

European Clusters

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Clusters have become the focal point of many new policy initiatives in the last few years, in Europe as elsewhere around the globe. The challenge set out by the Lisbon European Council in 2000 to make Europe “the world’s most competitive and dynamic knowledge based economy” in particular has sparked interest in new approaches to economic policy for competitiveness. Mobilizing the potential of clusters is seen as critical to reach this ambitious goal.

Michael E. Porter (1998) defines clusters as “geographically proximate groups of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”.ⁱ Clusters are important, because they allow companies to be more productive and innovative than they could be in isolation. And clusters are important because they reduce the barriers to entry for new business creation relative to other locations. They can only play this role, because the firms and institutions in a particular cluster share four critical characteristics:

- *Proximity*; they need to be sufficiently close in space to allow any positive spill-overs and the sharing of common resources to occur
- *Linkages*; their activities need to share a common goal, for example, final market demand, for them to be able to profit from proximity and interaction
- *Interactions*; being close and working on related issues is not enough – for positive cluster effects to occur some level of active interaction has to be present
- *Critical mass*; finally, there needs to be sufficient number of participants present for the interactions to have a meaningful impact on companies’ performance.

Understanding the importance of these four dimensions is much more important than defining specific benchmarks along them that a group of firms and institutions has to meet to be called a cluster.

Interest in clusters has grown because they are a leverage point for action, not just a description of economic reality. European policy makers in particular have turned to cluster policy because of a shift in priorities from macro to microeconomic issues. Monetary and fiscal policies are increasingly well understood, and many European countries have made impressive progress in these areas. But their macroeconomic progress turned out to be only necessary, not sufficient to achieve higher prosperity. Very targeted microeconomic efforts – often in a new partnership with the private sector, universities, and other institutions – are required to translate the macroeconomic achievements into real productive improvements in companies. Clusters turn out to be a useful way to organize these efforts and launch effective action initiatives.

Private sector leaders, too, are getting increasingly interested in the concept of clusters. The importance of

location and locational context has increased for many of them; in an increasingly global economy, a company’s location is one of the few sources of differentiation competitors cannot easily copy.ⁱⁱ Companies are looking to understand the opportunities that clusters can provide, and many executives see their active participation in efforts to strengthen their home clusters as a new and important part of their role.

“Clusters of Innovation”, the title of a project on regional clusters in the United States,ⁱⁱⁱ has become a particularly popular term among private and public sector leaders. This reflects the increasing pressure many U.S. and European companies and locations face to compete on innovation rather than on productivity alone. Clusters turn out to provide a particularly fertile ground for innovations because they are well aligned with modern innovation processes. In modern competition, innovation occurs in non-sequential interactions of different companies, universities, and research institutions – a model quite different from the traditional model where closed corporate R&D centers turned universities’ basic research into applied products and processes. Clusters have already in the past worked according to the new model, but policy makers and companies not always understood the opportunities this offered.

The remainder of this article will discuss, first, the available evidence on clusters in Europe and, second, the efforts to integrate the cluster perspective into European economic policy thinking. The article concludes with thoughts on how the current efforts can be made more effective to increase competitiveness.

Clusters in Europe

Until recently, information on clusters in Europe has been based mainly on individual case studies. Porter’s (1990) *The Competitive Advantage of Nations* already included a significant number of European examples. In the years since then, numerous individual case studies have been conducted; one compilation of cluster case studies includes a total of 449 entries from European countries.^{iv} While nobody has an exact figure, it is obvious that Europe is home to a large number of clusters.

Profile of European Clusters

In the last five years a number of initiatives have been undertaken to generate more hard data about European clusters. About a third of all European countries have undertaken systematic efforts to quantitatively identify and pro-

i For a discussion of this definition see European Commission (2003).

ii Ketels (2002)

iii Council on Competitiveness/Monitor Company/Michael Porter (2001)

iv van der Linde (2003)

file clusters, a process often called cluster mapping, covering at least parts of their countries or economies, according to a report prepared for the European Commission.^v No consistent data exists, however, to track the prevalence and performance of clusters across Europe.

The United Kingdom and Sweden are two examples for recent cluster mapping efforts that covered the entire national economies. The UK study reports the regional employment patterns in groups of industries a priori defined as clusters.^{vi} This work is intended to inform the cluster development activities of the Regional Development Agencies (RDAs), public sector institutions with strong private sector involvement. The Swedish study applies the cluster definitions statistically derived from US data to Sweden, and defined critical mass-cut off points that regional concentrations of employment in a given field have to meet to be considered a cluster.^{vii}

A survey of 34 regional clusters in EU member countries in the same report provides indicative data on the state of clusters in Europe:^{viii} First, most surveyed clusters are dominated by small or medium-sized companies. The dominance of such smaller companies even seems to increase over time. Second, most surveyed clusters serve global markets, not only Europe. And in a large and increasing number of these clusters multinational companies are present, presumably using these European locations as export platforms. Third, R&D and advanced services within the particular field are available in many of the clusters, while standard production activities are not necessarily present are increasingly being outsourced to other locations. This position as innovation centers is in line with the role of European locations in the global economy. Finally, the surveyed clusters tend to be young, growing, and at least among the national leaders in their fields. It is, however, hard to tell if this is an artifact based on a selection bias or a true sign of underlying competitiveness.

Strengths of European Clusters

The *Global Competitiveness Report* provides comparative data on overall cluster strength for 75 countries including all European countries.^{ix} The survey generating the data includes a specific question on the state of cluster development, and it includes a set of additional questions that can be used to calculate an overall measure of cluster strengths. Table 1 reports the ranks for these two measures as well as for broader business environment quality and overall microeconomic competitiveness.

On average, Europe ranks slightly lower on cluster development and cluster strengths than overall on microeconomic competitiveness but the difference is small. But as on many measures, the high degree of heterogeneity among the European countries makes it more interesting

Table 1: European Clusters in the Global Competitiveness Report

Country Rank out of 75 Countries	State of Cluster Developm. Rank	Overall Cluster Rank	Overall Business Environm. Rank	Overall Micro-economic Rank
Finland	4	7	2	2
UK	5	5	3	3
Germany	7	3	4	4
Sweden	9	14	8	6
Netherlands	14	10	10	7
Denmark	22	21	9	8
Austria	16	11	12	12
Belgium	25	16	15	13
France	21	13	21	15
Ireland	10	26	22	20
Italy	1	4	24	24
Spain	30	18	25	25
Portugal	32	38	32	36
Greece	67	58	41	43
EU average	19	17	16	16
EU (GDP weighted)	14	11	13	12

Note that the unweighted EU average can at best be 6.5 (weighted: 4)
Source: Global Competitiveness Report 2002/2003, Author's calculations

to look at individual countries. Clearly a special case is *Italy*, which scores best in the world on cluster development but only 24 on overall microeconomic competitiveness. Countries that on the contrary score much higher on overall micro-economic competitiveness than on cluster strengths are Greece and, surprisingly, Denmark.

Cluster Evolution

Many observers have speculated on the evolution of clusters in Europe as European markets are becoming increasingly integrated. A fall in barriers to trade will remove artificial barriers to agglomeration and thus foster the growth of clusters, it was argued. Unfortunately, there is no direct cluster data available to look at this question.

However, a number of researchers have looked at the regional dispersion of industries across Europe instead.^x Their work has two main results. First, there is no strong trend for increasing geographic concentration of economic activity across European industries. This was contrary to some expectations because the initially more integrated U.S. economy displays a higher level of geographic concentration. Concentration increased mainly in low growth

v European Commission (2002)

vi DTI (2001)

vii Lindquist/Malmberg/Sölvell (2003) available at www.ivorytower.se

viii European Commission (2002)

ix Porter/Schwab (2002)

x For example Midelfart–Knarvik (2000), Aiginger/Pfaffermayr (2000)

industries that restructured to focus less production in fewer locations. Concentration decreased, however, in some high growth industries that spread out into new locations with additional manufacturing activities. Second, the European economies have become more unequal over time after 1992 when the Common Market legislation took effect. This has reversed an earlier trend of increasingly equal industrial structures that was observed in the 1970s and 1980s, and brings European industrial patterns closer in line with the U.S. economy.

These observations are consistent with the expected evolution of European clusters in response to market integration. When economic barriers fall, the overall number of clusters in a given field will fall as economic activity concentrates in the strongest locations. At the same time, lower trade barriers will increase the likelihood that strong clusters can outsource more standard activities such as manufacturing and concentrate on high-value functions in innovation. Overall, this will lead to an increasingly different composition of economic activity across regions but not necessarily to an overall increase in geographic concentration. If regions with low current levels of economic activity provide sufficiently attractive business environment, integrated markets offer them indeed opportunities to achieve convergence to the economic performance of stronger regions. The United States with its increasing dispersion of economic activity and stable convergence of GDP per capita-levels represents this process.

Cluster Policy in Europe

Clusters are not only a reality of economies across Europe; increasingly they are also an important policy lever on different geographic levels. At the level of the European Union, the European Commission is looking for its role in supporting cluster development across Europe. Providing better data on clusters, convening joint public-private research groups for clusters to look at Europe-wide issues, and supporting regional cluster initiatives are emerging as the key roles of the Commission. By their very nature, no one cluster stretches across Europe, so the role of the European-level is more indirect.

National Cluster Policy

On the national level, a number of European countries have adopted a cluster approach to organize parts of their economic policy. The *Netherlands* and *Denmark*, for example, have a strong tradition of employing clusters in their policy. The *United Kingdom* has in the last few years become very active in cluster policy and have provided significant budgets for cluster development. *Ireland* has had a very conscious competitiveness policy for many years, and has used cluster concepts within this context.

Finland and more recently *Sweden* are also becoming very active in using clusters to set policy priorities.

The Global Competitiveness Report data in Table 1 allows for a comparison between the state of cluster development – a measure of active policies to strengthen clusters – and the overall cluster rank – a measure of the presence of necessary ingredients for clusters. A number of countries with active cluster development efforts perform better on cluster development than would be expected given their overall cluster rank: Ireland, Portugal, Sweden, and Finland. *Ireland* has for a long time used the cluster approach to structure its economic policy initiatives, for example in the area of FDI attraction. *Portugal* has been the subject of an extensive cluster study about 10 years ago, and the important shoe and wine clusters have ongoing efforts for cluster upgrading. *Sweden* has created specific institutions like Vinnova that are charged with employing the cluster approach to regional growth policy. *Finland*, finally, has an explicit strategy and institutional structure to focus resources on a few national clusters.

Countries like France, Germany, Italy, and Spain have no equivalent national cluster policy, but they too tend to use cluster concepts in particular regions or fields. In *Germany*, for example, a very interesting experiment was launched in the early 1990s with the BioRegio-Competition.^{xi} The federal government offered financial support for the three regional biotech clusters that could most convincingly demonstrate that they had the critical assets, the plan, and the willingness to upgrade their cluster. Much beyond the financial incentive the mere process of getting the relevant private and public cluster participants together proved to be an important step in getting Germany to become the leading European location – alongside the UK – for biotechnology.

Sponsored by the European Union and other foreign organizations, cluster initiatives have recently also been launched in many EU Accession countries. The most prominent example is Slovenia, a country that has received much attention for its cluster program and the role clusters played in the impressive performance of the Slovenian economy.

Regional cluster policy

One of the first regions worldwide to apply the cluster perspective in its economic policy was the *Basque country* in Spain. In the midst of a deep economic crisis of its mainly traditional manufacturing companies in steel and ship building public and private sector leaders in the region adopted the cluster approach to change their economic trajectory. A good decade later, the region is one of the

xi Dohse (2000)

richest regions in Spain and has achieved a GDP per capita level equal to the European average.

In the meantime, different types of regional cluster initiatives have developed in many parts of Europe, from Ceramic tiles in *Catalonia*, to Pharma in the *Öresund-Region*, to Automotive in *Styria*, to Video Games in *Scotland*, to Textiles in *Emilia-Romagna*, to many more across Europe.^{xii} Most such initiatives have been launched by local or regional government agencies trying to engage industry associations and individual companies in their efforts. There is very little systematic evidence on the success of these initiatives. Many of them are still quite young and hard to evaluate but there is increasing pressure to get hard data on what kind of structures and policies are most effective.

Fewer initiatives have been initiated by private sector leaders themselves. In a region of *eastern Germany*, for example, company executives launched an effort to strengthen the public profile and quality of their region.^{xiii} They organized their work around specific clusters such as automotive and chemicals and some crosscutting regional issues. They took action, because the public sector was paralyzed in the coordination between three German States and three large cities that all have a stake in this region. With the private sector taken the lead, it was much easier for the public sector representatives to follow and support this effort.

Case evidence suggests that effective cooperation between the public and the private sector is more likely, when the regional government institutions have strong independent decision power. This is more likely in countries with a federal structure, like Germany, Belgium, and Italy (and the United States), where elected regional officials control many of the decisions critical for the business environment. In more centralized structures, private sector leaders tend to ignore regional government representatives and try to work directly with the officials in central government that are seen as the ultimate decision makers. The relationship between effective public-private cooperation and the centralization of the public sector certainly is an area the merits further research to test this preliminary hypothesis.

Outlook

Clusters are increasingly being realized as an important factor in the competitiveness of European economies. Europe will not be able to reach the ambitious goals it has set itself in the Lisbon-Agenda, if it fails to unlock the potential of its existing and emerging clusters. The evidence so

far indicates that Europe has a sound base of cluster but that it also has still quite some way to go.

It is encouraging that politicians across Europe are more and more drawing upon cluster thinking. But to make these policies truly effective, key challenges have to be addressed. Otherwise there is the risk of a backlash against clusters seen as just another economic policy fad. Europe can ill afford to squander the real opportunities that clusters offer.

First, there is still a significant gap of data on clusters in Europe. We need to better understand where the European clusters are, what their composition looks like, and how they perform on different dimensions. In practice, such data is quite sensitive and can become a dogfight between “winners” and “losers”. And it is a departure from the approach of many current studies charged with generating material to demonstrate success in order to market a region or cluster internationally. But without such a sound fact base politicians will lack the information to openly identify and address weaknesses and will be tempted to “create” clusters. Cluster development, however, should not aim to create clusters, but to activate them. Activating an existing base of companies and institutions to jointly upgrade their cluster is much more effective than investing huge sums in the risky business of creating clusters from scratch. In the United States, quantitative cluster data is available the Cluster Mapping Project, and is starting to change the tone of the debate throughout the country.^{xiv}

Second, cluster policies in Europe have become conceptually more consistent. The specific policy priorities are different across clusters and regions – this is exactly why European and even national programs with clear policy guidance often do not work. But the fundamentals of how effective analysis and activation of clusters works do not differ from one cluster to another. European and national authorities can be very useful in spreading these concepts; and they should not shy away from making their adoption an element in funding decisions.

Third, clusters need to be seen as part of a wider competitiveness agenda. Efforts for cluster and for regional economic development need to be better integrated. Focusing exclusively on a few clusters limits the impact on overall regional prosperity. And it creates an unhelpful tendency to focus too much on how the clusters to be developed should be selected. Focusing regional economic development on broad factors element, spreads the impact too widely to make a material difference to groups of companies that share cluster-specific barriers to further growth and innovation. Successful competitiveness efforts aim to achieve a regional prosperity goal through a combination of cluster-specific and crosscutting initiatives. Their clus-

xii For more examples see Sölvell/Ketels/Lindqvist (2003)

xiii Regionalmarketing Mitteldeutschland www.mitteldeutschland.com

xiv Cluster Mapping Project data is available at <http://data.isc.hbs.edu/isc/index.jsp>

ter efforts focus resources on a few selected clusters but open the process for all other clusters that have the willingness and capacity to develop at this location.

Finally, cluster initiatives have to be seen as an opportunity to redefine the roles of the private and public sector in economic policy. In the past, these roles were clearly separated with the government setting the rules and providing the infrastructure and the private sector competing given this context. But in modern competition, private companies realize their significant impact, alone and with other companies, in shaping their business environments and thus their opportunities to succeed in global markets. Private and public sector work closely together in economic policy, each taking responsibility for those areas of the business environment they control. And given that companies have the most direct knowledge about what holds them back from growing, innovating, and reaching higher levels of productivity, it will be very often them that lead such joint efforts.

European companies need strong clusters and business environments at their home locations to compete successfully on world markets. The international success of many European companies, small and large, is testament to the vitality of the clusters that already exist and thrive in Europe. But the overall lack of cluster performance of many European economies versus their international peers suggests that more can and needs to be done to implement the Lisbon Summit Agenda. Clusters offer a crucial opportunity to take the necessary steps for modernizing economic policies in Europe towards that goal. ::

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