

Cluster Development and Initiatives in Traditional Industries

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Abstract

Clusters have become increasingly popular and important as policy tools to boost economic development and competitiveness at regional level. This paper, which is broadly based on a Yorkshire Forward's in-house training guide, aims to set out the role of regional authorities and development agencies in developing and supporting modern cluster initiatives against a backdrop of their industrial heritage. Although the academic and theoretical aspects of competitiveness and clusters are discussed here, it is not intended to be an academic paper. It is simply written to serve three purposes; to provide an introduction to cluster competitiveness; to provide a contextual framework for a practitioner's experience and observations and to provide a background to the presentation and discussion at the conference

1. HISTORICAL CONTEXT TO CLUSTER IN YORKSHIRE

It would not be overdoing a cliché to say that Clusters have become increasingly popular policy tool to help boost the economic development and competitiveness at regional levels. The argument is well evidenced and documented

Yorkshire and Humber has historically benefited from the growth of clusters such as Sheffield's steel industry and West Yorkshire' textile industry. Within these clusters successful companies produced world renowned products. The typical spin outs of these industry also further contributed to the industrial development of the region. Through the success of textiles, for example a thriving chemical industry was developed to serve the 'dying' and 'fixing' needs of the textile manufacturing. In the meantime it also led to the development of a successful machinery industry.

These are typical examples of what business analysts now call a "cluster" – where firms in all parts of an industry – yarn spinners, weavers; garment makers, dyers, machinery producers etc in the case of textiles – benefit and succeed by being grouped together.

Textile machinery, through research and development were matched to the nature of the raw materials. The skills of the spinners, weavers, dyers, machinists were shared between competing companies as production quality and output grows. A secondary and tertiary industry also developed to support the core industry – Engineering and Chemical industries, for example - and a growing knowledge base which in turn provided ongoing expertise for future investment and development.

These together will keep the industry ahead in the globally competitive market. The benefits of clustering are highlighted by one of the world's leading economists, Professor Michael Porter of the Harvard Business School whose books are studied worldwide by policy-makers and industrialists intent on achieving similar success.

Yorkshire's textile industry of the last two Centuries is just one example of the benefits of clustering – but it does provide an easy to understand process of how this approach can be applied in other industries. The challenge now is to identify and nurture existing and new clusters to meet the challenges of the global 21st Century economy.

In Yorkshire the industrial sectors have undergone expansion and diversification since the 1970s, and engineering, ICT and creative as well as chemical industries have steadily overtaken textiles in importance.

Yorkshire Forward, The Regional Development Agency (RDA) adopted a “cluster development” approach to boosting the competitiveness and wealth of its regional economy – supporting industries which are best-placed to compete and deliver growth and high-quality jobs in the future.

This paper aims to explain what is needed to develop key clusters to help build competitive, profitable and successful sustainable businesses. In Yorkshire and Humber the initial clusters of advanced engineering and metals; chemicals; digital industries; food & drink and bioscience were identified as the first to be supported and developed – building on the region’s strengths. These were subsequently followed by Environmental and Healthcare technologies clusters.

2. WHAT IS THE THEORY BEHIND COMPETITIVENESS AND CLUSTERS?

2.1 COMPETITIVE ADVANTAGE?

Companies can derive competitive advantage at a number of levels in an economy.

2.1.1 At company level

Competitive advantage may be based on:

- Better strategy
- More efficient use of inputs
- Cheaper inputs

However, excellent strategies, efficient sourcing and operational excellence are the very minimum companies need to grow sales and profits in a competitive global environment. It is also difficult to obtain sustainable competitive advantage from such sources. Successful strategies can generally be copied, as can operational methods. Inputs increasingly are available at global prices. Reliance on cheap labour makes companies vulnerable to competition from countries where labour costs are lower. Operational efficiency, efficient sourcing and effective strategies are therefore necessary but not sufficient to achieve sustainable competitive advantage.

2.1.2 At national level

Appropriate policies are necessary at national level if companies are to compete on a global basis. Taxation policies, regulatory policies, the existence of an efficient financial and legal infrastructure are all

necessary if companies are to compete effectively. However, these are seldom a long-term source of competitive advantage. Not having them will lead companies to being at a disadvantage and encourage their relocation to areas where such infrastructures are in place. They also are a necessary but not sufficient source of competitive advantage. Similarly, companies will benefit if governments pursue well-managed macro-economic policies and avoid economic mistakes which can lead to “boom/bust” type situations and add to uncertainty about future prospects. However, these again are necessary but not sufficient for competitive advantage.

2.1.3 At regional level

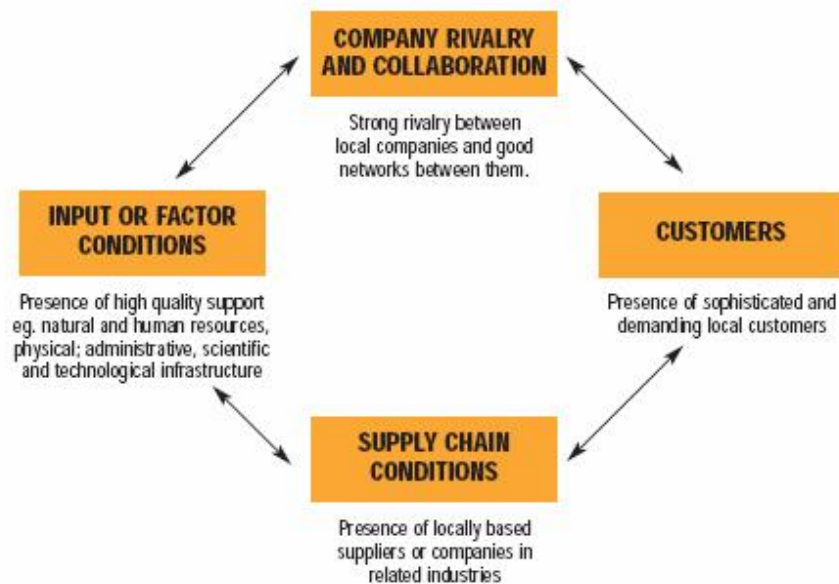
Companies can benefit from other sources of competitive advantage. These are linked to the specific location of the company. These include access to well and appropriately trained labour, easy access to relevant research, easy access to banking and other professional services with detailed knowledge of the specific needs of their industries. They include easy access to suppliers or customers with whom they can collaborate to develop innovative products or solutions. Such sources of competitive advantage depend on the precise geographic location of the company. Labour supplies clearly depend on desired commuting distances and whether appropriate people can be attracted to those locations. Although some of these factors can be supplied remotely (eg through the web), by definition such remote services can be obtained by anyone and cannot be a source of sustainable competitive advantage. What is a source of advantage is the easy face-to-face access that is a result of geographical co-location which only accrues to companies located in certain areas. Therefore, these sources do offer sustainable competitive advantage to companies located in these areas against companies not located in areas offering similar features.

2.1.4 Bringing the levels together

Global competitiveness, therefore, depends on companies having appropriate corporate strategies and operational efficiencies (at company level), on operating in countries which offer a stable and appropriate legal/financial/regulatory environment together with effective macroeconomic policies (national level) and in addition being located in areas where the labour force and other factors related to their competitive needs are present (regional level). This latter factor has tended to be neglected in much of the management and economic policy literature.

3. SOURCES OF COMPETITIVENESS FOR CLUSTERS

Key to the success of a cluster is the geographical location of a company which links to its four broad areas of competitive advantage. Mapped out by Professor Michael Porter, these are indicated by the corners of Porter's "Diamond".



4. WHY ARE CLUSTERS IMPORTANT?

All of the features described in this "Diamond" tend to be found in clusters. Porter defines a cluster as a "Geographic concentration of inter-connected companies, specialised suppliers, service providers, firms in related industries and associated institutions (for example, universities, standards agencies and trade associations) in particular fields that compete but also cooperate." The more features previously outlined that are present in the cluster mean that the productivity of firms in the cluster tend to be higher than similar firms elsewhere; there tends to be a higher rate of business growth and company start-ups and there tends to be more innovation. This results in the cluster achieving an overall better economic performance. Let's examine the four corners of the "Diamond" in slightly more detail.

4.1 Factor or Input Conditions

For each cluster, it is necessary to examine the conditions that support it. For example, what kind of skills base does the cluster need to operate to maximum efficiency, what kind of physical infrastructure

does it require? Does the banking system support it effectively? Are there strong relationships with universities in the area? Is there evidence of spin-out companies from the universities?

4.2 Supply Chains

Does the cluster involve supply chains? How much of any chain is located in the cluster? Are any suppliers to the firms in the cluster located there? Although the optimum will be different for different clusters, in general the more of a supply chain that can be efficiently located in the cluster, the more competitive the firms in the cluster will be.

4.3 Customers

How many of the customers of firms in the cluster are located in the area? Are any important customers located close by whose demands can have a clear impact on the policies of the companies in the cluster? In this case, the requirement is for some demanding customers to be located in the cluster. They are then likely to impose sufficient pressure on their suppliers to help these to be competitive in the global market place and to have a worldwide customer base.

4.4 Rivalry and Collaboration

What is the state of competition of the companies in the cluster? Do they compete intensively with each other or are relationships too cosy? But do the firms also collaborate on matters of common interest and do they speak to each other? Do opportunities for networking exist? What is the degree of networking between firms and are institutions for such collaboration present? Research has shown that it is the level of competition between the firms in the cluster that is one of the critical determinants of the cluster's overall performance. Collaboration is important for clusters, but so is competition and it is the intensity of this that is critically important in keeping the firms competitive in global markets.

5. WHO BENEFITS FROM CLUSTER DEVELOPMENT?

The benefits in terms of higher productivity and increased innovation can be felt by all firms in the cluster. The implications for existing firms are to examine the relationship they have with firms in the cluster and consider the services they offer. Are professional services firms specialised enough in the particular needs of firms in the cluster or are these having to go elsewhere for specialised advice. Can manufacturing firms fit into the supply chain of firms located in the cluster, again reducing the need for them to go elsewhere to source their inputs. Are universities and other higher education establishments providing people with the required skills for the firms in the

cluster? Are public bodies providing the infrastructure which firms need if they are to be competitive? The whole point of cluster policy is to examine all of the cluster's needs and encourage other partners to examine how they could link with – either through standard commercial trading relationships or through non-trading relationships – firms in the cluster. All firms, public bodies, educational institutions etc need to consider what linkages they could form with the cluster.

6. THE DIFFERENCE BETWEEN CLUSTERS AND SECTORS IS IMPORTANT

Traditionally, industries have been analysed according to the sector in which they have been allocated, usually in the form of a code. This is useful in that it will pick up all of the particular needs within each sector. However, it can suffer from missing important relationships with other sectors needed to sustain and improve any sector's competitiveness. For example, relationships with universities or with financial services companies can easily be neglected in sectoral analysis but may be very important for the competitiveness of the sector.

Particularly as industries are changing rapidly due to the impact of technological changes, sectoral analysis can also easily miss some of the important linkages as industries that were previously unrelated to others are now dependent on them. The impact of digital technologies such as the internet on a wide range of industries is a clear example of this. By examining industries via cluster analysis, all of the linkages of importance to industries should be covered as all of these will be part of the cluster. Clusters will normally contain some or all of a number of sectors in one geographic area. Cluster analysis also tends to focus on the strengths of linkages between companies, either within or across sectors. This important focus on linkages or networks can easily be overlooked in sectoral analysis.

7. THE ROLE OF REGIONAL AUTHORITIES AND DEVELOPMENT AGENCIES

Research throughout the world has shown that it is difficult to create clusters from nothing – they cannot be simply parachuted into economies without some base being there on which the cluster can form. The role of a Regional Development Agency – with its strategic approach to economic regeneration – is to look for existing clusters or potential new ones where this potential is based on some real regional strength, possibly, for example, the quality of the research in its universities. Above all they need to be based on more than just wishful thinking! The “diamond” should be used to analyse the needs of the cluster and in particular the possible areas of market failure which is preventing these needs of the cluster from being met.

This research needs to be combined with close engagement with the stakeholders in the cluster, in particular with the companies at the core of the cluster, to ensure both that the research reflects the economic reality of the cluster and that the cluster stakeholders are fully engaged with and supportive of what the RDA is trying to do. The formation of private sector led Steering Groups to provide strategic direction to the cluster work and to act as champions of the cluster with other potential stakeholders is sometimes a critical means of maintaining and widening private sector involvement and preventing a supply-led public sector approach.

8. TYPICAL INTERVENTION FROM REGIONAL PUBLIC BODIES

In common with many of its counter-parts, Yorkshire Forward's interventions in supporting clusters fall into a number of categories. These are:

1. Setting up and encouraging networks/institutions for collaboration
2. Improving information flows and collaboration between universities/research institutions and companies, and encouraging commercialisation of research
3. Targeted inward investment to fill gaps in the cluster
4. Provision of physical infrastructure eg. incubation and technology park facilities
5. Provision of targeted training courses and other skills development
6. Supply chain development
7. Encouragement of new business start-ups

10. APPROPRIATE INTERVENTION IS IMPORTANT

There is a consensus among strategists and practitioners that 'one size fits all' approach is inappropriate when developing cluster initiatives. Appropriateness of the strategies for developing these is significantly important and they must address the needs of specific industry's challenges depending on the stage of development of that industry.

UK Department of Trade and Industry's "A Practical Guide to Cluster Development" suggests that *clusters are dynamic and have a recognisable life cycle*. Simply seen as a cyclical process with four stages:

- Embryonic clusters – those at the early stages of growth.
- Established clusters – those perceived as having room for further growth.
- Mature clusters – those that are stable or will find further growth difficult.

- Declining clusters – those have reached their peak and are failing or declining –clusters at this stage are sometime able to reinvent themselves and enter the cycle again

Interventions that are appropriate at an early stage in the lifecycle of a cluster are, therefore, likely to differ from those appropriate at later stages.

The presentation and case studies will concentrate on examining the appropriate policy tools for developing clusters and cluster initiatives in traditional sectors. By its definition many of these industries fall into mature and declining categories of the cluster life cycle.

Within these mature and declining clusters, interventions which lead to openness and innovation are not only essential to help arrest their decline and maintain their competitiveness but could also act as the starting point for promoting the development of new industries.