



Pioneering International Experience of Industrial Clusters

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Abstract:

In this study, we tried to provide a theoretical framework for industrial clusters by defining them and highlighting their types, mechanisms and economic importance. The Italian experience was also mentioned as a pioneer in this field.

We concluded on the one hand that industrial clusters have an impact on the macroeconomy, in particular on economic growth by creating added value and increasing employment opportunities, and on the other hand an impact on microeconomics such as obtaining a competitive advantage based on innovation, reducing industrial costs, improving quality.

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1. Introduction

The interest in the concept of industrial clusters has increased in recent years because of the importance of what they offer in terms of promote growth, increase competitiveness all this is in order to realize state economic development projects.

Industrial clusters are considered as the cradle of small and medium business, due to their importance in growth and economic development in developed and developing countries.

Given the great victory achieved by certain developed countries such as the United States, Italy, France, Germany, China.... etc.

The aim of this article is to focus on the theoretical framework of the industrial's clusters and Case study of some pioneering international experiences, in order to clarify certain notions such as: Definition, the life cycle and Types of the Industrial Clusters, also the Industrial cluster cooperation mechanisms and its economic effects. Finally case study of some pioneering international experiences .

In order to answer these different points, we will ask the following question:

- What are industrial clusters and what are their mechanisms and economic effects?
- What are the most important international experiences in industrial clusters?

The importance of the research is summarized as follows:

- The importance of industrial clusters as the most important strategy to enhance the economic growth.
- Introducing industrial clusters as a strategy that has achieved success in recent years.
- The recent interest of Algeria in this type of institutions.

The objectives of the research are summarized as follows:

- Presenting a conceptual framework about industrial clusters.
- Highlighting the importance of industrial clusters.
- Emphasis on the experiences of industrial clusters in Italy.

2. The theoretical framework of the Industrial Clusters

2.1 The concept of the Industrial Clusters

The term Cluster is derived from the word the Old English word **clyster**, which means **bunch**. presently the term cluster is used as a verb or a noun.

The characteristics of this term began to take shape in 1990 when economist Porter published his famous book *The competitive Advantage of Nations*, in which he analyzed and studied ten industrial countries.

Porter noted the existence of a network of transversal and vertical relationships between industrial projects, which he nowadays called Industrial Cluster. (MOZAY, 2018, p. 65)

Finally, we can say that concept represents the location of industries in an interconnected manner, and this through the relationship that exists between the customer, the supplier, the workforce and the distribution...etc.

2.2 Definition of industrial clusters

One of most known definition of Industrial Clusters was given by Micheal Porter, was defined as an interconnected group of suppliers, factories and certain interrelated industries in the same geographic location. This group in majority of cases has common goals. (KHAFACHE, 2022, p. 171)

The OCDE defines industrial clusters as a production set that results from strong network connections between industrial companies with similar or complementary activities.

These Clusters share labor, customers, raw material suppliers and knowledge production agents such as universities, research institutes, technological awareness center, etc. where these institutions intersect and help each other by forming a cluster.

Industrial Clusters is also defined as a group of companies specializing in a part of the same product, these companies are public, semi-public and private, as well as research institutions development and training, government, financial institutions and collaborative institutions. (Maatouk & Bouadem, 2018, p. 443)

These different factors are geographically close and linked to each other which encourage and support to be more creative and competitive.

So, consequently these companies are focused on :

- The same market.
- Use the same inputs.
- Share the same territory and the same infrastructures.
- Are part of the same social community with the same traditions and production culture.

These companies also are called upon to preserve their common economic and social interests and to take actions to fight together against certain obstacles such as:

- Lack of infrastructure.
- Absence of capital.
- Face fierce competition.
- Standardization.

2.3 The life cycle of an Industrial Cluster

Industrial clusters go through four important stages which will be explained in this part. To understand better their life cycle we have opted for the table below in order to demonstrate how clusters are in constant development:

Table 1. phases of cluster development

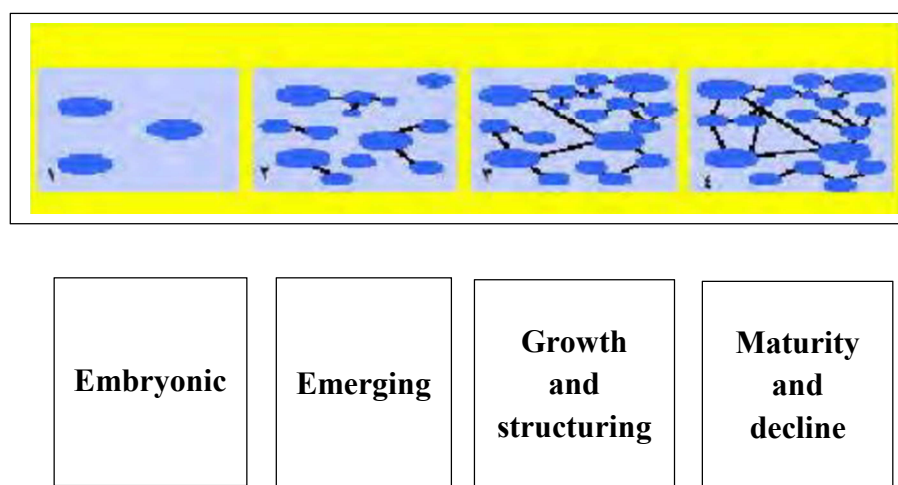
development phase	Basic needs and development factors	Public intervention modalities
Embryonic	- Development and appropriation of a technology with significant commercial opportunities.	Limited because of difficulties in identifying these cluster categories.
Emerging	- Physical and material needs for basic infrastructure.	<ul style="list-style-type: none"> - Development sites and structures. - Financial aid and specialized services. - Help with prospecting and market testing.
Growth and structuring	<ul style="list-style-type: none"> - Social and relational needs. - Ability to define a collective strategy. 	<ul style="list-style-type: none"> - Networking platforms and modalities. - Strategy for creating a collective identity. - Internal and external promotion actions. - helpers for innovation - Creation of partnerships (research and development centers, industry and education).

Maturity and decline	- Needs for openness and technological and commercial regeneration.	- Training and reorientation of local skills and qualifications. - International openness. - Encourage the emergence of new technologies.
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Source : (CHRISTOUPHE, 2007, p. 11).

So, The idea of the existence of a life cycle and stage of development within a cluster is present. Hence, the traditional approach to clusters is considered far too static and incapable of accounting for their dynamic of evolution and structuring. Therefore, clusters are not fixed phenomena but constantly evolve through internal mechanisms of reinforcement and internal dynamics of change. Although the clusters experience diverse development trajectories, they seem to follow a common development cycle. The life cycle of clusters can be represented as follows:

Fig. 1. The life cycle of an Industrial Cluster

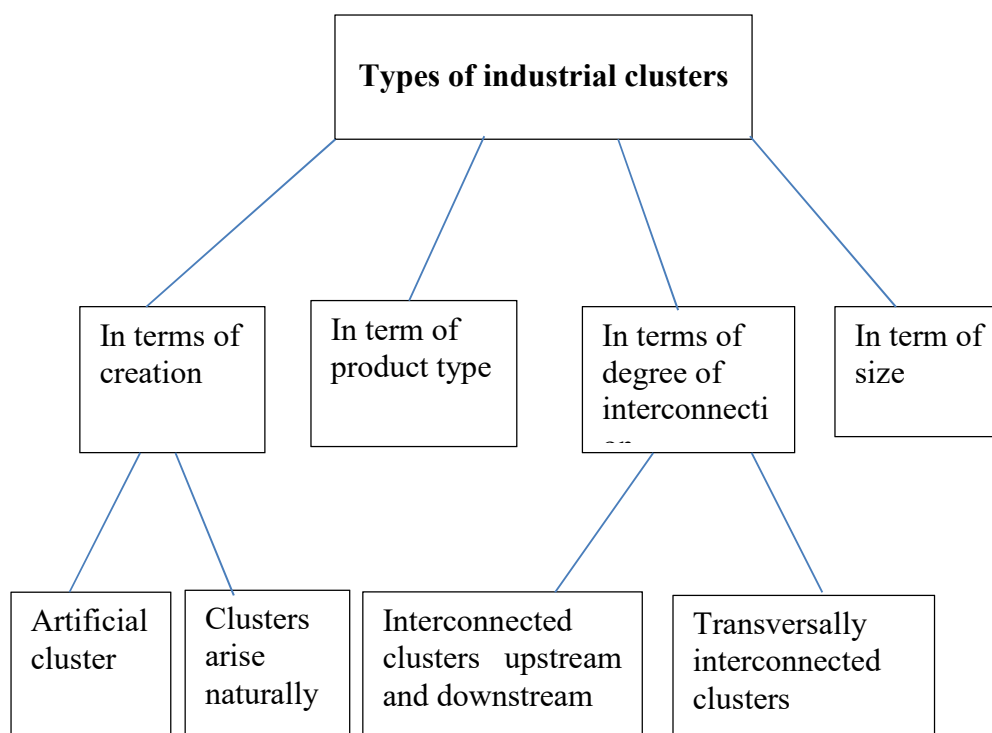


Source : (Mustafa, 2004, p. 131).

2.4 Types of industrial clusters

There are several types of industrial clusters, we will try to illustrate the most famous in the figure below:

Fig.2. Types of industrial clusters



Source : By the author.

Figure 02 shows that the typology of clusters is very varied, this can be seen by the number of clusters as follows:

2.4.1 In terms of creation

We find that it consists of two types:

- Clusters arise naturally: The first is spontaneous because the region has natural resources, raw materials, a specialized workforce, or even strong internal demand for the good or service provided.
- Artificial cluster: The second is due to certain government policy and certain research into its feasibility, this type of cluster takes a lot of time compared to the first.

2.4.2 In term of type of product

There are several types of products such as:

- Automobile production cluster.
- Financial service cluster.
- Tourist cluster ... etc.

2.4.3 In terms of degree of interconnection

We distinguish two kinds:

- cluster linked upstream and downstream: Production relations between companies are located in different stages of production.
- Transversally interconnected clusters: Production relations between companies are at the same stage of production.

2.4.4 In term of size

In this type there are also two others kinds large one and small one, this classification is made according to sales revenue, geographical extension or the number of companies...etc.

2.5 Industrial cluster cooperation mechanisms

The clusters are based in their operation on five principles of cooperation mechanisms which will be summarized in the following table:

Table.2. Cooperation mechanisms of Industrials Clusters

Mechanisms	Features
Geographic concentration	It is a principle on which the operating mechanisms of industrial clusters are based, according to which companies are brought together in one place due to the presence of advantages, including natural resources, infrastructure, suppliers, technicians and of qualified workers, with the aim of reducing costs and obtaining competitive advantages.
The specialization	The cluster needs highly specialized companies that cooperate in order to have a long wave on these competitors.
Competitiveness	competitiveness is one of the most essential mechanisms in a cluster because it boosts innovation, productivity, competence...etc.
Innovation	It is a decisive criterion by which we measure the success of a cluster. Innovation enables the development of products that will be difficult to imitate.
Cooperation	Cooperation is a principle that does not contradict others. The development of clusters boosts cooperation in order to create new products, reduce costs, increase quality and finally conquer new potential markets.

Source: (BELAILIA & BOUFAS, 2022, pp. 231-232).

2.6 The economic effects of Industrial Clusters

through the multiple points clearly exposed of industrial clusters we can determine the most important economic effects as follows:

- Reducing exchange costs in production stages.
- Achieving a high degree of specialization in work.
- Developing small and medium enterprises to become on par with large companies.
- Increased export, which reflects positively on the economy.
- Developing creativity and knowledge.
- Raising the productive and competitive capabilities of cluster members.
- Cooperation in the research field.
- Providing an efficient workforce.
- Developing the necessary infrastructure.
- Reducing the unemployment rate.
- Attracting foreign direct investment.
- Developing the country's competitive advantages at the international level.

3. Case study of pioneering international experience (Italy)

In this part we will discuss one of the major pioneer of Industrial Clusters in the world as follows:

3.1 The case of Italy

The majority of Industrial clusters in Italy are located in the north east of this country, all of the small and medium enterprises constituting these clusters have achieved enormous success in terms of:

- shoes and boots.
- handcrafted handbag.
- clothes.
- furniture.

- musical instruments.
- canned food...etc.

3.1.2 The specificities of industrial clusters in Italy

The most important specificities will be cited below as follows:

3.1.2.1 Flexibility

- The goods produced in Italian clusters are characterized by being according to consumer demand and of high quality.
- The production process is divided into several tasks and is carried out by different companies.
- Clusters distribute work, pushing Italians companies to specialize and benefit from economies of scale.
- several entrepreneurs can cooperate in a single production process.
- The flexibility of Italian clusters is also characterized by geographical proximity (So obtaining raw materials and different production instruments easily).

3.1.2.2 knowledge and innovation

knowledge and innovation are one of the essential criteria of Italian clusters because of their impact in the continuity of that one but also because they boost competitiveness. (SALHI, 2023, p. 484)

3.2.2.3 Competition and cooperation

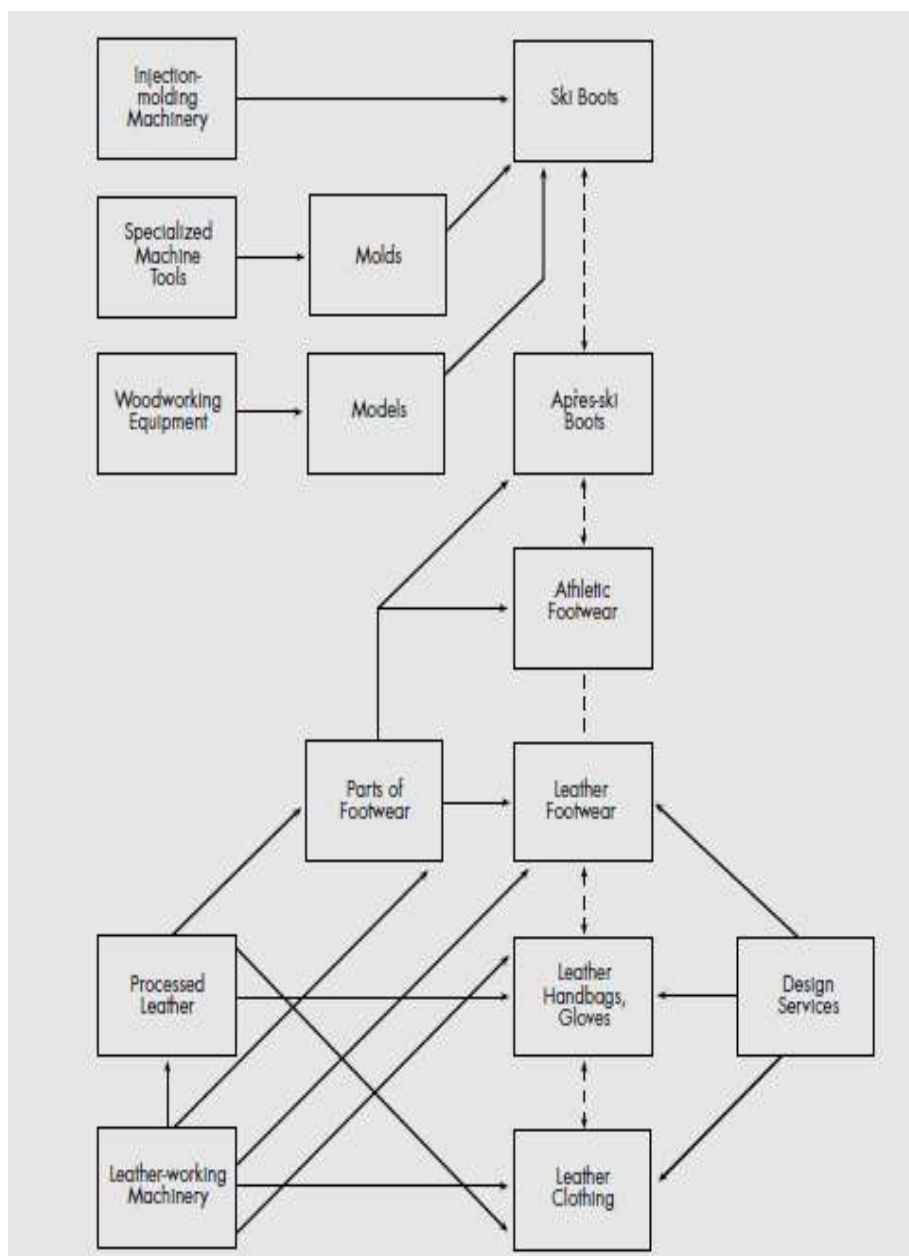
The relationships that reign within a cluster are characterized by cooperation and competitiveness such as:

- Implementing joint projects.
- Providing infrastructure and other services.

3.2.2.4 Diversification

Numerous researches linked to the Italian experience confirm the importance of small and medium-sized enterprises, due to their specialization in crafts, especially in the shoe, boots and clothing industry, and this is due to the value added that they bring to industrial clusters.

The figure below illustrates an industrial cluster of Italian sports shoes:

Fig .2 Industriel clusters of Italian sport shoes

Source: (PORTER, 1990, p. 82).

3.1.3 The impact of industrial clusters in economic development in Italy

The Italian economy is characterized by a high concentration of small businesses in form of industrial clusters the characteristics of these one are summarized as follows:

- The number of industrial clusters exceeds 200 with a workforce which exceeds two million two hundred workers and which represents more than 42% of the workforce.
- Around 90% of these companies employ at least 20 employees for the small one and 100 to 500 employees for the medium companies.
- These companies produce high-quality goods for the international market.
- These companies also export large quantities of industrial, agricultural and food products.
- These companies dominate the export sector with 80% of goods exported.
- These companies represent more than 50% of the capital of foreign companies.
- These companies represent 42 % of the added value in the industrial sector and the non-financial services sector.

Finally, the various support policies for Italian clusters are:

- Encouraging innovation.
- Wholesale purchase of raw materials.
- The fight against pollution.
- Training.
- Evaluation of service delivery.
- Encouraging of imports.
- Obtaining ISO.

4. Conclusion

With increased global economic development, it has become essential to resort to industrial clusters in order to face this fierce competitiveness. Industrial Clusters have considerable characteristics and Mechanisms which boost businesses at all levels. The study resulted in the following:

- The cluster seeks to create harmony between institutions and create networks between them that will ensure their profitability and survival.
- The presence of successful industrial clusters will encourage the entire industrial sector.
- Clusters' reliance on innovation and creativity ensures their survival.
- Industrial clusters depend on geographic concentration, flexibility, and cooperation, all of which ensures increased productivity and low costs.
- Clustering encourages all forms of commercial networking, research...etc. all of which can boost productivity and competitiveness.
- Algeria must take into consideration the experiences of other countries by trying to better exploit industrial zones intended for other activities other than small and medium-sized businesses.

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