

Concept of clusters and competitiveness in EU policies

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Introduction to the Clusters

In recent years the concept of clusters has gained extreme popularity. Nonetheless, there remain many different definitions of clusters, and the economic impact of clusters on competitiveness and innovation still is not entirely clear and quantified, although no one has any doubts about those that function properly.

Clusters in short could be perceived as key boosters and accelerators of competitiveness and innovations along with growth and job creation. The available evidence shows relatively obviously that clusters are closely connected with prosperity and that business operators gain benefits from clusters.

The European Cluster Observatory (ECO) statistically records over 2,000 clusters in Europe. Therefore, Europe is not experiencing a shortage of clusters in general, but it seems that it is suffering a shortage of world class clusters. A clear distinction must be made between clusters as an actual phenomenon and cluster initiatives focused on creating new clusters or increasing and expanding existing ones.

Main topic

Some of these cluster initiatives could be successful, while others could not. Measuring the impacts of programs on support of clusters compared to generally recognized and accepted performance indicators also remains a challenge.

For support, it is necessary to have neutral and reliable objective information about clusters, cluster policies and cluster initiatives. This contribution should represent an outline of the path leading in this direction. Its main purpose is to present and analyze the concept of clusters and inform about the main political approaches used to support clusters.

Concept of clusters and definitions

Clusters are becoming an increasingly popular concept, which is reflected in the growing number of policies and initiatives for their support. They are seen as an important factor for explaining the empirical phenomenon of the geographic concentration of economic and innovation activities.

There is certainly more than one definition of clusters, and it depends on the meaning, purpose and specific context of their use. The discussions obviously do not include differentiation between clusters as a real economic phenomenon and cluster policies and initiatives, which take on and fulfill rather a normative function.

As has already been stated, several definitions of clusters exist. The definitions in their original form are usually context related and formed by purpose. While from an economic point of view, the main purpose is to better understand shifters of competitiveness and growth, other definitions could monitor different aims, such as ensuring a legal framework for financing or a reference model for statistical measurability.

While the definitions focused on conceptual understanding of clusters are either descriptive or abstract, so that there is an extensive register of elements characterizing clusters, the legal definitions are defined more strictly and much more technically in order to ensure a framework for the application of public assistance, other aid and other forms of financial support.

EU Cluster definition

In relation to support for clusters, the EU defines clusters as a group of independent business entities – innovative start-ups, small, mid-sized and large business entities and research organizations- operating in a certain sector and region and proposed for stimulation of innovative activities supported through intensive interconnection, co-implementation, facility sharing and exchanges of knowledge and expertise as well as effective contributions to technological transfer, networking and the spread of information among businesses and other entities in the cluster.

Generally clusters can be defined as groups of companies, economic actors with a certain defined relationship and institutions that are mutually localized not far from each other and that have achieved and created sufficient conditions and a sufficient extent for the development of specialized expertise, services, resources, suppliers, qualifications and skills of workers.

A common element of most definitions of clusters is the aspect of the concentration of one or more sectors within a particular region, as well as an emphasis on networking and cooperation between corporations and institutions (the aspect of the regional dimension is itself a subject of definition).

Clusters are defined through a system of mutual relationships, not through the membership of individual entities alone. Their spatial definitions are variable and do not necessarily correspond with territorially defined political boundaries.

The geography of clusters can be defined via the distance and time in which people want (or are willing) to travel for employment and which company employees and owners consider meaningful for meeting and networking. Geography is not a stable concept, but it is influenced by factors such as travel conditions (mobility), cultural identity and personal preferences. New forms of transport and communication such as the internet also alter the spatial dimension of a cluster.

There is a fundamental difference between the empirical phenomenon of clusters and cluster policies and initiatives based on their creation or further development. Discussions often include both terms used as synonyms, which can create certain confusion. Active clusters leave tracks, which can be separately captured statistically, such as in the area of specialization or concentration of employment within a particular sector.

However, cluster policy is about expression of a targeted and focused strategy, creation of political priorities and the allocation of financing to support innovation, regional development and other political goals. In reality, however, all potential combinations can be found among clusters and cluster policies:

- clusters spontaneously created without any economic or political support
- cluster policies that sooner or later culminate into real clusters
- cluster policies without a statistically significant impact on the formation of a real cluster.

Cluster policy definition

Cluster policies can be defined as specific government efforts to support clusters. Such cluster policies can take on various forms and monitor various objectives, such as industrial policies, policies for supporting SMEs or research and innovation policies.

Cluster initiative definition

Cluster policies are usually supported and implemented through specific cluster programs of governments or through initiatives. Efforts at harmonizing the view of clusters and supporting their creation and development also exist at the EU policy level.

Consequently, cluster initiatives can be understood as “organized efforts to increase the growth and competitiveness of clusters within a region, including cluster firms, the government and/or the research community”.

Cluster organization definition

As part of that structure, cluster organizations often play an important role as providers of services for supporting clusters. A cluster organization can be defined as a legal entity that creates, directs and manages clusters, including usual participation and access to a cluster, its facilities and its activities.

The creation of cluster organizations and networks is often supported by a clear mandate and public financing resources from authorities at the regional level or more spontaneously initiated through a triangle:

- Universities
- Business incubators
- Finances

with the need for overcoming obstacles impeding cooperation and the creation of an environment of shared trust between partners taken into consideration. When clusters “mature” and become successful, cluster organizations tend to increase the majority of their operating costs related to the widest possible range of membership and service fees and fees for participation in training, conferences, trade fairs, exhibitions and sponsorship.

There is a clearly critical phase of the existence of further functioning of a cluster, within which these types of costs could exceed achieved benefits and cluster cohesion and therefore could disrupt the feeling of advantageousness.

Concept and economic explanation of clusters

The concept of clusters is a modern expression and description of the long observed phenomenon of a geographical concentration of economic activities that is widely and generally considered an important factor of economic development.

Marshall (1890) described as early as the 19th century the advantages of agglomeration of economic activities related to the availability of a qualified work force and specialization. Similarly, Schumpeter (1934) cites the clustering of industry (economic activities).

The concept of clusters is very broad and includes different perspectives and aspects covered by other concepts, which relate to and complement clusters over the long term.

The concept is based on a traditional location and agglomeration theory and integrated with additional concepts, such as the concept of poles de croissance, new industrial spaces, production systems, innovative milieux, national and regional innovation systems, instructional and creative regions and others.

Becattini (1979), an Italian researcher, in 1979 introduced the concept of “industrial districts” for regional policy and territorial development in his article “From industrial sectors to industrial districts”.

It is based on Alfred Marshall’s concept, in which Becattini emphasized the importance of place-based economic development (one of the basic considered pillars of the future EU Cohesion Policy for after 2013) in relation to open economies, which changed the approach to industrial policy. He also emphasized the importance of geography, social capital, sociology, politics and history when defining and highlighting innovative policies.

Recently the concept of clusters was popularized and implemented by Porter (1990) and based on his “diamond model” of competitive advantage. The concentration of economic activities in clusters can be viewed as the result of “competitive” advantages of companies during the process of finding new and better methods for competing in industrial and business activities while simultaneously bringing innovations to the market more quickly.

Basis of support for clusters in relations to EU policies

While various schools of thought express various factors that determine the growth and activities of clusters the concept of clusters is based generally on important dimensions, the core of which includes medium consideration for their support in EU policies:

First cluster dimension

First and widely undoubted: clusters are seen as a geographical concentration of specialized forms, advanced qualifications, skills and competence of the work force and supporting institutions that increase the flow of knowledge and their effective economic utilization as a result of their proximity, often related to a progressive strategy necessary in order to remain competitive globally. Since they are localized together, firms can receive benefits from general and technically predetermined and technology-related agglomeration effects in the form of savings from the extent and space that boosts their effectiveness. Regions compete with each other basically on a worldwide scale in ensuring the best conditions for facilitating business growth and boosting investments and utilization of the most talented work force.

Second cluster dimension

Clusters serve an entirely obvious functional purpose in ensuring that is custom tailored to the level of provided services specific to a group of companies, such as ensuring advanced and specialized infrastructure, specific business and support services and employee training and coaching. Cluster organizations help interconnect, facilitate and ensure access to facilities and services, which can include specialized research and testing centres, consultations, training, etc. In this respect, clusters are a form of “self-organization” that offers competitive advantages.

Clusters facilitate both intensive competition and cooperation sometimes referred to as “co-opetition”. Geographical proximity is recognized as a factor facilitating flows of “silent knowledge and unplanned mutual relationships, which are a critical part of the innovation process. This flow relies on and is based on the willingness of companies to inform each other about their own knowledge, which relies on trust between individual actors. This can subsequently be facilitated through continued face-to-face contacts, through which effective cluster organizations can contribute by strengthening networking and cooperation.

Third cluster dimension

Clusters are characterized by a certain dynamic social and organizational element referred to as “institutional fixation” or “social glue” which holds together various interconnected innovation actors, such as universities, business and public authorities, and facilitates their intensive interaction and cooperation. Over time, clusters tend to develop a set of standards, institutions, personal bonds and trust.

Dynamic and effective interaction and cooperation in the knowledge triangle of education, research and innovations is fundamental for realizing competitive advantages at a time of growing complexity of new technology, products and services and changing requirements for qualification and skills.

Intensively formal and informal contacts – often not planned or considered in advance – and exchanges of business information, know-how and technical expertise within clusters can lead to technological overlapping and the development of new and often unexpected ideas and business concepts, which improve businesses’ innovative performance.

While the aforementioned dimension of geographical proximity is seen as something that facilitates confidence and close cooperation between innovation actors within clusters, the approach to new knowledge and entry into other clusters also needs to be ensured and enabled through global interconnection and networks.

The agglomeration of economic activity in general and clusters in particular are general economic phenomena both in the previous period and in modern practice. Certain prominent examples of clusters with global reach are easily identifiable across the entire range of sectors and activities, including:

- financial services (London, New York),
- film (Hollywood, “Bollywood”),
- automobiles (Detroit, Modena, Toyota City, Wolfsburg, Stuttgart and other locations),
- watches (Switzerland, Japan)
- optical equipment (Tokyo),
- flowers (the Netherlands and Colombia),
- computer software (Silicon Valley, Bangalore),
- maritime technology (Southwestern Norway),
- mobile telecommunications (Stockholm, Helsinki),
- wines (Barossa Valley, Rioja, Bordeaux, Southern Chile, California)
- biotechnology, medical equipment and applications (Route 128 in Boston, Bio Valley, Medicon Valley).

Clusters can be found in many economies of the world, with observation of their own trajectories and history.

Cluster support and cluster policy technology

In accordance with what has been stated above, public support of clusters should always be based on performance of a detailed test, the output of which is evaluation of the legitimacy of that support. The test should be based approximately on the evaluation of the following areas:

	Respondent type	Purpose of question	Way of asking
1. Do you consider the existence of a cluster in your field as a fundamental (quality) benefit for your competitiveness?	Actual or potential participant (member) of a cluster	Cluster benefit	Interview
2. Can the benefit that the cluster has or should have in your field be exactly quantified?	Actual or potential participant (member) of a cluster	Cluster benefit/effect	Questionnaire
3. What reasons would you consider key for the existence of a cluster? - activity sharing and cost savings (economy of scale) - facilitating the sales and distribution process - sharing know-how and technological approaches - easier and more effective marketing - easier access to financial resources - better reputation - miscellaneous	Actual or potential participant (member) of a cluster	Motive for participation in cluster	Questionnaire
4. Can cluster help you with your expansion abroad?	Actual or potential participant (member) of a cluster	Motive/ purpose of participation in cluster	Questionnaire
5. What easiest tool for supporting the creation and existence of clusters can you imagine? - good legislation and its enforceability - financial instruments - tax advantages or incentives - natural needs and stimuli	Actual or potential participant (member) of a cluster	Support for cluster development	Questionnaire
6. Should clusters be supported from EU funds? How best should this support be targeted?	Actual or potential participant (member) of a cluster	Support for cluster development	Interview
7. What country do you believe has the best practice in relation to cluster development and why?	Actual or potential participant (member) of a cluster	Inspiration/ comparing of cluster development	Interview
8. Identify the main obstacles hindering greater development of clusters in the Czech Republic	Actual or potential participant (member) of a cluster	Effects/impacts of the existence of clusters and determining conditions	Interview

<p>9. How should the easiest benefit of clusters be expressed?</p> <ul style="list-style-type: none"> - innovational business - the ability to withstand competition abroad - expansion of production capacity - easier access to markets - easier access to the labor market; acquiring quality employees for a reasonable cost; - obtaining quality research and development findings - obtaining and overseeing modern production approaches - cost savings - other benefits 	Actual or potential participant (member) of a cluster	Cluster benefit	Questionnaire
<p>10. What should be the intensity of clusters and what determines it? Regional or sector arrangement?</p>	Actual or potential participant (member) of a cluster	Cluster structure	Interview
<p>11. What is the preferred form of a cluster? Consisting of companies from a single sector; consisting of companies within a production chain; consisting not only of companies, but also of science and research institutions, schools and other entities?</p>	Actual or potential participant (member) of a cluster	Cluster structure	Interview