

BUILDING COMPETITIVE ADVANTAGE OF NATIONS THROUGH CLUSTER

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Abstract

Pada era ekonomi baru, keunggulan bersaing suatu negara tidak diperoleh dari sumber daya alam tetapi diperoleh dari kemampuan industri di negara tersebut untuk berkembang dan berinovasi . Berdasarkan "diamond model" dari Prof. Michael E. Porter, terdapat empat faktor yang membentuk keunggulan bersaing. Model cluster yang dikembangkan di suatu industri, negara atau regional merupakan suatu model yang mengintegrasikan seluruh pelaku dalam suatu industri di suatu area, negara ataupun regional sebagai suatu kesatuan yang saling berperan dalam suatu sistem.

1. Introduction

We must realize that national prosperity is created, not inherited. In classical economics, the national prosperity grows out of a country's natural endowments, its labor pool, its interest rates, or its currency's value.

A nation's competitiveness depends on the capacity of its industry to innovate and upgrade. In the global competition, competitive advantage is created and sustained through a highly localized process. Differences in national values, culture, economic structures, institutions, and histories all contribute to competitive success. No nation can or will be competitive in every or even most industries. Ultimately, nations succeed in particular industries because their home environment is the most forward-looking, dynamic, and challenging.

What is national competitiveness? There are so many differences explanation and opinion about national competitiveness. Professor Michael Porter concluded that the only meaningful concept of competitiveness at the national level is productivity. Productivity is the value of the output produced by a unit of labor or capital. It depends on both the quality and features of products and the efficiency which they are produced. Productivity is the prime determinant of a nation's long run standard of living; it is the root because of national per capita income.

A nation's standard of living depends on the capacity of its companies to achieve high levels of productivity and to increase productivity over time. To sustain the productivity itself, a nation must upgrade itself continually.

The classical theory describes the success of nations in particular industries based on factors of production such as land, labor, and natural resources. In advanced industries and economies this theory was overshadowed by the globalization of competition and the power of technology.

A new theory must explain why a nation provides a favorable home base for companies that compete internationally. The new theory must move beyond comparative advantage through competitive advantage of a nation. A new theory must go beyond cost and explain why companies from some nations are better than others at creating advantages based on quality, features and product innovation. The important thing is a new theory must begin from the premise that competition is dynamic and evolving.

2. The Diamond of National Advantage

There are four attributes that individually and as a system constitute the diamond of national advantage. These attributes are:

- 1) *Factor conditions* which is the nation's position in factors of production such as skilled labor or infrastructure, necessary to compete in a given industry.
- 2) *Demand conditions* which refer to the nature of home market demand for the industry's product or service.
- 3) *Related and supporting industries*. The presence or absence in the nation or supplier industries and other related industries that are internationally competitive.
- 4) *Firm strategy, structure, and rivalry* which is the conditions in the nation governing how companies are created, organized, and managed, as well as the nature of domestic rivalry.

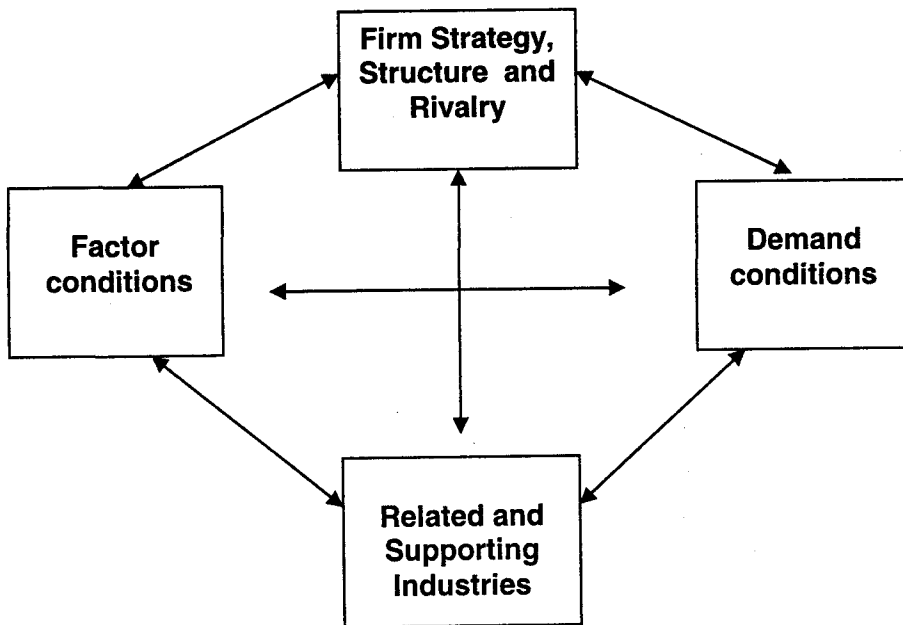


Figure 1. Determinants of National Competitive Advantage

These determinants create the national environment in which the companies are born and learn how to compete. Each point on the diamond affects essential ingredients for achieving international competitive success; the availability of resources and skills necessary for competitive advantage in an industry; the information that shapes the opportunities that companies perceive and the direction in which they deploy their resources and skills; the goals of the owners, managers, and individuals in companies; and most important, the pressures on companies to innovate and invest.

For the example, we can look at the Italian Ceramic Tile Industry. In 1987, Italian companies were the world leaders in the production and export of ceramic tiles. The producers were concentrated in and around the small town of Sassuolo. The development of this industry's competitive advantage describes how the diamond of national advantage works. Sassuolo's sustainable competitive advantage in ceramic tiles grew from dynamism and change. It supported by the sophisticated and demanding local buyers, strong and unique distribution channels, and intense rivalry among local companies created constant pressure for innovation. They were also strong supporting industries and the existence of strong cluster.

3. The Diamond as a System

Each of these four attributes in the diamond constitute a system. Two elements, domestic rivalry and geographic concentration have especially great power to transform the diamond into a system – domestic rivalry because it promotes improvements in all the other determinants and geographic concentration because it elevates and magnifies the interaction of the four separate influence.

Vigorous domestic rivalry stimulates the development of unique pools of specialized factors, particularly if the rivals are located in one city or region, for example; the University of California has become the world's leading center of wine-making research, working closely with the California wine industry. In the Italian's furniture and shoes industry we can see that active local rivals also upgrade domestic demand in an industry. Domestic rivalry also promotes the formation of related and supporting industries such as in Japan's semiconductor producers. As the world leading group of semiconductor producers, Japan has spawned world leading Japanese semiconductor-equipment manufacturers.

The effects can work in all directions that sometimes world-class suppliers become new entrants in the industry they have been supplying or highly sophisticated buyers may themselves enter a supplier industry, particularly when they have relevant skills and view the new industry as strategic. Another effect of the diamond's system is that nations are rarely home to just one competitive industry; rather, the diamond creates an environment that promotes clusters of competitive industries. Nor are clusters usually scattered physically; they tend to be concentrated geographically. One competitive industry helps to create another in a mutually reinforcing process. Once a cluster forms, the whole group of industries become mutually supporting which benefits flow forward, backward, and horizontally.

4. The Role of Government

Government's role is as a medium and challenger that is used to encourage or even push companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and difficult. Government cannot created competitive industries, only companies can do that. Government plays a role that is inherently partial, that succeeds only when working in tandem with favorable underlying conditions in the diamond.

There are some basic principles that governments should embrace to play the proper supportive role for national competitiveness encourage change, promote domestic rivalry, stimulate innovation. There are:

- 1) Focus on specialized factor creation
- 2) Avoid intervening in factor and currency markets
- 3) Enforce strict product, safety, and environmental standards
- 4) Sharply limit direct cooperation among industry rivals
- 5) Promote goals that lead to sustained investment
- 6) Deregulate competition
- 7) Enforce strong domestic antitrust policies
- 8) Reject managed trade

5. The Company Agenda

Only company themselves can achieve and sustain competitive advantage. Competitive advantage arises from leadership that harness and amplifies the forces in the diamond to promote innovation and upgrading. Here are a few of the kinds of company policies that will support that effort:

- 1) Create pressures for innovation
- 2) Seek out the most capable competitors as motivators
- 3) Establish early warning systems
- 4) Improve the national diamond
- 5) Welcome domestic rivalry
- 6) Globalize to tap selectively advantages in other nations
- 7) Use alliances only selectively
- 8) Locate the home base to support the competitive advantage

6. The Role of Leadership

Too many companies have wrong perception about the nature of competition and the task before them by focusing no improving financial performance, asking for government assistance, seeking stability, and reducing risk through alliances and mergers.

In today's competitive environment we need leadership. The leaders must believe in change; they energize their organizations to innovate continuously; they recognize the importance of their home country as integral to their competitive success and work to upgrade it. The most important, leaders recognize the need for pressure and challenge. They are prepared to sacrifice for difficulty and ultimately, sustained competitive advantage. That must be the goal for both nations and companies; not just surviving but achieving international competitiveness. Not just once, but continuously.

7. What is a Cluster?

According to *Connecticut Department of Community and Economic Development's*, a cluster is a concentration of companies and industries in a geographic region that are interconnected by the markets they serve and the products they produce as well as by the suppliers, trade associations, and educational institutions with whom they interact.

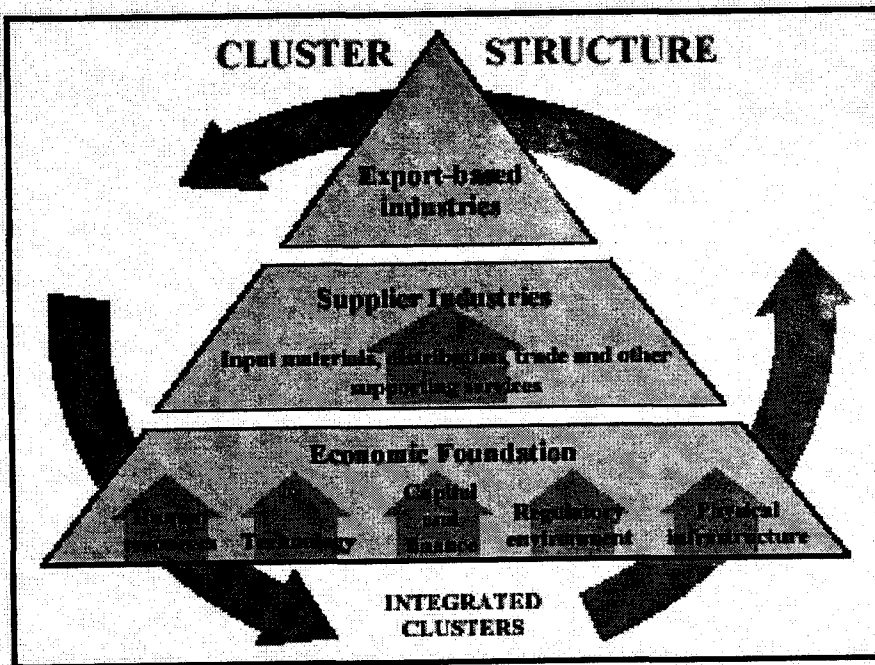
The San Diego Association defines the similar definition but with a slight variation. A cluster is a group of inter-related industries that drives wealth creation in a region, primarily through export of goods and services. The cluster uses as a tool for regional economic relationships provides a richer, more meaningful representation of local industry drivers and regional dynamics than traditional methods.

Another definition from *the University of Minnesota's Hubert. H. Humphrey Public Policy Center* states that industry clusters are geographic concentration of competing, complementary, or interdependent firms and industries that do business with each other and/or have common needs for talent, technology and infrastructure.

The more responsible person in popularizing the industry clusters with the economic development is Michael Porter from Harvard University. He defined that a cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations. There are so many definitions about cluster from different persons.

The list of definitions, explanations and descriptions of the industry cluster concept is the long, but all are much the same. And all owe their allegiance to Alfred Marshall and Walter Isard. Marshall formulated the key concept behind what has become known as cluster-based economic development: localization economies. Isard has both reinforced and expanded upon the methodologies that we continue to use for analyzing regional economies. According to Isard and colleagues, when analyzing the structure of regional economies, planners and researchers need to identify the export oriented industry and measure its linkages to other industries in the region. Strong industrial linkages indicate a complex or cluster.

One may visualize an industry complex in terms of a pyramid where the export oriented industry sits at the top, linked to a host of supplier industries, all of which rest on a set of supporting institutions. An interdependent interrelationship exists among all three components. Should any one component weaken or fail, then a cluster as a whole could fail.



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Figure 2 The Structure of an Industry Complex

Identifying the constituent parts of a cluster involves starting with a large firm or concentration like firms and then looking upstream and downstream in the vertical chain of firms and institutions. The next step is to look horizontally to identify industries that pass through common channels or that produce complementary products and services. Additional horizontal chains of industries are identified based on the use of similar specialized inputs or technologies or with other supply side linkages. The next step after identification that provide it with specialized skills, technology, information, capital, or infrastructure and any collective bodies covering cluster participants. The final step is to seek out government or other regulatory bodies that significantly influence participants in the cluster.

The California wine making cluster (figure 3) includes an extensive complement of supporting industries to both winemaking and grape growing. On the growing side, there are strong connections to the larger California agricultural cluster. On the winemaking side, the cluster enjoys strong links to both the California restaurant and food preparation industries

(complementary products) and the tourism cluster in Napa and other wine producing regions of the state. Figure 3 also illustrates the host of local institutions involved with wine such as the world-renowned viticulture and ecology program at the University of California at Davis and special committees of the California senate and assembly.

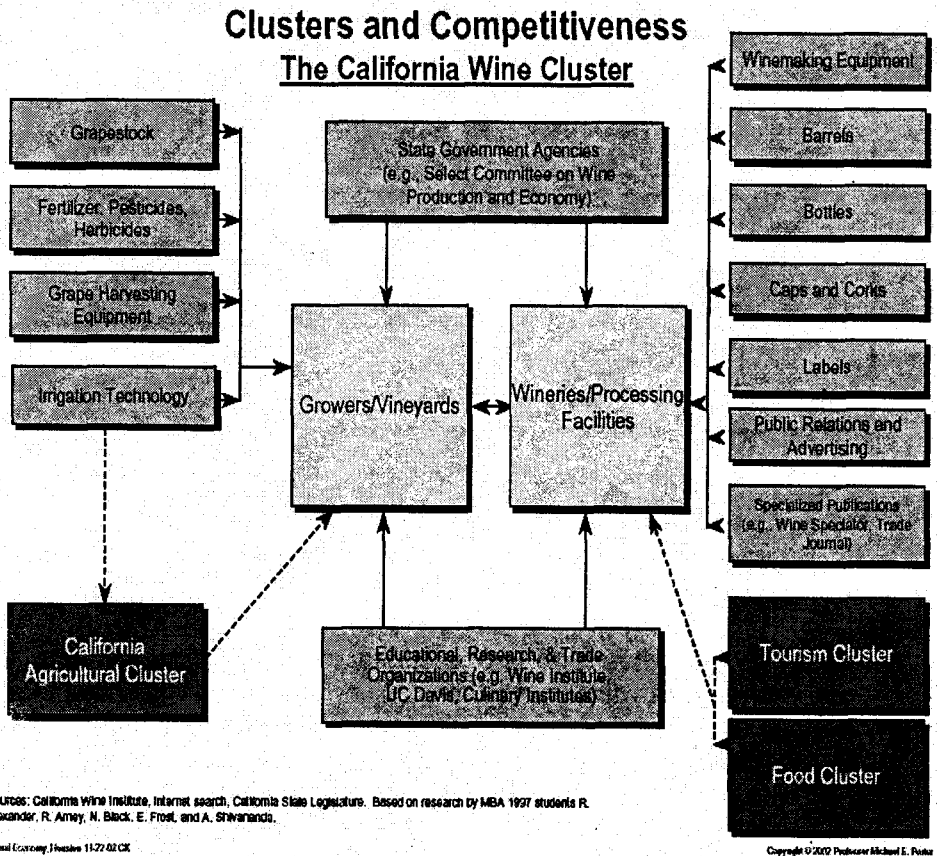


Figure 3 The California Wine Cluster

Clusters occur in many types of industries, in both larger and smaller fields, and even in some local businesses such as restaurants, car dealers, and antique shops. They are present in large and small economies, in rural and urban areas, and at several geographic levels (for example, nations, states, metropolitan regions, and cities). Cluster occur in both advanced and developing economies, although clusters in advance economies tend to be far better developed.

Clusters vary in size, breadth, and stated of development. Some clusters consist primarily of small and medium sized firms. Other clusters involve both large and small firms. Some clusters center on research universities, while others have no important university connection. These differences in the nature of clusters reflect differences in the structure of their constituent industries. More developed clusters have deeper and more specialized supplier bases, a wider array of related industries, and more extensive supporting institutions.

Why view economies through the lens of clusters rather than of more traditional groupings such as companies, industries, or sectors, such as manufacturing or services? Primary because clusters align better with the nature of competition and the sources of competitive advantage. Clusters, broader than industries, capture important linkages, complementarities, and spillovers of technology, skills, information, marketing, and customer needs that cut across firms and industries. Such connections are fundamental to competition, to productivity, and especially to the direction and pace of new business formation and innovation. Most cluster participants do not compete directly, but serve different industry segments.

8. Clusters and Competitive Advantage

Clusters affect competition in three broad ways: first, by increasing the productivity of constituent firms or industries; second, by increasing their capacity to innovation and thus for productivity growth; and third, by stimulating new business formation that supports innovation and expands the cluster.

1) *Cluster and Productivity*

Locating within a cluster can provide superior or lower cost access to specialized inputs and employees. Within a cluster, we can access to information such as extensive market, technical and other specialized information with low cost. A cluster enhances productivity not only via the acquisition and assembly of inputs but by facilitating complementarities between the activities of cluster participants. Clusters also make many inputs that would otherwise be costly into public or quasi public goods. Finally, clusters help to solve some agency problems that arise in more isolated locations and in more vertically integrated firms.

2) *Cluster and Innovation*

The potential advantage of clusters in perceiving both the need and the opportunity for innovation are significant, but equally important can be the flexibility and capacity they provide to act rapidly on these insights. A

firm within a cluster often can more rapidly source the new components. Local suppliers and partners can and do get closely involved in the innovation process, thus ensuring that the inputs they supply better meet the firm's requirements. New, specialized personnel can often be recruited locally to fill gaps required to pursue new approaches. The complementarities involved in innovating are more easily achieved among nearby participants.

3) *Cluster and New Business Formation*

Opportunities perceived at cluster locations are pursued there because barriers to entry are lower than elsewhere. Needed resources such as skills, assets, and so on often readily available at the cluster location, can be assembled more easily for a new enterprise. Local financial institutions and investors already familiar with the cluster, may require a lower risk premium on capital. In addition, the cluster often presents a significant local market. The entrepreneur seeking to benefit from established relationships often prefers to stay in the same community. All of these factors reduce the perceived risks of entry. The advantage of a cluster in new business formation can play a major role in speeding up the process of cluster innovation. Because of new business formation, clusters often grow in depth and breadth over time, further enhancing cluster advantages.

9. Cluster and Developing Economies

Normally, clusters mostly prominent in advanced economies, where usually the depth and breadth of clusters is usually greater. Clusters in developing economies tend to be shallow and to rely primarily on foreign components, services, and technology.

Comparing to those in advanced economies, clusters in developing economies not only involve fewer participants but often differ as well in their sociometrics. Many take form of hierarchical, hub and spoke networks surrounding a few large companies, government entities or distributors. Communications is limited, and linkages between existing firms and institutions are not well developed.

The development of well functioning clusters is one of the essential steps in moving to an advanced economy. The scarcity of clusters in developing countries does not mean that such countries cannot compete, but it delay upgrading and productivity improvement.

The successful deepening and broadening of clusters, is integral to successful economic development. Cluster development seems to be a

controlling factor in moving from a lower middle income to an advanced economy. Even in advanced economies, the need for cluster upgrading is never ending.

10. Government Influences on Cluster Upgrading

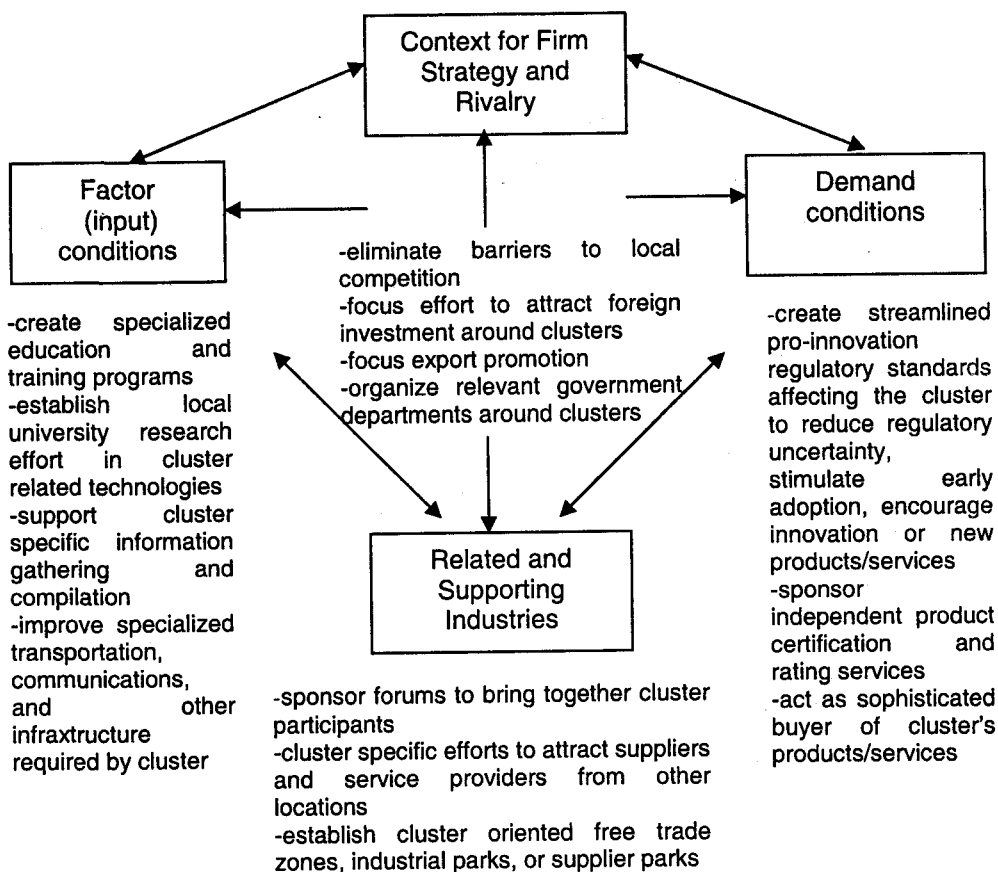


Figure 4 Government Influences on Cluster Upgrading

Figure 4 above illustrates some specific government roles in cluster upgrading. Its influences on a cluster throughout the diamond. At the end of the spectrum, governments might arrange forums of firms, institutions and appropriate government agencies. At the other end, government has more direct roles such as collecting and compiling cluster specific information, setting educational policies encouraging public universities and schools to respond to local cluster needs; clarifying and simplifying regulations significantly affecting the cluster; and improving the sophistication of local demand for cluster products and services.

References

- Akundi, Khrisna M.** Cluster Based Economic Development, Part 2: An Overview of Growth Theories and Concepts.
- Porter, Michael E.** 1990. The Competitive Advantage of Nations. Free Press.
- Porter, Michael E.** 1996. On Competition. A Harvard Business Review Book.
- Porter, Michael E.** 2002. Competitiveness and the Role of The Region. Institute for Strategy and Competitiveness Harvard Business School. www.isc.hbs.edu