportunities and public policies.

Among the self-growth processes they observed: human capital accumulation (in 116 cases), cooperation between companies (in 87 cases), and the option of co-location along with other companies (in 83 cases).

An interesting result of these studies is that policy measures are considered to be of utmost importance and that their importance has even increased over time.

Trends in development of economic clusters – creation of transnational clusters

Policies related to clusters are often seen as tools for improving national and regional competitiveness, which in turn explains why only a small number of cluster programs have an international dimension.

[48] 2007, Brenner & Muehlig

This perception of national and regional approach began to change. Taking into account the effects of globalization, that strengthens competition between different locations, and also the presence of a new horizon between companies across different value chains, transnational cooperation starts to appear in a different light. There is a growing recognition that a certain country cannot remain competitive without a particular specialization.

At the lowest level, peer learning is the only reason for closer cooperation between those responsible for cluster policies and programs. To learn from others, to adopt successful practices, to avoid mistakes and to be aware of new challenges and new political trends in the field, will help companies to advance more quickly, and to adjust their emergence policies towards cluster needs and challenges.

However, a precondition for this type of cluster policies based on cooperation must be that all participants should have the same interests. Without incentives there is no interest to share experience with those who have to climb before reaching the same maturity, or with those who started their cluster policies many years ago.

A second motivation is the interest in developing tools and practical solutions to relevant issues related to policies and programs for clusters, such as: better methodology for cluster mapping, better identification of emerging new markets, better performance measurement and evaluation of a cluster, or even the evaluation of the evolution of a cluster, study on the efficiency of cluster initiative inside a specific territory. Development of such tools can make it easier for policy makers who would have the advantage of experience within certain areas.

The role of transnational cooperation on program and policy level to strengthen clusters

Different countries may have a common interest in working to build strong clusters or to increase the cooperation between them, using the same specialized research facilities and the same test facilities in order to facilitate cross-border transfer of knowledge.

This requires developing of long term joint strategy in order to facilitate the development of strong global clusters. This ambitious cooperation may be limited to cross-border cooperation between regions with a strong common cultural identity, such as the Baltic Sea region and Central Europe. For these reasons one can conclude that although transnational clusters would be a great benefit, it is unlikely to occur spontaneously. Most often such cooperation remains limited to the same region, although common problems could be better addressed through broad cooperation.

Therefore, the instruments of the European Community, that facilitate transnational cluster cooperation, could provide greater benefits. In this respect, it would be necessary to address and develop, on a strategic dimension, transnational cluster cooperation.

European initiatives to support clusters should be as largely complementary to national and regional efforts, to better exploit synergies and to better support country specific priorities. On the other hand, regions and Member States should make full use of the advantages of community's financial instruments to strengthen cluster and open them to transnational cooperation.

Provision by European Cluster Observatory of neutral and comparable information about clusters and cluster policies within the Member States, is a major contribution to promoting mutual learning of policies at E.U. level, in order to promote a policy approach based on real facts, concerning cluster support.

Moreover, providing policy learning platforms that allow regions and Member States to learn from each other, in order to be able to formulate support cluster policies, is an example of how the European Community supports transnational cooperation in the field of clusters. This type of support includes: Regional Innovation Strategies (RIS) schemes, which since 1994 have helped many regions lagging behind the EU, to develop innovation strategies, Innovative Action Program (IAP) (2000-2006) co-financed by European Development Fund, as well as the initiative Regions for Economic Change. This initiative was launched under Cohesion Policy, aiming to balance the experience of regions, both developed and less developed.

The new objective of the Cohesion Policy for 2007-2013 is the "European Territorial Cooperation", which aims to support integrated territorial development, interregional cooperation and exchange of best practices – all based on innovation. 2 billion of euros were allocated for innovation within EU 27, but also for intercluster activities where more than one region could benefit from this.

Facilitating interregional cooperation is a part of the cohesion policy that launched the new initiative "Regions for Economic Change", which is one step forward in the effort to improve these policies for growth and job creation. Topics related to clusters included in this initiative include: faster linking of innovation results to market, improving research and innovation capacity, improving knowledge and innovation for growth, improving the capacity of regions for research and innovation and improved environmental monitoring.

A first generation of pilot projects and networking activities were launched under PAXIS initiative which aims to identify examples of "best practices" and to develop tools for cluster initiatives. As a result, there were a large number of successful practices that have been transferred to other regions in key areas, through development of start-ups, financing innovation, technology transfer, incubation and entrepreneurship. PAXIS manual for decision makers and practitioners of innovative policy, describes in detail these practices, providing a useful guide for creating and managing of clusters.

Most pilot projects that facilitate mainly networking between cluster initiatives, do not always get up to the political level. They have reached their limits, and now there is an increasing need to design and implement better regional and national clusters. After all, there are lots of "best practices" from which one can learn. The challenge that remains is to consolidate information and deliver it in a friendly way. This does not prevent such information to become outdated and difficult to

replicate. A fundamental challenge is the regional policy within the clusters, which is motivated by different interests and aspirations. Clearly a good example cannot remain good whatever the place or time frame is. This raises the question of who can best learn and from whom, which require a different configuration of learning policies related to clusters.

In this respect, the existing guidelines and materials, concerning creation of regional national cluster policies should be further discussed and tested by government experts, from all levels, and maintained over time. European network Innovating Regions can play an important role to disseminate information on these documents, as well as publications of the European Commission: "Innovative Strategies and Action: Results after 15 years of experience", which contains a summary of the experience of innovative actions from the Cohesion Policy program, as well as guidelines on how innovation and experimentation should be continues in the current program period 2007-2013 (European Commission Working Document).

Facilitating interregional cooperation is also part of the Cohesion Policy; for this purpose the initiative "Regions for Economic Change" was launched as a step forward in efforts to improve the contribution of this policy to growth and job creation. This initiative focuses on the need for innovation which is consistent with the objectives for modernization set out in the Lisbon Agenda. Topics related to clusters included in this initiative refer to: "to bring results of innovation even faster on the market", "improving research and innovation capacity", "improving knowledge and innovation for growth", "improving the capacity of regions for research and innovation" and "improving environmental monitoring".

This initiative was made possible through the experience of 2000-2006, under the INTERREG III C initiative, through the support of interregional cooperation and the URBACT network for exchange of good practice between Europe's cities. These two programs have created numerous networks that linked local and regional actors across Europe. This type of know-how provides a valuable asset, and it can be a starting point for regional policy to bring economic development in Europe - in the form of "relationship capital" (i.e. consisting of relational capital).

One of the most recent projects, which are still in place (2009-2012), focused on promoting transnational networks, is called **Adriatic Danubian Clustering**[49] (ADC).

The general objective of the project is to overcome the current stage, characterized by lack of information between countries of South-East Europe on the potential of entrepreneurial cooperation (trade facilitation, high specialization, access to innovation, join initiative on global markets).

The ADC project is working within the framework of a partnership which involves 13 organizations coordinated by Italian Veneto Region, well known for its knowledge within cluster area.

The representative countries inside the project are:

[49] www.adcproject.eu

- 5 E.U. countries, namely Italy, Hungary, Slovenia, Bulgaria, Romania, as well as
- 4 non E.U. countries, namely Serbia, Montenegro, Bosnia-Herzegovina and Croatia.

Project description: Project "Adriatic Danubian Clustering"(ADC) - "Clusterization within the Adriatic – Danube area", also known as "ADC Project" falls between the guidelines of many other projects which reflect the European Union's policy to support economic development based on clusters.

This project is financed from European funds and via the **Transnational Cooperation** Program for South-East Europe (SEE) 2007-2013. Romania is participating to this project represented by Institute of Economic Forecasting, as project partner 8.

The project is coordinated by the Italian Region of Veneto, well-known for its experience in the field of entrepreneurial activities. The other partner countries in the project are: Bulgaria, Italy (with four regions: Veneto, Friuli Venice Giulia, Emilia Romagna and Molise), Slovenia, Hungary, Croatia, Serbia, Montenegro and Bosnia-Herzegovina.

The ADC Project (www.adcproject.eu) intends to identify in the Adriatic-Danubian area companies and/or clusters that are already formed or are about to be formed – with activities in the different sectors of common interest for all the partners in the project, in order to support the process of development through the opportunities offered by transnational cooperation, in general, and through cooperation between all countries involved in this project, in particular:

The following sectors were found to be common among all the partners involved in the ADC project:

- The Sector of "Agro-Food": processing, preservation and packaging of food products and related technologies;
- The Sector of "Building and modernization of living dwellings": this sector includes a multitude of activities meant to create healthy and comfortable living spaces, namely: ecological building materials ("green houses") and building technologies, technologies for renewable energy sources, electronic household appliances, furniture etc.;
- The Sector of "Logistics": storage, packaging, related transport and technologies, ITC applications in the mentioned fields;
- The Sector of "Mechatronics": manufacturing of engines, generators, electric transformers, control systems for industrial processes, mechanical instruments, pumps, compressors, air processing systems and other thermo-mechanical devices, bio-medical technologies, technologies for processing and packaging of textiles, leather, wood; industrial robots and antennae manufacturing etc., added to which are mechanical parts produced by smaller suppliers, specialized, however, in the mentioned fields.

The goal of ADC project is to support the companies in the four economic sectors of strategic importance for the countries involved in the ADC project, preferably integrated in national clusters, to cooperate among themselves for the formation and/or development of competitive and effective transnational clusters.

The main expected results of this project are the creation of new, efficient and sustainable facilities to support creation of cluster networks, to integrate companies and local production systems, building a regional economic identity for the Adriatic-Danube region, as well as developing this region as a productive integrated system, with high competitiveness and with strong capacity to attract foreign investors.

Within this project a joined data base will be created, for nine countries, which will be structured on the above mentioned sectors. All companies involved in this project will be inserted in this data base, with the possibility to cooperate and promote their own products on the European market, in general, and in the south-eastern market, in particular.

The advantages of integrating companies in transnational clusters via the ADC project are mainly the following:

- Priority to European funding, on the occasion of calls for proposals of projects, meant to promote and develop transnational clusters;
- Enlisting the companies in a common data base of the nine partner countries, structured on the four sectors mentioned above, creating in this way a virtual platform which will be active even after the project is completed and which will facilitate the initiation and consolidation of cooperation among the respective companies;
- Mutually knowing about opportunities for cooperation between enterprises/firms/companies in the nine partner countries in the project.
- Acquiring an important and direct experience on the markets of South-East Europe by direct contact with the economic and entrepreneurial realities in this area;
- Facilitation of an exchange of knowledge on the production processes, for an easier and effective collaboration, as well as for a more active presence in the South-East European countries.;
- Promotion of new trade relations among the companies that cooperate in producing a finished product, as well as among the local production systems involved;
- Knowledge of potential competitive companies in the transnational context, in terms of access to new markets;
- Informing all institutional actors involved, on measures that can have a positive impact in terms of economic recovery, with particular emphasis on improving the management of those territorial units which focus on providing, entrepreneurs and clusters, facilities to stimulate innovation.

ADC's efforts to integrate companies within clusters or network of clusters have been materialized by signing in the year 2011, of 3 agreements that establish transnational clusters in each of the four sectors: food, housing construction and

modernization, mechatronics, logistics (to be signed in 2012) (according to http://www.ipe.ro/adc/index.html).

These examples show that there is interest in transnational cooperation between clusters, on economy policy level. But, as confirmed by feedback from the participants, this kind of cooperation could not take place without the financial support of the Commission. Only with the help of European funding, more advanced government's body are ready to share their experience with countries that have recently initiated policies and programs to create clusters, which have a special interest to learn, especially in the effective implementation of regional development strategies area.

In many areas, progress has been registered especially when it comes to closer cooperation between policies and programs on clusters from different Member States countries and regions, by signing the Memoranda of Understanding and through launching pilot projects. Moreover, different public administrations are now working closely together to improve the methodology of mapping clusters to assess their impact. This would not have been possible without the initiative launched so far by the European Community.

According to experts, further progress must be made regarding the removal of legal restrictions in place, in order to achieve closer cooperation between different Members States regions when it comes to cluster policy. This would require the development and practical application of new legal instruments for cross-border cooperation, such as the "European Grouping of Cross-Border Cooperation" (See Regulation 1085/2006 of the European Parliament of 5 July 2006, published in the Official Journal of the European Union).

Measures dealing with cluster policies

Romanian academia and companies

1. Establishing closer links between academia and private companies through common events, such as:
   - Trade/Job fairs within the premises of the universities
   - Demonstrative activities based on specialization of companies (those with technical profile) within extracurricular classes
   - Visits organized at the company's headquarters
   - Social campaigns promoted by companies involving students (as secondary objective: improving Social Corporate Responsibility)
   - Annual competitions with awards, held by companies (as secondary objective: targeted publicity)
   - Media, design or marketing project, even new products development (as secondary objective: websites of companies could be designed / improved by students with special abilities, both parties benefiting from the experience) (examples of marketing campaigns: Open day for Students; One week training within the companies, Women day, etc.)

- Extended periods of practice, during the summer (paid or not, full-time/ part-time)
- Setting up special departments within the universities' premises that could be funded by companies with well-defined goals (e.g. web-design department to launch joint projects to improve the web pages for companies that financially support this department) (e.g. Inside the marketing department where students could brainstorm about new marketing campaigns, and even promote them, etc.)
- Adapting universities' curricula on two main directions (reducing the difference from the current system through increasing the share of special education at the expense of the basic one; even more, such specialized studies should have a stronger practical component – for example, a period of two months with practice in the summer with or without pay)
- Basic Studies – to cover most of the information necessary to enrich the basic knowledge in the field
- Focused Studies – to include only the information that needs to be extensive, depending on the specialty
- Setting up Union of Students (to represent their interests before the company, but with the objective to encourage cooperation between companies and students by initiating active dialogue with companies, and even to negotiate salaries)

2. Contracts between universities and companies to both use equipment / laboratories in order to improve practical skills of students (ex. Companies can temporarily move equipment in university laboratories, or 2 hours / week visits in companies' laboratories under the supervision of a teacher and / or a company employee)
3. Research orientation within technical universities can be drawn by companies (with or without sponsorship from companies)
4. Joint application (companies&universities) for national and European projects, based on the interests of companies, as well as universities competencies
5. Improving the image of an industry / company / product by actively involving students in street campaigns and / or among friends (fliers distribution or by learning predefined texts to be communicated among them)
6. Establish a working office that will create, maintain and update 2 databases:
   - Contact information for all universities within a city / county with all the faculties, specialties, equipment and laboratories
   - Relevant companies in related sectors with the profile of universities within the same city / county;
   - Using these two databases, and through direct contact with the companies, this office would be aware on all available jobs from all companies, along with required research results…. acting as a liaison between companies and universities (funding this office can come from companies, or private universities' funds, or from state budget)

7. Creating social networking for students, by involving companies; each week / month certain issues could be discussed among students based on online debate (Optimal solutions for specific issues can be rewarded by the company)
8. Establishment of councils based on the specialization of the faculties (e.g. Electronics and engineering faculty council, Faculty of Economics council) formed by: dean's office and General Secretariat, along with a designated person within each interested company. The purpose of this council would be to address all of the above issues (from 1 to10), and even by creating a lobby group that promotes the needs of companies along the Ministry of Education.

Government and Romanian companies

Establishment within each ministry of a department to support cluster activities in the same field. Among the activities that could be run by this department:

- early information on national and international projects (ex. Writing a newsletter on the most important data and relevant information on projects that companies might apply – only in the area of ministry's expertise); That would mean one newsletter to each area / sector / ministry
- Market development by initiating campaigns led by companies, but with logistic support from the government (providing a space, equipment)
- Initiation and mediation of international partnerships between Romanian companies and rest of the world (more active missions, not only at ministerial level but also for specialized departments <<those that have support activities for clusters>>)
- Promoting feedback from the European Commission for the private sector in Romania (this could be addressed within the same newsletter mentioned at 2a; companies should be better informed on all directions outlined by the E.C.)
- Most important: active support for project applications, consulting (free) on application process and support for project management (once won)
- Mediation of consortia on Romanian territory
- Drawing up papers (by specialized departments) to be promoted on government level, containing the situation of all companies (e.g. Implementation of programs to stimulate innovation and technology research; current situation for a specific sector along with current issues, pointing out where there is need to adapt certain laws)
- Activity centered on search for technology; Departments should have a flexible database with companies within a certain industry, with all their equipment, their needs, but also with their areas of interest in research. These ddepartments could thus be involved in actively solving technology needs of companies (by finding the necessary technology with the country, or even through international companies – this type information can be found by working with local representatives of European Enterprise Network)

- Departments may undertake studies to assess projects / ideas that would be received from interested companies; those ideas considered important can be promoted as strategic directions in the field

The division of cluster policies in several key areas, thus leaving a small number of clusters (see the German model in North Rhine Westphalia Region – where there are only 16 clusters in the land, each focused on one specific sector: automotive, biotechnology, chemistry, culture and creative industries, energy industry, energy research, environmental technology, food, health, ICT, logistics, mechanical engineering, media, medical technology, nano-materials, plastic. An observation period could be considered (3 to 5 years) for existing or emerging clusters, within the time frame; based on their results, after that period, only those who are performing may merge, thus forming one national cluster. This policy can be set up at national level or at most on macro regional level (4 macro regions with 16 clusters, in Romania).

Promotion (from state budget) of inter-cluster competition, by giving certain prizes for those products that will receive special attention in competitions. The winning products will receive a title called "product of the year", then during the year (until the next competition) can be actively promoted, both by companies and state (through media campaigns) by highlighting the special status of that specific product. In time, this could become a brand itself.

Promoting the concept of regional brand, which is much more sustainable than industrial brand. Firstly, it can cover a wider range of products, and secondly a region is much easier to recognize / remembered than a specific product. Once the brands are defined they can also be promoted in campaigns carried out by the Ministry of Tourism.

The government can help the development of areas that are not performing by initiating special programs called "strategic", pushing all complementary companies to intensify activity in that specific area (e.g. Currently the span of one battery is very low compared to market demand; by promoting campaigns and even projects like "Energy Efficiency" in any field that uses batteries, certain companies might be stimulated to intensify their research on batteries; this could be beneficial in terms of creating new jobs or by increasing investments in related fields).

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