



BalkanMed E-Business Pages

Cluster Development Guide – Greece

Hellenic Management
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1 Introduction

This deliverable was assigned to GNOSI ANAPTIXIAKI Business Development Consultants by the **Hellenic Management Association** under the contract of 9/3/2018.

The project objective is to develop a database for small, medium and large manufacturing companies, clusters and other business associations operating in Greece, as well as the processing of data that was obtained from the field research and entered into the database. 250 enterprises and Bodies participated in the field research, in particular, 245 enterprises and 5 Bodies. The aim is to raise information on the export activity of Greek businesses, create Guides to strengthen business co-operation initiatives, and capitalize digital tools to enhance incorporation of innovative know-how / technology into local markets.

The current deliverable is a **clusters development guide for Greece**, which will include the steps to build a cluster, taking into consideration critical parameters as evidenced by the bibliographic review of theoretical approaches and good practices in Greece and internationally.

The two main arguments of this guide are: first that clusters do matter, especially as environments for innovation; and second, that clusters evolve from both evolutionary and constructive forces. Both forces are bound by history and geography, and therefore every cluster has its own unique characteristics. Drawing upon the research in the framework of the project E-BP, this deliverable offers some insights about cluster evolution and construction that can guide and inspire leaders and entrepreneurs.

2 Definition the meaning of business clusters

2.1 Definition of the business clusters and their role in socioeconomic development

In addition to the individual approach of partnership which is based on the use of traditional business forms and associations, there is also the development of business clusters among various companies. This kind of business partnership is a social structure that is created when different companies are interconnected to each other by using specific ratio of resources, knowledge and employing common business actions.

Various studies show that strongly interconnected small companies can overcome other similar sized companies, by facilitating the promotion of innovation as well as their further development.

Moreover, modern competition depends on productivity, not on access to inputs or the scale of individual enterprises. Productivity rests on *how* companies compete, not on the particular fields they compete in. Companies can be highly productive in any industry—shoes, agriculture, or semiconductors—if they employ sophisticated methods, use advanced technology, and offer unique products and services. All industries can employ advanced technology; all industries can be knowledge intensive.

The sophistication with which companies compete in a particular location, however, is strongly influenced by the quality of the local business environment¹. Companies cannot employ advanced logistical techniques, for example, without a high-quality transportation infrastructure. Nor can companies effectively compete on sophisticated service without well-educated employees. Businesses cannot operate efficiently under onerous regulatory red tape or under a court system that fails to resolve disputes quickly and fairly. Some aspects of the business environment, such as the legal system, for example, or corporate tax rates, affect all industries. In advanced economies, however, the more decisive aspects of the business environment are often cluster specific; these constitute some of the most important microeconomic foundations for competition.

Consequently, the need of establishing closer collaborations which evolving progressively into “business clusters”, helps companies to overcome the above mentioned challenges, as well as to facilitate their further development and / or the integration of any technological development².

Clustering is about the interaction of businesses of a similar type, healthy competition, networking and collaboration between them. Cluster theory emphasises the role of networks and relationships between the various parts of a cluster but not of individual firms, and also fits with models of innovation and competitiveness. Clustering is a ‘philosophy’ based on the core principles of integration (of activities) and collaboration (of members) for mutual benefit. Cluster benefits come

¹ Porter, M., 1990. The Competitive Advantage of Nations. The Free Press, New York.

² National Observatory for Small and Medium Enterprises, EOMMEX, (2009). Manual for Networking and Clustering. Athens. (in Greek)

at three levels: individual firm level, sector/regional level and the wider economy level. A cluster allows each member to benefit as if it had greater scale or as if it had joined with others without sacrificing its flexibility.

According to Porter³ «Clusters are geographic concentrations of interconnected firms, suppliers, service providers, related firms and associated organizations (e.g. universities, trade groups etc.) in particular fields or areas».

“Clusters promote both competition and cooperation. Rivals compete intensely to win and retain customers. Without vigorous competition, a cluster will fail. Yet there is also cooperation, much of it vertical, involving companies in related industries and local institutions. Competition can coexist with cooperation because they occur on different dimensions and among different players.”

Michael Porter (1998)

Cluster members or better "constituents" (since to be part you do not need to sign a membership) "include end product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries. Clusters also often include firms in downstream industries (that is, channels or customers); producers of complementary products; specialized infrastructure providers; government and other institutions providing specialized training, education, information, research and technical support (such as universities, think tanks, vocational training providers); and standard setting agencies. Government agencies that significantly influence a cluster can be considered part of it. Finally, many clusters include trade associations and other collective private sector bodies that support cluster members"⁴.

Clusters are geographic concentrations of interconnected firms, suppliers, service providers, related firms and associated organizations in a variety of fields or areas that form a symbiotic ecosystem that collaborates and competes within and with other clusters and regions. Silicon Valley and Hollywood are examples of clusters as are China's Special Economic Zones (SEZs) or Europe's Foreign Direct Investment (FDI) Zones.

Moreover, they are mainly comprised of companies operating in the same industry (horizontal clusters) or in different industries of the production process, for example in the same supply chain (vertical clusters).

Clusters are usually based in a specific geographic area, as proximity facilitates better communication, transition and interaction between their companies. However, if business transactions are not affected by geographical distance, a cluster may be established to a larger geographic range⁵.

³ Porter, M., 1990. The Competitive Advantage of Nations. The Free Press, New York.

⁴ Michael E. Porter, On Competition, Harvard Business Press, 1998, p.215-216

⁵ Cortright, J., 2006. Making Sense of Clusters: Regional Competitiveness and Economic Development, Impresa, Inc.

Although, clusters are highly depended on their members, which can be either separate statutory or non-statutory entities. The main objective of the cluster is to strengthen the capacity of their members and also to support the external environment in which cluster raises resources and other business skills⁶.

According to Rosenfeld⁷ clusters should employ efficient methods of business transactions, active dialogue and various communication techniques, which are crucial for their effective operation, regardless their size.

Moreover, clusters are considered as the driving force for innovation through the flow of knowledge among their members also⁸, through the creation of new knowledge.

Working with innovators, under the condition of such a collaboration scheme, helps companies to develop competitive advantage, as innovation actors can provide companies with specialized expertise, skilled personnel, funding opportunities, introduction to R&D processes for the production of new products⁹.

According to Porter, companies can develop competitive advantage through the facilitation of four forces, which are called "**Porter's Diamond**", as it shown in the figure below:

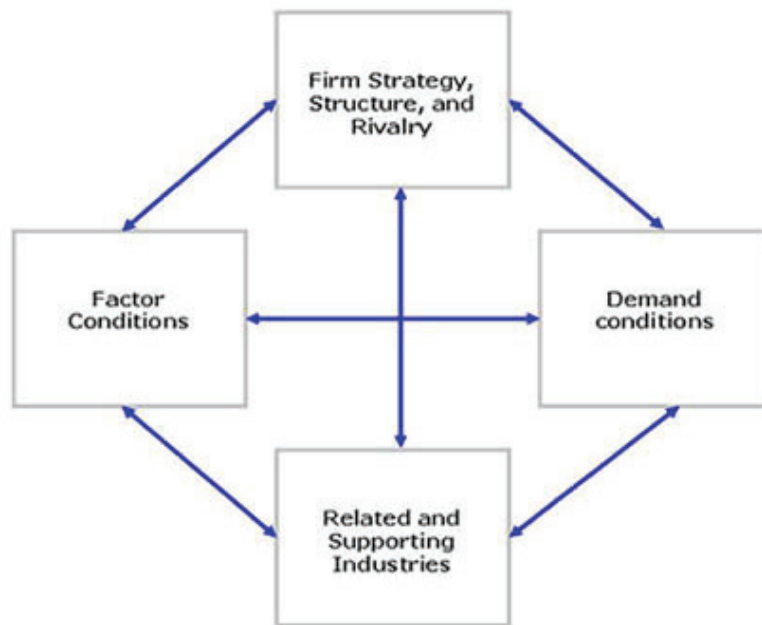
⁶ National Media Observatory, 2006. Policies for Entrepreneurship and Innovation in Greece. EOMMEX. (in Greek).

⁷ Rosenfeld, S.A., 1997. Bringing Business Clusters into the Mainstream of Economic Development. *Journal of European Planning Studies*, 5:3-23.

⁸ Gordon, I.R., McCann, P., 2005. Innovation, Agglomeration, and Regional Development. *Journal of Economic Geography*, 5:523–543. / Pittaway, L., Robertson, M., Munir, K., Denyer, D., Neely, A., 2004. Networking and Innovation: A Systematic Review of the Evidence. *International Journal of Management Reviews*, 5:137–168. / Prastakos, G., Spanos, G., Kostopoulos, K. 2003. Innovation: Identifying Factors and Reflections on the Future of the Greek Economy. *Technological Foresight in Greece*. Athens University of Economics and Business, Laboratory of Administrative Science, Athens. (in Greek)

⁹ Trigas, M., 2010. The economic dimension of innovation in wood-furniture SMEs. The case of Thessaly. Doctoral thesis, Forestry Economics Laboratory, Thessaloniki, p. 344. (in Greek)/ Woolthuis, K., Lankhuizen, R., Gilsing, V.M., 2005. A System Failure Framework for Innovation Policy Design. *Journal of Technovation*, 25:609–619. (in Greek)

Picture 1: Porter's Diamond Model



Source: Porter's diamond model, 1998

Hence, the clusters are important operators in a region's economic growth for the following reasons:

- Clusters generate wealth, exports, jobs, sources of information for a region
- Hotbeds for new firm formation, innovation, entrepreneurship and skills upgrading in the region
- Key to competitive advantage, linkages & competitiveness
- Basis for new technology, products and markets
- Globally, clusters are driving regional growth through higher productivity and livelihoods/jobs, raising the standard of living

2.2 Characteristics of clusters

The main characteristic of clusters is the networking of its members. From this perspective, network theory is fundamental to the understanding of clusters¹⁰. Clusters' members might be various types of entities such as ordinary companies, organizations, associations, universities, research centers and laboratories, as well as government institutions.

¹⁰ Davies, T. A. (2001), "Enhancing Competitiveness in the Manufacturing Sector: Key Opportunities provided by inter firm clustering", *Competitiveness Review: An International Business Journal*, 11 (2), pp. 4-15.

Other main characteristics of the clusters are the following three underpinning principles of clustering (the three Cs of clustering). These are present in different degrees regardless of structure, size and sector.

1. Commonality; i.e. the businesses are operating in common fields or related industries with a shared market focus or sphere of activity.

2. Concentration; i.e. there is a grouping of businesses that can and do interact.

3. Connectivity; i.e. interconnected/linked/interdependent organisations, with a range of different types of relationships.

All scales of clusters share the three common elements that describe the process of clustering, as described above, with linkages of different kinds.

2.3 Types of clusters

By composition

Following development of the concept of interorganizational networks in Germany and practical development of clusters in the United Kingdom; many perceive there to be four methods by which a cluster can be identified:

- *Geographical cluster* – as stated above
- *Sectoral clusters* (a cluster of businesses operating together from within the same commercial sector e.g. marine (south east England; Cowes and now Solent) and photonics (Aston Science Park, Birmingham))
- *Horizontal cluster* (interconnections between businesses at a sharing of resources level e.g. knowledge management)
- *Vertical cluster* (i.e. a supply chain cluster)

By type of comparative advantage

Several types of business clusters, based on different kinds of knowledge, are recognized:

- *High-tech clusters*

These clusters are high technology-oriented, well adapted to the knowledge economy, and typically have as a core renowned universities and research centers like Silicon Valley, the East London Tech City or Paris-Saclay. An exceptional example of a prominent high-tech cluster that does not include a university is the High-Tech Campus Eindhoven, located in the Dutch city of Eindhoven.

- *Historic know-how-based clusters*

These are based on more traditional economic activities that maintain their advantage in know-how over the years, and for some of them, over many centuries. They are often industry-specific. An example is London as financial center.

- *Factor endowment clusters*

They are created because a comparative advantage they might have linked to a geographical position. For example, wine production clusters because of sunny regions surrounded by mountains, where good grapes can grow. This is like certain areas in France such as Burgundy and Champagne, as well as Lombardy, Spain, Chile and California.

- *Low-cost manufacturing clusters*

These clusters have typically emerged in developing countries within particular industries, such as automotive production, electronics, or textiles. Examples include electronics clusters in Mexico (e.g. Guadalajara) and Argentina (e.g. Córdoba). Cluster firms typically serve clients in developed countries. Drivers of cluster emergence include availability of low-cost labor, geographical proximity to clients (e.g. in the case of Mexico for U.S. clients; Eastern Europe for Western European clients).

- *Knowledge services clusters*

Like low-cost manufacturing clusters, these clusters have emerged typically in developing countries. They have been characterized by the availability of lower-cost skills and expertise serving a growing global demand for increasingly commoditized (i.e. standardized, less firm-specific) knowledge services, e.g. software development, engineering support, analytical services. Examples include Bangalore, India; Recife, Brazil; Shanghai, China. Multinational corporations have played an important role in "customizing" business conditions in these clusters. One example for this is the establishment of collaborative linkages with local universities to secure the supply of qualified, yet lower-cost engineers.

2.4 Cluster structure

Cluster members can be divided into four broad categories: core businesses, small businesses, soft support infrastructure, hard support infrastructure.

i. Core Businesses

The businesses that are the lead participants in the cluster, often earning most of their income from customers who are beyond the cluster's boundary.

ii. Support Businesses

The businesses that are directly and indirectly supporting the businesses at the core of the cluster. These may include suppliers of specialised machinery, components, raw materials; and service firms

including finance/venture capital, lawyers, design, marketing and Public Relations. Often these firms are highly specialised, and are physically located close to the core businesses.

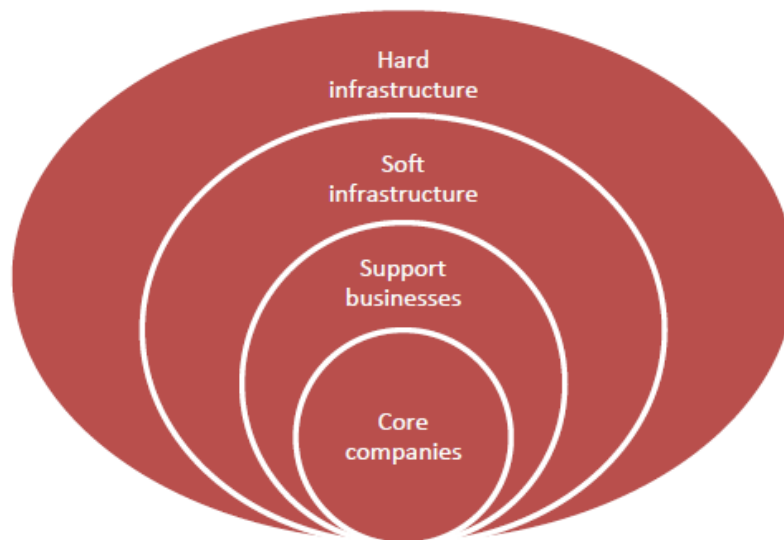
iii. Soft Support Infrastructure

In a high-performance cluster, the businesses at the core and the support business do not work in isolation. Successful clusters have community wide involvement. Local schools, Universities, polytechnics, local trade and professional associations, economic development agencies and others support their activities and are key ingredients in a high-performance cluster. The quality of this soft infrastructure, and the extent of teamwork within it are keys determinants of the development of any cluster.

iv. Hard Support Infrastructure

This is the supporting physical infrastructure: roads, ports, waste treatment, communication links, etc. The quality of this infrastructure needs to at least match competitive destinations, be they local or further afield. These four separate elements in a cluster can be portrayed as circles, built around the core.

Picture 2: Cluster members



Source: Cluster Navigators Ltd, 2002

2.5 *Members of clusters*

According to De Langen (2002) clusters are more a population of companies than an entity, with a great emphasis on the number of their members.

Although, the key members of a cluster are companies with similar industry expertise, as well as suppliers (mainly specialized in raw materials, machinery, etc.) and core business customers (other

companies). Furthermore, usually clusters' members might be other types of entities such as government bodies and organizations, associations, universities and research centers.

De Langen (2004) classifies the members of a cluster into four main categories: companies, institutions, government bodies, and public-private partnerships (PPP). Most authors adopt the theory of "Triple Helix".

"Triple Helix" consists of three parts:

1. Private-interest enterprises,
2. Public sector
3. University centers¹¹.

Triple Helix Theory expresses the three main flows of information, resources and collaboration that occur into a cluster. The main characteristic of any member of a cluster is the interdependence. Although every member employs its own competitive strategy against others, it is also highly depended on the other member to ensure its viability and further development.

Etzkowitz (2002) describes the Triple Helix concept as a model in which the main institutions of a society associate and cooperate. Public sector through general institutional framework, as well as government bodies and organizations create the general conditions in a cluster, and both universities and private businesses are taking advantage of its works.

Universities are responsible for the production of expertise which is channeled to companies as well as to government institutions and organizations. Then, companies affect in turn both universities and government institutions.

Usually, the Triple Helix model can be expanded, by including financial institutions (banks) which operate in the same geographical area and are responsible for the funding of the members of the cluster¹².

Therefore, a fourth type of part is the capital providers, such as angel networks, public and private seed funding and commercial banking institutions, who provide the capital (equity/loan) needed for the exploitation of inventions and new business models. And, fifth, government and other public bodies are actors that make and implement policy decisions about public infrastructure investment, regulations, and so on, critical for the innovation climate. The public side includes many levels of government and a wide range of public agencies.

A sixth very important type of actor includes different kinds of networking/bridge-building organizations, or what we often refer to as organizations of collaboration. Such organizations include, among others, science parks, incubators, innovation offices, co-working spaces, chambers of commerce and cluster organizations. In Europe, cluster organizations have become highly prevalent during the last two decades.

¹¹ Potter, J. and Miranda, G. (2009), *Clusters, Innovation and Entrepreneurship*, OECD publishing.

¹² Solvell, O., Lindqvist, G. and Ketels, C. (2003), *The Cluster Initiative Greenbook*, Stockholm: Ivory Tower AB.

Picture 3: Six Actors inside the Cluster Field and Two Outside Fields

At the same time, clusters, despite being cooperative networks, are also characterized by fierce competition. According to Porter (1998a), cooperation can coexist simultaneously with the competition when occurs in different levels and between different players. Competition among members of the cluster is also a key feature, which creates sustainability conditions. This happens because without competition, the cluster would collapse. Modern competition is based on productivity. Companies with high productivity tend to be more competitive.

Additionally, companies can achieve high productivity if they develop intelligent methods of action, or use state-of-the-art technology and produce differentiated (innovative) products.

2.6 Benefits of clustering

Much has been written about the potential benefits of clustering, drawing on case study material from around the world and from different industries. Clustering is a recognised way to enhance productivity, innovation and competitive performance of companies. Clusters can allow small companies to combine advantages with various benefits. Hence, the clusters are important operators in a region's economic growth.

Firms are attracted to clusters in the region because of:

- economies of scale
- productivity advantages
- marketing and other competitive advantages
- talent pools

Porter (1998a) describes the following beneficial outcomes:

- Better access to suppliers and flexibility;
- Access to specialised information through personal relationships;
- Joint marketing;
- Local rivalry and peer pressure;
- Innovation through having information on new markets and technological advances;
- Complementary products (e.g. tourist attractions);
- Reputation of an area;
- Pool of experienced labour;
- Access to institutions and public goods;
- Conducive to new businesses.

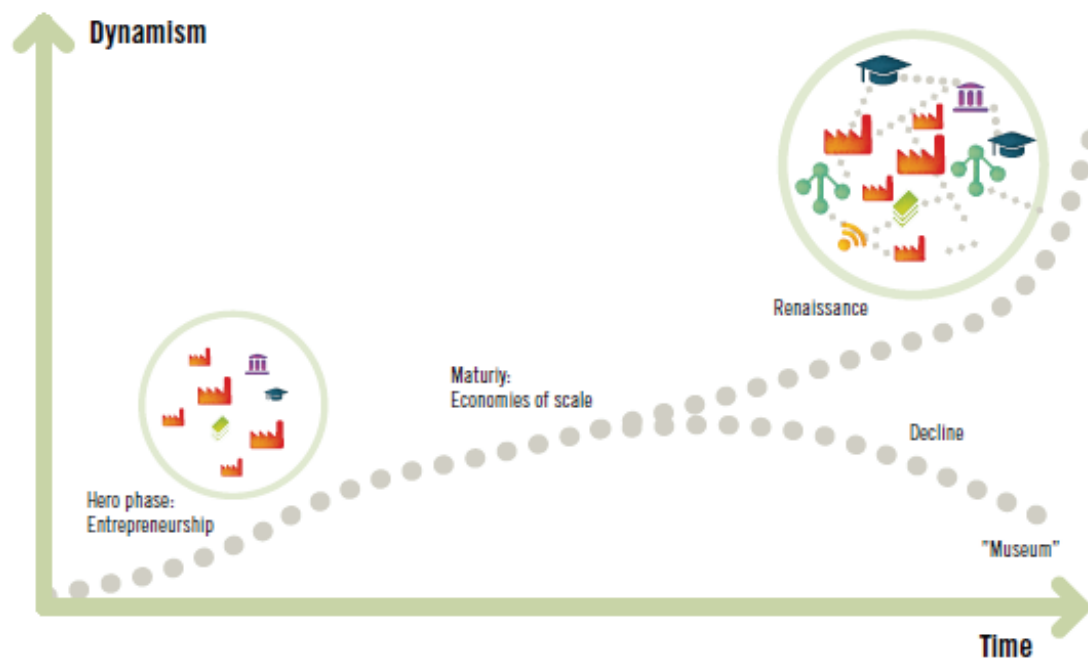
2.7 Cluster Life Cycles

It seems obvious that clusters follow the life cycle of their respective industry. Seen this way, the cluster life cycle is only the local expression of the super ordinate industry. However, empirical studies indicate that the life cycles of clusters and industries are different. Different clusters that belong to the same industry life cycle can follow different growth paths, contrasting stories of the computer industry in Boston and Silicon Valley. Comparisons of clustered and non-clustered companies during the industry life cycle highlight additional differences: clustered companies outperform non-clustered companies at the beginning of the life cycle and have a worse performance at its end¹³. This shows that the cluster life cycle is more than just a local representation of the industry life cycle and is prone to local peculiarities.

Some emerging clusters will ultimately take off and grow, whereas others will remain small or disappear. Growing clusters will enter into a process of international competition in both factor markets (attractiveness on new companies, people and capital) and final goods markets. The more successful clusters are built on a combination of superior internal dynamics, including rivalry and intensive new firm formation, and superior attraction on resources from the outside. Over time, the cluster will move through different phases. The early period is often identified with one or a few people, termed the “heroes” of the cluster. If the entrepreneur is successful, others will soon follow suit and enter the business. With a growing business, there is room for the subsequent entry of both upstream and downstream industries. Soon, an identifiable cluster begins to emerge. As the cluster matures, certain strategies will tend to dominate, and economies of scale will play an increasing role. Ultimately, some clusters go into decline, finally reaching the “museum” stage; alternately, they jump onto a new cycle and experience a renaissance based on new technologies and new firms.

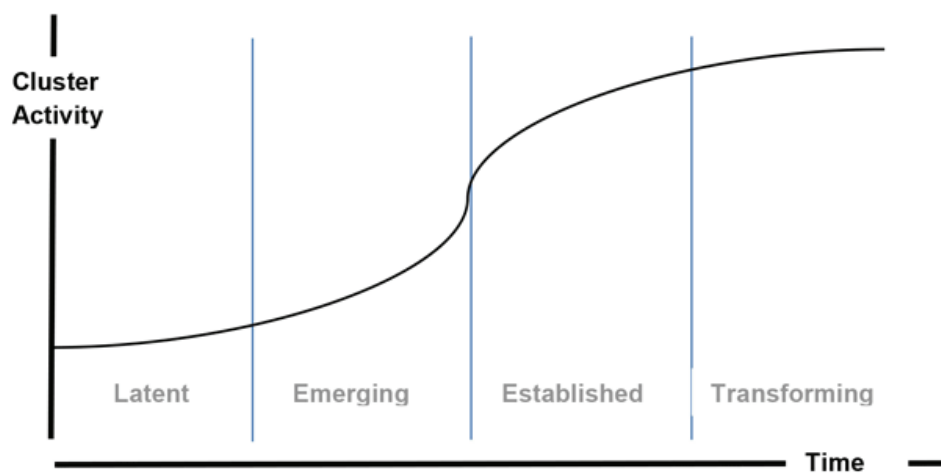
¹³ Audretsch, D. B. & M.P. Feldman. 1996. R&D spillovers and the geography of innovation and production. The American Economic Review, 86(3): 630.

Picture 4: Cluster life Circle



Another simple line diagram that shows the **four stages of a cluster's life cycle** across time is the below that shows that the longer a cluster exists, the greater the clustered activity.

Picture 5: Four stages Cluster life Circle



Adapted from MEDEI Cluster Evaluation Framework: Review and Validation Final Report, Hickling Arthurs Low, July 2015.

Stage 1: Latent cluster

- ⇒ a number of companies emerge based on a new technology or an interconnected set of products
- ⇒ other actors begin to cooperate around a core activity and identify common opportunities through linkages
- ⇒ the overall number of emerging companies is still relatively small and the linkages among the actors are too weak to fully constitute a cluster

Stage 2: Emerging cluster

- ⇒ lead or anchor companies or research institutes are spinning-off new companies
- ⇒ new actors in the same or related activities emerge or are attracted to the region
- ⇒ there are stronger linkages between companies
- ⇒ entrepreneurs may take initial steps to create formal or informal clusters

Stage 3: Established cluster

- ⇒ the number of companies and supporting institutions has significantly increased
- ⇒ self-sustaining dynamic of start-ups, joint ventures, and spin-off companies
- ⇒ clustered companies' economic performance is superior when compared to other regions, which increases the concentration of industry in a smaller number of successful clusters

Stage 4: Transforming cluster

- ⇒ in order to survive, the firms and organizations within a mature cluster must regularly re-evaluate their operations and re-orientate to their customers to avoid stagnation and decline
- ⇒ the cluster may transform by making changes to products, methods and markets, or it may transform into new clusters focused on other activities.

3 Development phases of clustering

The origins of each cluster differ, and each will take its own path, but there are a number of common elements in their development. It is these common elements that we refer to in this guide. Clusters start naturally, but the development of clusters does not need to be left to chance.

The process outlined here identifies the constraints and opportunities that would benefit from being addressed collaboratively, and how to then get the cluster into action. The aim is not to produce a

strategic plan prepared by outside consultants with little ownership by the cluster stakeholders. The **clustering process is organic**, and driven from within. It doesn't follow the normal pattern of analysis → strategy → and recommendations. It is much more dynamic.

Initial analysis is necessary, but only to guide action. Well-informed cluster stakeholders have sufficient knowledge to select the initial issues. They live and breathe the industry. Over time, the issues evolve to reflect changing circumstances. At a later stage there is value in undertaking a more diligent strategic review.

The cluster development may take years or decades of years depending on industry they belong to. They develop gradually and they have their lifecycle. Cluster evolution theory mainly deals with the emergence and the development of clusters. Evolutionary approaches emphasize the unpredictability of future cluster trajectories but stress that they are constrained by the past. Menzel and Fornahl (2010)¹⁴ proposed the concept of cluster life cycles, a concept that is derived from product and industry life cycle approaches. They expect clusters to move through a set of stages (emergence, growth, sustainment and maturity, decline or transformation) all of which feature different factors that are relevant for cluster development.

3.1 Development phases

The development of cluster is divided into four phases

1) Establishment – Development of a common perception & goals (PHASE OF INFORMATION)

- ⇒ Search for participating companies
- ⇒ Information days
- ⇒ Presentation of mutual benefits
- ⇒ Presentation of possible weaknesses
- ⇒ Establishment of confidence between the members of the cluster

2) Development of strategic relationships - partnership (CORPORATE PHASE)

- ⇒ Determination of the competitive advantage of the market
- ⇒ Determination of cooperative members' skills
- ⇒ Detection of weaknesses
- ⇒ Development of strategic/ typical cooperation ties
- ⇒ Identification of the structure of the cluster

¹⁴ Menzel, M. P., & Fornahl, D. (2010). Cluster life cycles – dimensions and rationales of cluster evolution. *Industrial and Corporate Change*, 19, 205–238.

3) Development of the Strategy & Vision/ Programming (PROGRAMMING PHASE)

- ⇒ Creating a common vision, goal and strategy
- ⇒ Mapping current situation
- ⇒ Identify market needs for the future
- ⇒ Interviewing skilled personnel
- ⇒ Discussions between stakeholders and market experts - Exchange of ideas
- ⇒ Determination of vision

(During the early steps of the development of cluster, its vision can be very broad, and also it is quite usual "in the first five years of a cluster to double the turnover of the participating companies").

4) Establishment of the Cluster (MATURITY PHASE OF THE CLUSTER)

- ⇒ Development of Action Plan (what actions will be implemented)
- ⇒ Determination of expected results
- ⇒ Recognition of required resources
- ⇒ Determination of the cluster members that have the know-how and skills
- ⇒ Establishment of the leadership team
- ⇒ Setting up a task force involving at least one member of the leadership team.

3.2 Cluster development plan

The 4th phase as mentioned above requires a cluster plan elaboration. Cluster plans to at least include:

- ✓ a description of the cluster
- ✓ an assessment of the challenges and opportunities related to the development of the cluster
- ✓ the objectives and intended outcomes of the cluster plan
- ✓ a description of actions that could be taken by the Minister, or businesses or other entities that form the cluster, to assist in achieving those objectives and intended outcomes of the plan
- ✓ performance measures to evaluate whether the objectives and intended outcomes of the plan are being achieved

Cluster plans will have a five-year timeline (or multiples of five years) to align with the five-year review requirement under the 4th phase.

Some approaches look at internal factors, others look at external ones, some combine these perspectives, and others look for congruence between various aspects of the organization being studied. Ultimately, the issue comes down to which factors to study.

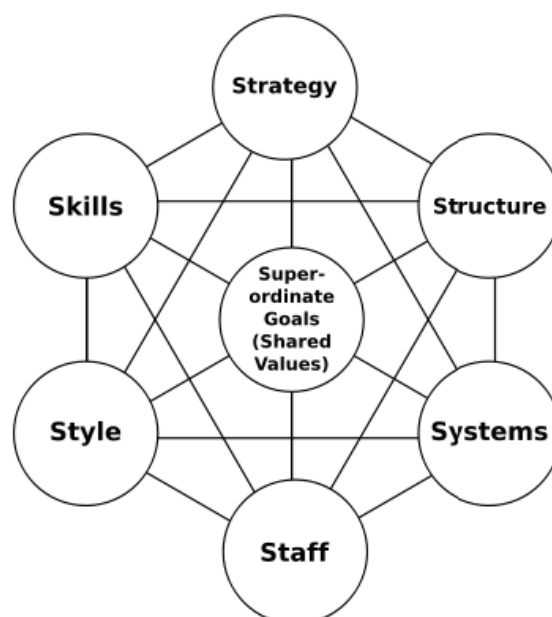
McKinsey 7S framework is based on the theory that, for an organization to perform well, seven elements need to be aligned and mutually reinforcing. These 7S's are: strategy, structure systems, skills, style, staff and shared values.

Applying the model in a systematic and thorough way enables managers to identify both strengths and weaknesses in their internal operations, thus enabling them to make 'protect / correct' decisions to either maintain the current situation in a given element or to make change decisions to realign and correct some aspect which is not functioning optimally. The strength of the 7S framework is its flexibility and adaptability.

Let's look at these elements specifically:

- ☑ *Strategy*: the plan devised to maintain and build competitive advantage for the cluster over its competition.
- ☑ *Structure*: the way the cluster organization is structured and who reports to whom.
- ☑ *Systems*: the daily activities and procedures that staff members engage in to get the job done.
- ☑ *Shared Values*: called "superordinate goals" when the model was first developed, these are the core values of the company that are evidenced in the corporate culture and the general work ethic.
- ☑ *Style*: the style of leadership adopted.
- ☑ *Staff*: the employees and their general capabilities.
- ☑ *Skills*: the actual skills and competencies of the employees working for the cluster / company.

Picture 6: McKinsey 7S framework



7S Checklist Questions

Here are some questions to use to help explore and understand the current cluster organizational situation.

☒ *Strategy:*

- What is our cluster strategy?
- How do we intend to achieve our objectives?
- How do we deal with competitive pressure?
- How will changes in customer demands be dealt with?
- How will strategy be adjusted for the future?

☒ *Structure:*

- How is / will the cluster organization / team be organized?
- What is the hierarchy?
- How do the various departments coordinate activities?
- How do the team members organize and align themselves?
- Is decision making and controlling centralized or decentralized? Is this as it should be, given what we're doing?
- Where are the lines of communication? Explicit or implicit?

☒ *Systems:*

- What are the main systems that run the organization? Consider financial and HR systems as well as communications and document storage.
- Where are the controls and how are they monitored and evaluated?
- What internal rules and processes does the team use to keep on track?

☒ *Shared Values:*

- What are the core values of our cluster organization?
- What is the cluster team culture?
- How strong are the values?
- What are the fundamental values that the cluster team was / should be built on?

☒ *Style:*

- How participative is the management/leadership style?
- How effective is that leadership?
- Do members tend to be competitive or cooperative?
- Are there real teams functioning within the cluster or are they just nominal groups?

☒ *Staff:*

- What positions need to be filled?
- What knowledge / experience mix do we require ?
- Are there gaps in required competencies?

☒ *Skills:*

- What are the strongest skills represented within the cluster team?
- Are there any skills gaps?
- What is the cluster known for doing well?
- Do the current employees/team members have the ability to do the job?
- How are skills monitored and assessed?

3.3 Establish the Leadership Group

A key step in the establishment of all clustering initiatives is the early formation of a Leadership Group that is specific to the cluster. The facilitator plays a leading role in establishing this Group. It may initially be very informal, but over time will evolve and formalise. The facilitator needs to identify a group of senior stakeholders who collectively cover the broader dimensions of the cluster, and convince them of the merits of participating in the cluster. It is not always easy to get the key movers and shakers involved during the early stages. They may well be sitting on the fence watching skeptically to see if this particular initiative will take off or flounder. Senior people need to feel that there will be a pay-off for their time and involvement.

Maintaining this attention is often dependent on generating early benefits for the stakeholders. An early, and simple, measure of the success of a clustering initiative is the willingness of senior participants to front up to the next meeting; an early warning sign is if they delegate, or are 'no-shows'.

The Leadership Group, usually some 6-8 people who are comfortable working together, should be predominantly from firms in the cluster core. The group should not be dominated by government representatives or association officials. It does not need to be in place straight away. The facilitator will usually be responsible for forming the initial Leadership Group and 'anointing' the Chairperson. A mechanism for electing the Group may be developed later.

Occasionally this Leadership Group may relate closely to an existing association, but more often a new group is required. Temporary teams with an issue focus will be developed under this Group. These teams benefit from tight integration with the Leadership Group through a Group member being part of each team.

3.4 Cluster Management Organisation

Irrespective of what legal form is selected for the cluster, it is important to determine and decide on a formal cluster management structure. This involves determination and agreement on the following issues:

- ⇒ Structure and composition of the cluster governance structures
- ⇒ Cluster management roles and responsibilities – who does what and who is responsible for what
- ⇒ Cluster management *modus operandi* – how the cluster management structure will interact with cluster members on a day to day basis.

Cluster management organization has been underestimated over the years as Porter's cluster approach did not regard this success factor for different reasons. Many of the cluster programs in Europe now focus heavily on the establishment and development of cluster management organizations. Clear evidence has evolved in the past couple of years that cluster management excellence plays a decisive role for the successful development of clusters.

Cluster excellence is determined by three key dimensions: framework conditions, cluster actors and cluster management organization. Its key role is in creating and driving a strong and purposeful dynamic among cluster members and stakeholders.

Excellence in cluster management depends on the following elements:

- ✓ Development strategy and its implementation;
- ✓ Cluster management and organisation;
- ✓ Sustainable resourcing - financing and staffing of the cluster;

The following '**classic**' structure with its elementary but distinct elements is recommended:

1. Advisory board (executive board)
2. Steering committee (membership committee)
3. Management office (cluster manager and administration)
4. Topic / theme specific working groups

Picture 7: Organization Chart of a Cluster



3.5 *Obstacles to clusters*

The authorities can provide decisive support for clusters through appropriate stimulating programmes, partnerships and innovative service models, but they cannot build clusters.

Obstacles to clusters and strategic alliances:

- ☒ Traditional structure - Small size of companies.
- ☒ Lack of match between structures and cultures in the partner businesses
- ☒ Lack of legal or financial possibilities for cooperation
- ☒ Lack of entrepreneurial attitude or competence
- ☒ Decreased risk taking
- ☒ Introversion
- ☒ Lack of collaborative culture
- ☒ Lack of informal networking
- ☒ Vague or unrealistic expectations with regard to the strategic alliance.
- ☒ Lack of information
- ☒ Low degree of innovation

4 *Success factors for the operation of a cluster*

The success of a high-performance cluster is in a large part due to people forming quality relationships and networking to achieve results. These linkages are informal, and are supported by more formal organisations/institutions. They work best at a community level where participants in the local industry already have formed a wide variety of relationships, and there is already some degree of dialogue and trust. Clustering builds on the teamwork that is already in place.

The clustering process requires:

- ☒ people-to-people contact
- ☒ consensus on key issues
- ☒ collaboration at multiple levels
- ☒ community wide involvement in the process of building new linkages between communities, businesses and government.

Picture 8: Successful clustering



Clustering is Firms and others within a concentrated geographical area co-operate towards common goals, and establish close linkages and working alliances to improve their collective competitiveness.

In Greece there is great potential of developing business cooperative forms, due to the diversity in every local community and also due to the decentralization of university and technological institutions. In this respect, care should be taken in order to ensure the basic parameters that are part of the success of a cluster.

According to Zineldin M. (2004)¹⁵ there are basic prerequisites for the development of a long term and mutually beneficial cooperation, where the participants:

- should be willing to engage in an cooperation characterized by constant interaction and ongoing transaction
- should recognize that ethical values, interaction, commitment and adaptability are critical factors for creating, developing and strengthening a beneficial, stable and long-lasting relationship
- each participant should achieve a positive balance between benefits and losses in the relationship.

Also, a clustering initiative needs to be action orientated, holding the commitment of stakeholders through generating early benefits. Aim initially for small modest benefits, (the low hanging fruit) focusing on aspects that offer early, low-risk results, without substantial effort. For example, developing a web site with interactive links to local firms is a lower risk strategy than developing a cluster branding programme underpinned by a quality accreditation process. Larger, longer-term projects are better introduced after the cluster group has achieved some positive results.

¹⁵ Zineldin M, Co-opetition: The organization of the future, Marketing Intelligence & Planning, 2004;22(7):780-789

Clusters are predominantly a local activity, and for development initiatives to be sustainable they should be driven by local organisations.

Specifically, a successful cooperation should be based on the following:

⇒ ***Interdependence of resources (knowledge - information)***

It has been observed that the complementarity of the resources of two companies can be an important factor for the success of their cooperation. Usually mutual interdependence is based on the fact that a company perceives the value of the information or knowledge that a collaborating company offers during their collaboration.

For this reason, in a cooperation where the members need business resources from each other, it is not likely to develop dishonest behavior because this would have a bad impact on their cooperation.

⇒ ***Flexibility***

The flexibility of the relationship between the cooperative companies is a very important factor in order to achieve productivity of knowledge. Through this flexibility, it is easier to achieve greater speed, convenience and response to new knowledge or technology, as well as better response to the upcoming changes in the business environment or to create new conditions of business activities¹⁶.

⇒ ***Trust***

The fulfillment of the promises and the willingness of the cooperating companies to rely on each other reflects the creation of trust. Trust is treated, either as a feeling, faith or expectation about a partner's credibility, in other words it stems from the belief that partners have qualitative features such as consistency, competitiveness, honesty, justice, accountability, availability of help, or treated as a behavioral intent, which is understood to be the acceptance of a vulnerable situation in which the individual believes that the person who trusts will act in his own interest. The existence of trust leads to the establishment and maintenance of long-term relationships between partners. This results in more effective management of the possible crises and conflicts that are most likely to arise in a cooperation. Furthermore, the more dynamic is the market in which the companies operate, the greater the need to develop confidence in order to reduce uncertainty levels arises¹⁷.

¹⁶ Walter A, Mueller TA, Helfert G and Wilson DT. Delivering Relationship value: Key determinant for customers' commitment, ISBM Report 8-2002. <http://isbm.smeal.psu.edu/library/working-paper-articles/2002-working-papers/08-2002-delivering-relationship-value.pdf>

¹⁷ Ritter T, Wilkinson IF, Johnston WJ. Managing in complex business networks. *Industrial Marketing Management* 2004;33:175– 183 / Gronroos C. The relationship marketing process: interaction, communication, dialogue, value. *Journal of business & industrial marketing* 2004;13(2): 99-113 / Lambe CJ, Wittmann CM & Spekman RE. Social Exchange Theory and Research on Business-to-Business Relational Exchange. *Journal of Business-to-Business Marketing*, 2008;8(3):1-36 / Hoang H & Yi A. Network-based Research in Entrepreneurship: A Decade in Review. *Foundations and Trends® in Entrepreneurship* 2015;11(1):1-54.

⇒ **Communication**

Consistent communication (continuous and detailed exchange of information) is the most important element for developing confidence in a cooperation of companies. Frequent communication allows the exchange of information, which can successfully reduce the levels of risk that arise during the creation, production, promotion and disposal of products. Any kind of uncertainty or ambiguity between the cooperating companies, regarding the organizational structure, viability and operating methods, technical expertise or competition issues can be resolved and clarified through effective communication between partners¹⁸.

⇒ **Innovation**

One of the most important features of a cluster is the development of innovation within it¹⁹. Business cooperation and competition between them would contribute in this direction. Initially, business collaboration and communication between them contributes to the diffusion of knowledge and technology as well as the transfer of information. Knowledge, technology and information are factors essential to the development of innovation. Additionally, business competition leads to strategies such as product diversification, which is achieved through innovation.

⇒ **Commitment**

Commitment can be defined as the intention to maintain a long-term relationship between companies, which can be also taken as a measure for the future of a cooperation. An important business relationship is considered to increase the engagement, as opposed to a less important relationship where the commitment is expected to decline. In other words, commitment is the desire to continue a relationship, assuming that it will result in future value and profits. Moreover, commitment to a relationship is the result of several attributes such as: trust, satisfaction and relational benefits, investment in the relationship, exchange of information, good relations between individuals, willingness of short-term sacrifices without compensation, common values and the consistence of interaction²⁰.

⇒ **Critical mass**

Critical mass is the bend point over which the cluster is considered complete and can be further developed. The word “mass” refers to the number of members of a cluster. When the mass reaches

¹⁸ Gronroos C. The relationship marketing process: interaction, communication, dialogue, value. Journal of business & industrial marketing 2004;13(2): 99-113 / Lambe CJ, Wittmann CM & Spekman RE. Social Exchange Theory and Research on Business-to-Business Relational Exchange. Journal of Business-to-Business Marketing, 2008;8(3):1-36 / Angeli F & Jaiswal AK Business Model Innovation for Inclusive Health Care Delivery at the Bottom of the Pyramid. Organization & Environment 2016;29(4) 486–507

¹⁹ Andersson, T., Serger, S., Sorvik, J. and Hansson E. W. (2004), The Cluster Policies Whitebook, International Organisation for Knowledge Economy and Enterprise Development (IKED). / Lagos, D. and Curtis, P. G. (2008), “Business Clusters Formation as a Means of Improving Competitiveness in the Tourism Sector”, European Research Studies, 11 (1-2), pp. 111-121.

²⁰ Gronroos C. The relationship marketing process: interaction, communication, dialogue, value. Journal of business & industrial marketing 2004;13(2): 99-113

the critical point, the cluster achieves its maximum potential. A sufficient number of companies, organizations and bodies is required for the achievement of critical mass in a cluster. Specifically, this means that a minimum number of employees, managers, entrepreneurs, and funders are required for cluster in order to sufficiently operate²¹. Even though, critical mass is different for every cluster, it is a fundamental prerequisite for the development of any formation of this kind. As it was previously mentioned, cooperation is the key factor for the development of a cluster, but also for the development of the individual economic entities that participate in it. The concept of cooperation implies the existence of flows between the members of a cluster (companies, government bodies, universities). It is clear that the more are the members of a cluster (mass), the more (potential) the connecting flows are presented.

⇒ ***Find new data***

New information and analysis can provide the healthy key to questioning current assumptions, and resetting direction. Sometimes participants in a cluster have myopic views of international trends and emerging competitors. A well researched and presented 'data shock' can galvanise the necessary action.

⇒ ***Provide a focus for attracting investment***

Clusters provide an environment that attracts specialised investments, which then further enhance the location. The availability of technical skills, support firms and training organisations nearby all help to attract new investment. Good availability of people is important for attracting a headquarters or R&D facility as is the proximity of a research university.

⇒ ***Build media coverage***

A clustering initiative needs broad community involvement, and the media is a key means of securing this. One person amongst the cluster's Leadership Group should have responsibility for maintaining media contact. As part of a pro-active media campaign, a newsletter primarily aimed at cluster members can usefully be distributed to both the local and national media.

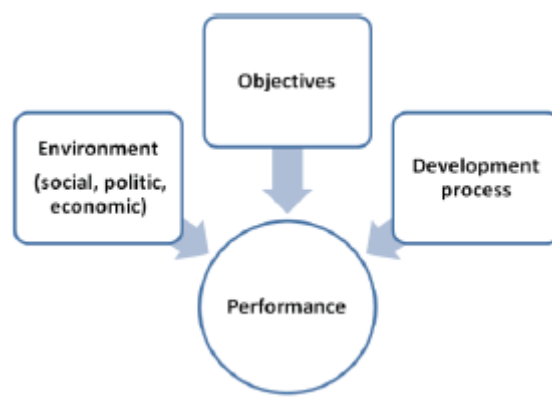
Finally, it is worth mentioned **the Cluster Initiative Performance Model (CIPM)** (Sölvell et al, 2003). In this model there are four factors which have a dependency or cause-effect relationship. Factors affecting performance or success of the cluster initiative are:

- **social, political and economic environment;** because clusters are recognized as national or regional development tools, many initiatives are launched by governmental projects financed from public funds or public-private partnerships; also the social, cultural and economic conditions describing region should allow the launch of such initiatives;

²¹ Lagos, D. and Courtis, P. G. (2008), "Business Clusters Formation as a Means of Improving Competitiveness in the Tourism Sector", European Research Studies, 11 (1-2), pp. 111-121.

- **initiative objectives** can be placed into six general categories (Sölvell et al, 2003): research and development of research networks, private lobby and communication with the political sector, commercial cooperation, development of educational infrastructure, innovation and development of new technologies, development and extension of an existing cluster.
- the **development process** describes stages in the cluster initiative life cycle: initiation and planning, managing and funding the initiative, management of cluster members and policies to attract firms, the creation of an administrative unit to promote the initiative, the consolidation of internal resources and processes that will enable the initiative to further develop in an independent way.

Picture 8: The Cluster Initiative Performance Model (CIPM)



Based on the CIPM initiative model, the **cluster initiative performance is evaluated** on:

- ❖ the number and complexity of links between industry and research;
- ❖ the increase level of competitiveness on a international scale;
- ❖ the degree of innovation achieved through development of new technologies;
- ❖ the development of the cluster by attracting new businesses, by increasing production and its market;
- ❖ the degree of achieving objectives.

5 Conclusion

Surviving in the global economy, the knowledge era, is all about speed, flexibility, adaptability, quality, innovation, networks and critical mass. This new style of doing business demands a team approach at a local level – a clustering approach.

Clustering is about the interaction of businesses of a similar type, healthy competition, networking and collaboration between them. Cluster theory emphasises the role of networks and relationships between the various parts of a cluster but not of individual firms, and also fits with models of innovation and competitiveness.

Clustering is a ‘philosophy’ based on the core principles of integration (of activities) and collaboration (of members) for mutual benefit. Cluster benefits come at three levels: individual firm level, sector/regional level and the wider economy level.

The regional and sector benefits from clustering derive from the ability of a cluster to raise the profile of a specific sector in a specific region locally and internationally. This will lead to an increase in the investment attractiveness of both, as it is an indicator of a ‘business friendly’ environment in a region with necessary policy support and governance.

Dynamic clusters create the foundation for sophisticated strategies and act as a driving force behind upgrading and innovation among incumbent firms. In summary:

- ✓ Firms in dynamic clusters develop strategies and routines across the value chain, engendering new capabilities in a process of prestigious backyard rivalry.
- ✓ Firms in clusters tend to share many activities through cooperation, e.g., swapping technology, components or products. Clusters facilitate both horizontal and vertical (buyer-supplier) cooperation within a setting of a “common language”, trust and high social capital.
- ✓ Firms in rich clusters can operate more efficiently, drawing on specialized assets, suppliers, and buyers with short lead times. Critical resources and capabilities often do not exist within the firm but are accessible through networks inside the cluster.
- ✓ Firms in clusters can achieve higher levels of knowledge creation and innovation. Knowledge spillovers and close day-to-day interaction between buyers, suppliers and organizations lead to incremental improvements, which are in turn the foundation of both technical (product and process improvements) and non-technical (business model improvements) innovations. Furthermore, both types of innovations tend to diffuse quickly within clusters.
- ✓ Clusters offer an environment where different resources (individuals, technologies, capital, etc.) can quickly be reshuffled and restructured (spin-offs, labor mobility transferring skills across organizations, etc.), allowing for new and better economic combinations of skills, capital and technology. The need for changing the strategy or “recipe” of the firm can quickly be accommodated within a cluster.
- ✓ The rate of new business formation tends to be higher in dynamic clusters. Start-ups are reliant on close interaction with suppliers and buyers. The cost of failure is typically lower within a cluster where many alternative opportunities exist.

- ✓ Clusters in many cases offer lead markets where sophisticated buyers encourage and cultivate technology development and innovation in close interaction with suppliers.

Recognizing the benefits of clusters as a form of economic organization has influenced governments to implement policies (Sölvell et al, 2003), intended to launch initiatives to support existing clusters or to form new ones in regard with:

- Small and Medium Enterprises (SMEs)
- regional industrial development;
- attracting external funds and foreign investors;
- research and innovation at national or local level.

Typical seeds of clusters include natural advantages (such as ore deposits, transportation routes, climate, etc.), or some particular demand or skill within the region. Hollywood grew up around sunny beaches that were perfect for shooting silent movies; the wine industry in Bordeaux, France was based on a particular terroir, the silk industry in western Japan depended on a consistent and moist climate, and the Swedish paper industry in Värmland was predicated upon its ready access to timber, energy and efficient transportation on rivers. Another typical cluster seed is an entrepreneur who starts a particular industrial activity in a particular location. If the new venture is successful, with factor advantages supporting the business idea, a cluster can begin to grow and prosper.

There are certain challenges that cluster initiators and leaders are confronted with when trying to build a cluster. The most obvious one is in developing a cooperative spirit amongst cluster members and participants. Building trust is a big challenge, hence command and control mechanisms, the rules of engagement and the 'way we will work together' should be carefully thought through at the very beginning and agreed with each cluster member. A coordinated decision-making mechanism should be introduced and observed.

Other typical challenges to be faced are:

- ✓ Existence of financial resources.
- ✓ Clear and common understanding of the changes and challenges of the external environment of the companies that want to cooperate.
- ✓ Preparedness of the members of the cluster
- ✓ Existence of strong and clear leadership in the cluster
- ✓ Existence of joint production facilities
- ✓ Low level of internal competition between cooperating businesses
- ✓ The need for experienced collaboration or consultation of potential cluster partners through business networking.
- ✓ Equal membership of the cluster
- ✓ Technological maturity
- ✓ Acceptance of cluster's "external promoters"
- ✓ Availability of general infrastructures (transport network, telecommunications, banking system, etc.).

As a conclusion, we can say that given the complexity of cluster processes, piecemeal approaches addressing components one-by-one are unlikely to produce optimum results - a systematic, integrated and holistic approach is required and is recommended.

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