



ERLN Practice Guide 6

The role of Clusters in economic development

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What are clusters?

'Clusters are geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also co-operate.'

Michael Porter

Competition between enterprises is a function of normal market processes, but co-operation between them requires the active development of networks. In a cluster, such networks are enhanced by partnerships with other relevant institutions such as universities, research institutes and public bodies.

While sectoral networks or forms of association can support co-operation even where participants are geographically dispersed, evidence suggests that operating in the same geographical space creates additional opportunities and spillover effects. As a result, this spatial dimension is a crucial part of the concept of a cluster.

'Urban clusters have been decisively proven to drive innovation, city-regional development and competitiveness.'

Greg Clarke

Why do they matter for regional economic development?

Successful clusters catalyse improvements in productivity, through increases in efficiency and the quality and differentiation of goods. They provide an environment conducive to new enterprise creation, and strengthen the interface between research and its application. This enables innovation as well as the rapid uptake and spread of new technologies. They are able to make co-ordinated input into policy processes, increasing their chances of effective outcomes, and crowd in forms of government support, facilitating optimal use of incentives and services. (Clarke; Potter & Miranda, Lindquist & Solvell).

"Not all clusters are successful, however. so, understanding the ingredients of success is crucial for policymaking and implementation in this area."

The development of the cluster concept

In 1990, Michael Porter captured the concept of industrial or business clusters in his book 'the competitiveness of nations', giving new focus to an existing literature exploring the role of inter-firm co-operation, including the phenomenon of industrial districts that had become prevalent in north and central Italy.

Certainly, the existence of what we now call clusters predates the term. In many contexts, agglomerations of connected firms have arisen as a natural outcome of economic development and market processes, from the development of the cotton industry in Manchester in the 1800s to the emergence of silicon Valley.

For Porter, a cluster's boundaries are not defined by the commonly used classifications of industrial sectors, but by the linkages and complementarities across industries and institutions that are most important to competition. While inter-firm co-operation is key, so also are the relationships between firms and a spectrum of institutions that include universities, research institutions, training institutions, banks and the public sector.

There are continued debates over how to define the cluster concept, over the impacts – and limitations – of clusters, over what works and what doesn't, and what this all means for policy: with an ever-growing mountain of research to inform evidence-based policy making. Meanwhile, cluster support policies have been widely adopted, including for example by multilateral institutions such as the European commission and the OECD, by national governments including Argentina, India and Sweden, by city governments such as Singapore, Grenoble and San Diego, and at more local levels as well.

The EU Cluster Observatory has identified over 2,000 clusters in Europe. The use of cluster support strategies looks set to continue as a central element of policy to promote competitiveness – with the potential to enable innovation often taking centre stage within the policy rationale for such approaches.

'While more open global markets and faster transportation and communication should be diminishing the role of location in competition, the economic map of the world is instead dominated by clusters: critical masses – in one place – of unusual competitive success in particular fields.'
Michael Porter

Industrial districts In Italy

In the 1970s and 1980s, Italy was the fastest growing economy in Europe, overtaking Britain and France in terms of gross national output. This growth, driven from northern and central Italy, was characterised by concentrations of dynamic small and medium-size firms, often family-owned and strongly interdependent.

Such firms were clustered around particular towns and developed distinctive forms of product specialisation; for example, textiles in Prato, furniture in Cascina, footwear in Vigevano, machine tooling in Bologna, and ceramic tiles in Sassuolo – to name a few.

In 1979, Giacomo Becattini applied the concept of 'industrial districts' to this phenomenon. He argued that the kinds of adaptability, use of cutting edge technology, productivity gains and innovation that characterised these areas required a change in the unit of analysis of firm development from a focus on individual firms to the study of clusters, in order to understand the dividend from inter-firm co-operation within a local economy.

'A characteristic of the industrial district is that it should be conceived as a social and economic whole. The success of the districts lies not just in the realm of the "economic". Broader social and institutional aspects are just as important.'
Pyke, Becattini and Sengenberger

Clusters and productivity

When firms and their suppliers are located in the same area, it lowers transaction costs for both of them. Economies of scale kick in, and direct communication allows a better match between demand and supply. Support and after-sales services are cheaper and more accessible. Reputational risk within the community limits the likelihood of either party renegeing on a deal.

A crucial feature of clusters is that specialist information accumulates within them; personal relationships and community ties create social capital, which makes such information more transferable. The local skills pool also becomes increasingly specialised, lowering search costs in recruitment. Investments in training impact on overall productivity even when employees move from one firm to another.

In effective clusters, forms of co-operation emerge in relation to activities such as marketing, attendance at trade fairs, and policy advocacy. Public incentives and investment can be directed in optimal ways, and private investment can also create public goods: for example, through the creation of testing laboratories, specialist training facilities, and support to research and development.

'Clusters affect competition in three ways: by increasing the productivity of companies based in the area; by driving the direction and pace of innovation, and by stimulating the formation of new businesses, which expand and strengthen the cluster itself.'

Michael Porter

Clusters and innovation

Along with co-operation, clusters are characterised by high levels of competitive pressure and constant benchmarking and comparison. The need for companies to differentiate themselves drives the search for new and better ways of doing things. When new technologies are adopted by one firm, others are quick to follow suit or lose competitive advantage.

Understanding the dynamics that drive enhanced innovation in clusters is the focus of much research, because this is often the outcome to which policymakers give priority. There is debate over the different circuits of cause and effect; some focus on how spatial proximity makes experimentation easier, the role of concentrations of specialist skills, and other spillovers that create a context for dynamism. Others focus on the nexus between firms, research institutions and universities, and how transitions from theory to product development and into markets can best be enabled.

Clusters and new business formation

In the context of a cluster, new suppliers can survive and thrive because ready access to a concentrated customer base lowers their risk and makes it easier for them to spot market opportunities. Entrepreneurs within the cluster can readily identify gaps in the market, or scope to spin out specialist products or services, and they may benefit from established relationships.

Financial institutions present in the area are more likely to develop specialist knowledge of trends in the cluster, raising the chances of access to finance for good business ideas informed by the logic of the cluster. The collective, in-depth knowledge of global markets that develops within in a cluster can give new enterprises a headstart, allowing them also to leverage off the market reputation of the cluster as a whole.

'Cluster development is often particularly vibrant at the intersection of clusters, where insights, skills and technologies from various fields merge, sparking innovation and new business.'

The role of cluster organisations

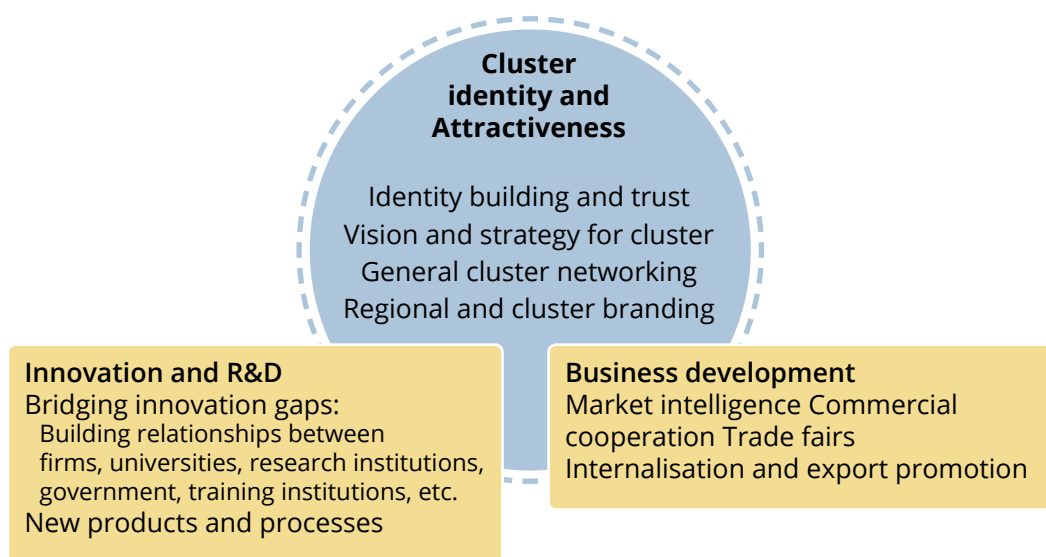


Figure 1 – Roles played by cluster organisations (Lindqvist and Solvell)

Many clusters start as informal networks, but the real gains from clusters require a more formal level of organisation to enable resource mobilisation, to provide leadership – as well as to structure accountability, to represent the interests of the cluster in diverse contexts, and to develop a common platform and agenda.

Cluster organisations take many forms and are funded through different mechanisms. At a governance level, effective cluster organisations need to include the participation of the most strategic roleplayers, with leadership from the private sector often being a critical success factor.

Role of the SPVs – the oil that lubricates the engine

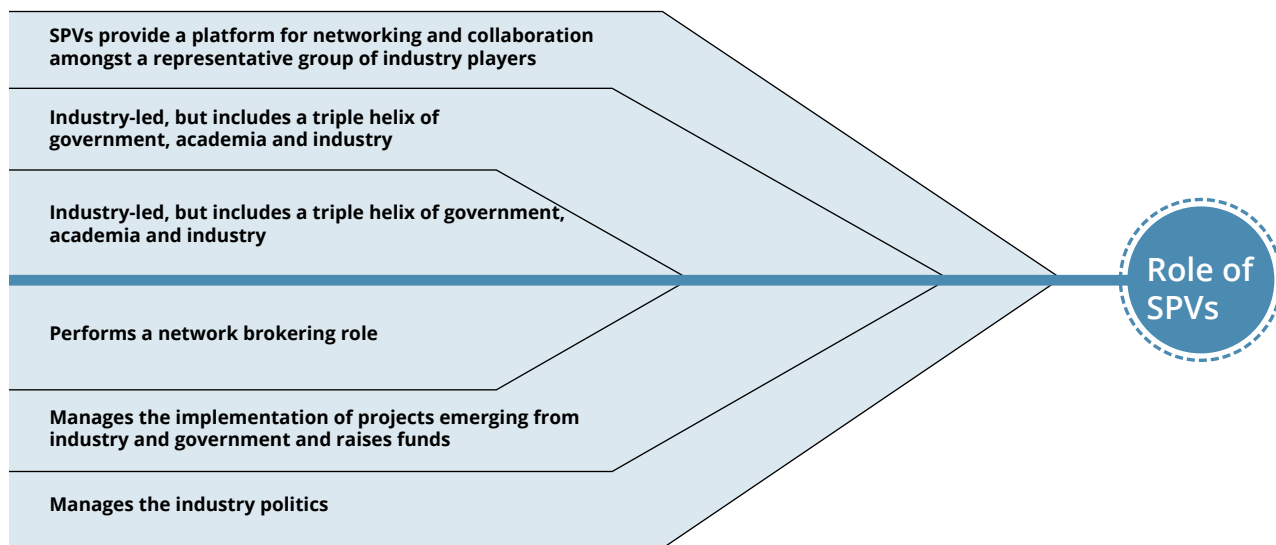


Figure 2 – Roles played by cluster organisations (Special Purpose Vehicles) in the Western Cape

Clusters in South Africa

In South Africa, cluster strategy has tended, in practice, to be subsumed within wider sectoral support policies, and the establishment of multi-stakeholder cluster organisations has been uneven.

In the Western cape, however, a concerted cluster strategy initiated over 15 years ago by the department for Economic development and tourism (DEDAT) has catalysed the establishment of a network of twelve cluster organisations, in clusters as diverse as business process outsourcing (BPO), oil and gas, the craft and design sector, the furniture industry, aquaculture and the fine foods sector. With support from DEDAT, these have been established as independent non-profit companies, or special Purpose Vehicles (SPVs), with membership structures.

Nigel Gwynne-Evans, DEDAT chief director responsible for cluster strategy, highlights the importance of the cluster initiatives as part of Provincial strategy:

'Without the cluster initiatives, as government we wouldn't be able to achieve a fraction of what the clusters do. Primarily this is because they are able to develop a very deep connection with their member firms, and really get to grips with the dynamics affecting the sector. This then assists us to hone our strategies, and strengthens our capacity to provide effective support.'

The Cape clothing and textile cluster: Enhancing productivity

This sector is strategic for employment – especially of women – but it has battled against the impacts of global competition. The cctc brings the cluster together with a common agenda of raising competitiveness to world-class standards. The cluster has had to tackle new ways

of organising production processes: learning from best practices around the world, from companies like Zara and H&M, to introduce 'quick response manufacturing.' It hasn't been easy, as CCTC's Chief Facilitator, Justin Barnes, explains:

'As you try to evolve and develop new business models, to create that difference in terms of quick response, it requires different organograms, different models and different skills sets. It's different locuses of control, different methodologies of operation. It's very, very difficult for firms to embrace the new because they have to unlearn and disengage from the old.'

In this process, a critical success factor has been CCTC'S ability to bring the producers and retailers together – not just around a table, but into joint processes through which quick response approaches have transitioned from research into full implementation, as a result of tests and pilots encompassing the entire regional value chain.

Greencape: Unblocking opportunities

Greencape aims to unblock opportunities in the green economy. as a new area, the focus has been on institutional and regulatory frameworks, as Operations Manager, Michael Mulcahy, explains:

'Very often, we find that the frustrations faced by one company are faced by a multitude of companies, who need someone to champion those issues.' Greencape has found a lot of 'uncontested' legal, policy and regulatory work that needed to be done. *'These things had to happen and somebody had to take responsibility.'*

An important success has been Greencape's role in co-ordinating universities, FEt colleges, the cape Peninsula university of technology and the department of Higher Education to secure collective agreement on the introduction – and funding – of renewable energy training.

The Western cape Furniture Initiative: opening new markets

The furniture cluster faces the dilemma that while its exports are worth R2.7 billion, South Africa imports r4.5 billion of furniture each year – 54% of which comes from china. The WcFI is placing a great deal of energy into providing the cluster with the market intelligence ad promotional support needed to change that. 'We are the eyes, ears and voice of the furniture industry, keeping the industry informed and up to date with what's happening locally and internationally,' says WCFI CWO Bernadette Isaacs.

Business Process Outsourcing: inter-regional competition?

The Western cape Business Process Outsourcing cluster has the largest share of the off-shore BPO market in South Africa. Certainly, it is good for the economy as a whole that it continues to grow. The existence of BPO strategies – and clusters – in each of South Africa's major cities does, however, beg the question of the role of inter-regional competition within one country in the development and differentiation of clusters like BPO that are all targeting global markets. Does the competition between clusters enhance competitiveness in the south african BPO sector as a whole – or add costs? Is there scope for greater gains from marketing

South Africa as one destination? What is the role of national policy in a context in which regions are competing?



Western Cape is a key location for off-shore BPO in South Africa comprising 60% of the market

Getting it right... From networks to relationships

In successful clusters, networks are taken to the next level to become relationships. These provide the basis for the strong co-operation required to bridge what have been defined as the 'innovation gaps' that exist when firms are not interacting effectively with each other or with relevant stakeholders and partners.

Each strategic relationship – such as between firms and research institutions - requires leadership on both sides of the table, and a clear agenda.

Leadership from within the 'triple helix'

Dynamic clusters rely on a 'triple helix' that includes the private sector, the public sector and the education and research community. Their roles are interdependent; no one player can go it alone in a cluster context – but private sector leadership seems to be a necessary condition for strong outcomes, with the public sector in a support role.

Spatial proximity and global value chains

In today's interconnected world with its global value chains, it may be assumed that spatial proximity matters less. Yet the evidence remains strong that geography matters; the OECD Innovation Policy Platform describes clusters as 'the local nodes in global networks'.

'Let us compare the regions of Europe and look at the data. The more a region is focused on a few clusters, the more innovation output is produced, and the higher is the regional economic prosperity. In fact, there are no regions with a dispersed industrial structure (employment across a large range of sectors) that produce high levels of innovation, and vice versa, there are no regions

with a high level of specialisation that produce low levels of innovation.’ (Lindqvist and Solvell)

From research to commercialisation

There is an ‘invisible barrier’ between industry and public research and education institutions that constrains labour mobility that promotes knowledge transfer and collaboration.’ (Porter and Miranda)

The literature on clusters places a high premium on their role in innovation, yet this remains one of the hardest outcomes to achieve. The transition from research to market-based product development continues to pose real difficulties: researchers rarely have the entrepreneurial skills to initiate new firms, and entrepreneurs don't always take research very seriously as a basis for taking business risk. Intellectual property issues are often a constraint.

Ability to attract – and develop – the right skills

Within any cluster, certain firms tend to take the lead in responding to opportunities, driving innovation and adopting new technology. A critical mass of skilled talent is needed within a cluster, to drive such processes. Attracting such skills is linked to issues such as good infrastructure, good services, and low levels of bureaucracy; but in addition, quality of life in the residential areas feeding the cluster can be a deal-breaker at the top end of this market.

The skills base of a cluster is not just about the top talent, however. Successful clusters invest in skills across the spectrum, engaging proactively with education and training providers to ensure the sector's needs are met, investing, for example, in new course development, in the establishment of dedicated training facilities, and in the provision of internships and placement opportunities to promote and career paths in the cluster.

How to select clusters?

Whether defined as sectors or clusters, the decision to develop a support strategy and to establish support organisations poses the same kinds of problems as ‘picking winners’ in industrial policy. Here, Nigel Gwynne-Evans, chief director in DEDAT Western Cape explains how they approached this issue:

‘The process of choosing which sectors to support starts with an overall understanding of the structure of the regional economy, of its leading sectors – and where new growth is emerging. Then, the most important discussions are with the private sector. The impetus for choice ultimately has to come from them. If a critical mass of players in a sector are not interested in working with government, there's really nothing you can do. And the process also needs time. In several cases, it took a year or two before we decided to go ahead. It also takes time to build the kind of strategic consensus and momentum that delivers results.’

Co-operation and ‘the cluster commons’

‘We have two fundamental, and complementary, types of exchange mechanisms in society: the market and the cluster commons. If the marketplace is the place where buyers and sellers meet, with competition as the key mechanism, the cluster commons is the place where cluster actors meet, with cooperation as the main mechanism. And whereas markets have

rapidly become more global in character, proximity is still fundamental to the functioning of the commons.’ (Orjan solvell and Mats Williams).

For Solvell and Williams, what differentiates dynamic this is typically a cluster organisation of some form. Clusters are ‘the conscious acts of building the cluster commons’, through which actors invest time and money to meet, exchange ideas, and initiate forms of co-operation across actor boundaries, in order to build common pool resources. The common pool resources necessary for effective clusters include the following:

- Sufficient levels of trust to allow for exchange of ideas and collaboration
- A common identity to motivate the construction and use of ‘the commons’
- A structure to facilitate meetings and networking - to build the paths and bridges lining the various actors. This is typically a cluster organisation of some form.
- Some level of continuous traffic, creating a basis of collaborative projects where new ideas can be tried, tested and developed: “taking the seeds of innovation to full fruition”.

...And getting it wrong...

Success always seems to include a few ingredients that are highly context specific, while the clusters that fail often share common features. as a result, there is more consensus on what not to do than how to get it right.

These are some of the pitfalls to avoid:

- Avoid what the OEcD refers to as ‘wishful thinking’ clusters that require massive investments and may become a ‘field of dreams’ with excellent physical infrastructure but no players.
- Build on what exists rather than trying to incentivise firms to relocate.
- Too much specialisation, or dependence on one firm in a cluster creates vulnerability to economic shocks.
- But by contrast, clusters that are defined too broadly without a clear focus may fail to develop a distinct identity .
- A cluster policy is not the same as a sector policy. Confusing the two can create barriers to thinking that limits the inter-sectoral collaboration so central to innovation.
- Top-down, government-lead implementation, without leadership or ownership from industry or other cluster roleplayers is a non-starter.
- Public sector support strategies need to develop an integrated development offering. Policy needs to be aligned across spheres, also.
- Lack of financial institutions ready and able to respond to business innovation
- Cluster organisations that become market players themselves – competing with roleplayers in the cluster. This usually arises when cluster organisations are under pressure to cover their costs by selling services.
- Complacency: clusters are not a panacea for warding off global competition. They just give firms a better chance of staying at the cutting edge. But clusters also go through lifecycles and are also vulnerable to the impacts of ‘disruptive technologies’ - if they’re not leading the disruption.

Clusters vs sectors: spot the difference

In the garment sector, crucial ingredients for competitiveness may include transport and logistics (the transport sector), the supply of buttons (plastics sector), specialist sewing machines plus servicing capabilities (electrical engineering sector) and the fashion design sector. A cluster strategy that just focuses on 'garment producers' risks limiting its focus – and missing the point of a cluster.



Policy issues and dilemmas

'One of the most effective public policies for seeding cluster development is a sound investment in building the research and skilled labour base in a region.' (OECD). Amongst the many challenges in education and vocational training – how can the interface between cluster needs and the focus of skills development be strengthened?

What institutional framework for cluster organisations works best and how should they be funded?

The literature is clear that public policy can rarely create a cluster if no existing momentum exists; at the same time, there's lots of evidence that clusters benefit from public support. So what is the best way to initiate public support for a particular cluster – and on what criteria?

The Department of Science and Technology has certainly focused on how to support innovation and the commercialisation of research ideas. What examples of best practice do we have? What lessons can be applied at the Provincial level? What incentives exist? The interface between universities, research institutions and innovation and product development still seems weak in South Africa. Who can drive change at this level?

So, cluster strategy and sector strategy are supposed to be different. Are they different, in the context of South African practice? How could and should they be different? How do they interact?

When is enough enough? The Western Cape has twelve cluster organisations: this certainly promotes diversification in a regional economy, with scope to create a dynamic interaction between clusters – but at what point might it spread the effort of a regional strategy too wide?

There is little in the literature on clusters that focuses on employment growth as a priority issue: it's all about competitiveness and innovation. And while yes, there can be a virtuous circle here, is there scope for South Africa to test and demonstrate a role for clusters in enhanced employment outcomes?

In relation to the development of sectoral policy, links between the public and private sector are uneven. Does the role of multi-stakeholder cluster organisations such as the SPV's in the Western Cape provide an institutional framework for closer collaboration on strategy – and perhaps better outcomes?

Answering these questions needs a more in-depth look at lessons and experiences from cluster strategies in South Africa and around the world. links and resources to explore these issues further are provided below.

References, resources and useful links

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Useful websites for more information:

www.clusterobservatory.eu www.oecd.org/innovation/policyplatform

<http://www.cluster-excellence.eu/> www.cluster-analysis.org