

# Section A: Cluster Strategy

Section A sets out approaches to developing a cluster strategy.

**Chapter 2** illustrates the type of factors that need to be considered when developing cluster strategies.

**Chapter 3** addresses measurement issues.

## 2. Developing cluster-based strategies

This section briefly introduces the touchstones of cluster strategy formulation. It explores the principle components for a strategy promoting cluster development.

### Key aspects to cluster strategies

The key aspects of cluster-based strategies are illustrated in the diagram below and consist of:

1. **Mobilisation:** Building interest and participation.
2. **Diagnosis:** Identifying and defining the cluster then identifying the strengths and weaknesses of the cluster.
3. **Collaborative Strategy:** Identifying the actions required to promote the development of the cluster,

in association with the main stakeholders in the cluster.

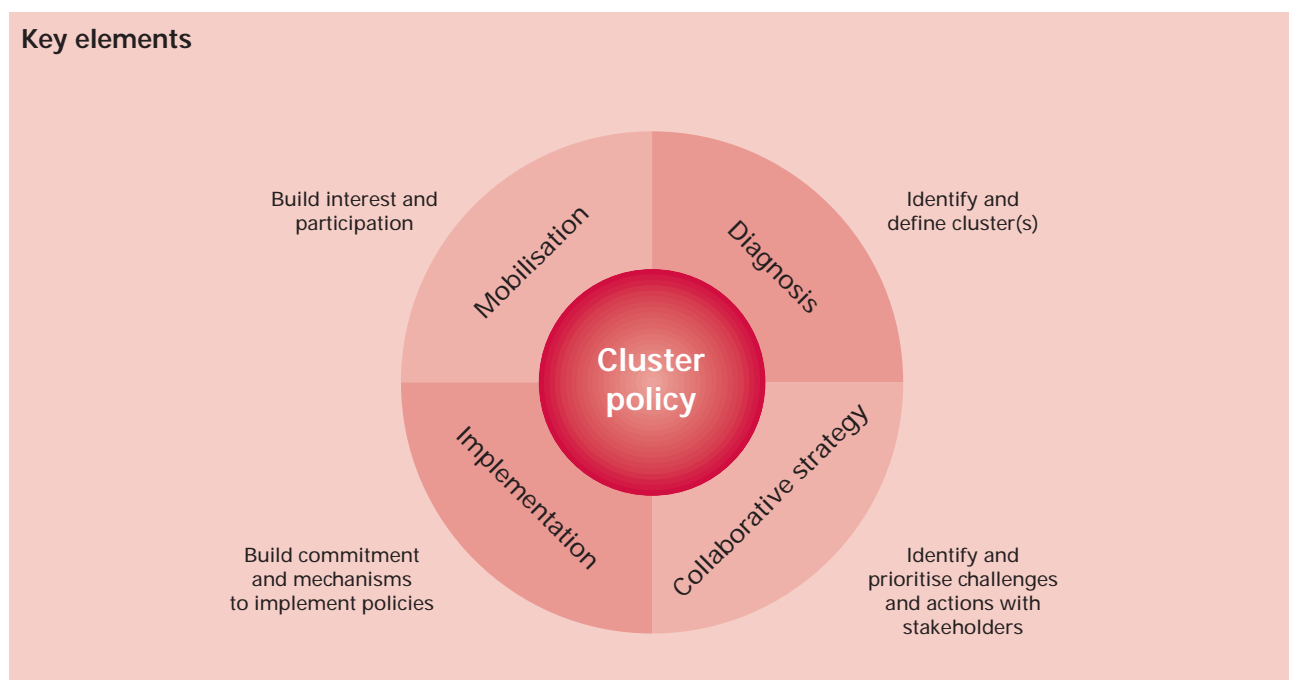
4. **Implementation:** Implementing those actions.

Once a cluster strategy has begun to be implemented a fifth aspect comes into play:

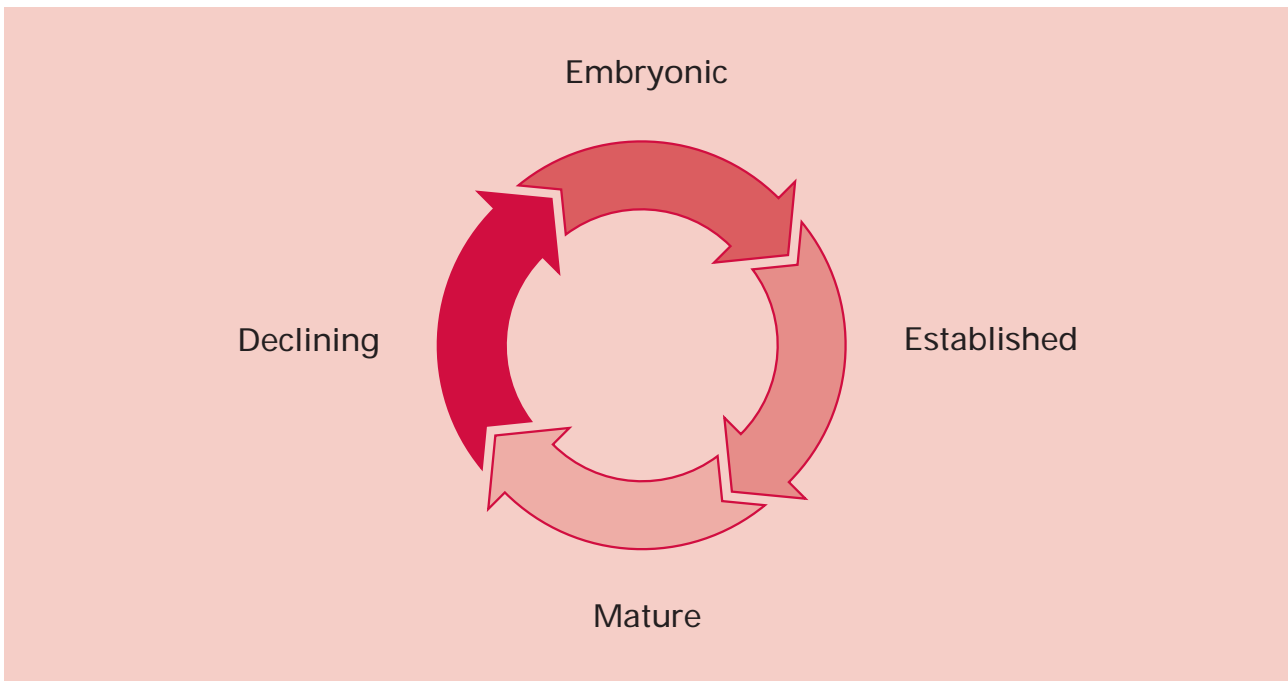
**Assessment:** Monitoring and evaluating the results and reviewing the content of the strategy.

It is important to remember that these steps do not have to be sequential – the

**Figure 2: Developing a strategy for cluster development**



**Figure 3: The stages of the cluster lifecycle**



first two aspects, of mobilisation and diagnosis, might easily be reversed for instance. The different steps are also often highly iterative in nature. The crucial element is to develop an integrated approach in collaboration with the firms and institutions involved in the cluster. Through discussions and joint working with those involved, internal strengths and weaknesses can be identified and external threats and opportunities highlighted. The cluster strategy can then identify where interventions are appropriate and how these will be targeted.

**“All interventions are inter-linked. There is a need for a cohesive package of support, the nature of which needs to be governed by demand. There also needs to be an emphasis on coherent policy intervention”**

(Practitioner Observation, 2002)

### **Clusters have a recognisable lifecycle**

Clusters are dynamic and have a recognisable life cycle. The interventions that are appropriate at an early stage in the lifecycle of a cluster are likely to differ from those appropriate at later stages. The lifecycle is often described in different ways but can be represented simply as a cyclical process containing 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.

Moving between different stages may be simply a function of the industry life cycle reflecting the product cycle for a particular cluster. As the technology and product base of the cluster matures so innovation is required to maintain successful performance. In some cases a shift may occur, to a new form of working or into new market areas, to prevent a cluster's decline and so establish the cycle again. In practice clusters are likely to develop, to bud and to mutate in more complex ways than the simplistic representation presented here.

**“Industrial regions need some kind of boost or intervention, they are like organisms that have living and dead parts and go through an evolutionary process.”**

(Practitioner Observation, 2002)

Recent research suggests that different interventions are likely to be appropriate at different stages of the cluster lifecycle. Throughout the guide we have drawn attention to particular actions that may be appropriate at different stages of the cluster lifecycle. In embryonic clusters government and intermediary brokers can be important in encouraging collaboration and acting as information brokers, a role that may not be needed at a later stage. Encouraging openness and innovation in mature or declining clusters is essential to avoid the danger of regional lock-in. Not only does this help to maintain the competitiveness of traditional clusters but is also the starting point for promoting the development of new industries.

**“Put simply, our argument is that the processes of starting and sustaining a cluster have different economics. Starting a cluster involves first, building the economic fundamentals for an industry or technology, and second, finding the spark of entrepreneurship to get it going. The forces underlying the emergence of a cluster differ from those needed to insure its continued growth. While increasing returns and external effects can keep a cluster going, the initial spark is more difficult to obtain and more risky to pursue.**

(Bresnahan et al, 2002)

Other evidence suggests that certain types of intervention remain appropriate throughout the life cycle of a cluster but the intensity required will change as will the manner in which it is delivered, taking into account the context of the cluster and the range of institutions present.

## Developing cluster strategy

Cluster practitioners will need to take into account the nature of the cluster, its stage of development and the context in which it is set. This is achieved through good diagnosis and working with cluster firms and institutions. It is essential that in developing cluster strategies practitioners take into account of the location specific characteristics of the clusters that they are working with.

In developing cluster strategies and actions practitioners should be creative and be wary of simply transplanting lessons from other contexts without regard for their own circumstances. Facilitating cluster based

firms and organisations to instigate their own actions may also prove to be as effective as direct intervention. Although the tools are familiar the precise shape and weight attached to each will vary.

**“Practitioners should not pursue ‘one size fits all’ policies.”**

(D’Oetreppe, 2003)

**“Firms form a critical link with each other, to the extent that for a successful cluster to exist, these players will have to be in some form of working partnership.”**

(Practitioner Observation, 2002)

Cluster strategies should also distinguish between interventions that are cluster-specific and those that are not, but which would contribute to the development of the cluster. For example, infrastructure improvements are rarely cluster specific. In contrast, interventions supporting access to finance might be highly specific to a particular cluster.

Cluster development can be facilitated through integrated strategies. A good example is that of Baden-Württemberg, set out below. Overall, the evidence suggests that policy interventions that are well-designed can be an effective support to the development of successful clusters.

### **Profile 1<sup>2</sup>: Integrated approaches to cluster development**

Since the ‘Innovation offensive’ (or innovation push) in 1992 Baden-Württemberg has sought to create the

infrastructure to encourage clusters in new technology industries (especially in the fields of biotechnology, telemedia and health). This has involved a number of policies implemented by the Land in an attempt to create the necessary institutional thickness for cluster development. This has included:

- The promotion of new technology areas.
- The setting up of biotechnology parks and agencies, software centres, traffic infrastructure technologies, data highways, and science cities (Wissenschaftsstädte).
- The establishment of technology transfer centres (in partnership with local authorities).
- Technology centres’ support of business start-ups.
- The establishment of ‘New Business Associations’ aimed at young entrepreneurs.
- Technology aid schemes to support small firms (less than 20 employees).
- Joint research projects between SMEs, technology transfer centres and other firms.

The success of the Baden-Württemberg clusters has been ascribed to, among other things:

- Vertical linkages along the value chain.
- High levels of regional sourcing.
- Strong supplier linkages between local SMEs and large companies.
- Flexible, high-quality production, which allowed firms to avoid price-based competition.
- A political culture of pragmatism and consensus.

- Widespread vocational training.
- The existence of technological aid schemes to subsidise product development.
- Publicly provided low-interest loans to SMEs and start-ups.
- The existence of technology centres, and usually situated next to a Fachhochschule.
- Wide distribution of innovation consultancy offices run by the Chambers of Commerce.
- Baden-Württemberg's positive image as a region for reliability, quality and innovation.

## Summary

The range of potential interventions is extensive, as this guide will demonstrate, but not all will be appropriate to any single cluster, nor to any single region. Appropriate interventions will also change over time. Strategies, and so interventions, must be dynamic and focused on need. On balance, cluster managers should also be cautious about intervening too heavily, the market should lead and interventions should be designed to facilitate the operation of market forces.

**“Policy intervention should be minimal and only to protect the growth of the cluster, the market should be the driving force.”**

(Practitioner Observation, 2002)

## 3. Measuring Cluster Development

The previous section outlined the importance of developing responsive cluster strategies. This section stresses the importance of measuring cluster development.

Having good quantitative feedback is a vital part of the strategy review process, as well as informing the development of the strategy itself. However, from the work undertaken, and reported in the accompanying Evidence Paper, there is little evidence of the use of consistent indicators by which to measure the development of clusters. This section sets out an approach to indicator selection. It begins by looking at the use of indicators as a decision support tool and then considers a potential monitoring framework.

### Why do we measure clusters?

It is clear that establishing a set of metrics that are capable of tracking the performance of a cluster over time and space is important for:

- Assessing the impact of cluster measures; and
- Benchmarking performance.

Understanding the different elements of clusters and their respective performance is an important step in identifying where clusters might be strong or weak and where subsequent intervention might be appropriate. This involves quantitative and qualitative analysis. Quantitative analysis might include statistical or numerical analysis on variables such as employment or output. Qualitative analysis might include discussion with businesses in the

cluster over the innovative content of projects, or an assessment of the 'softer' dimensions of the cluster.

### Measuring the success of interventions

Policy makers will want to know whether interventions adopted to improve cluster performance have achieved their intended goals. They will also want to know why interventions have not been successful. This can help to identify whether a particular policy approach is effective, whether it is efficient and whether it is appropriate. Measuring success can be undertaken in an absolute sense, i.e. has the intervention achieved the aims it has set itself, but might also be considered relative to other possible actions, or similar approaches adopted in other locations. Regular monitoring will also help to ensure that the intervention is being implemented as planned and having the intended effects, acting as an early warning of any potential difficulties.

Measuring the success of different interventions contributes to the monitoring and evaluation of cluster development policies as a whole. It is important to understand whether success or failure is due to the interventions adopted or to outside factors beyond the control of policy makers.

### Box 1: Measurement aims:

Cluster measurement may seek to identify three key things:

**The appropriateness of interventions:** assessing whether the policy or intervention is relevant with regard to the technical, social or economic problems it is meant to solve.

**The effectiveness of interventions:** the fact that expected effects have been obtained and that objectives have been achieved. Calculated by relating an output, result or impact indicator to a quantified objective.

**The efficiency of interventions:** the fact that the effects were obtained at reasonable cost. An efficiency indicator is usually obtained by dividing the budgetary inputs by the quantity of effects obtained.

### What should be measured?

Ideally a measurement programme should capture both the effects of the interventions being undertaken and the development of the cluster overall. For the latter it should take into consideration the different aspects of cluster development and seek to understand how each element is developing over time.

Clusters are multi-faceted and measurement should recognise this. There is little point in measuring one or two dimensions of a cluster, as this will miss important aspects of performance. In practice those aspects that are cited as the most important in cluster development, such as networks and the development of

social capital, are currently not being measured on a regular or consistent basis. Most measures focus on the economic performance of the cluster. This captures the outcomes but can not provide information on what is happening to the drivers of cluster success.

The different dimensions of clusters can be broadly classified under one of four headings which broadly encapsulate the following three 'drivers':

- Networks and partnerships – the extent of social capital.
- Innovation and R&D – the extent of innovation and R&D capacity.
- Skills – the availability and quality of the workforce within the cluster.
- Economy and enterprise – the level of employment, number of firms and their performance and the outcomes.

As a principle the success of a particular intervention should be assessed on the basis of what it is intended to achieve, and assess how this contributes to the overall performance of the cluster itself. Measuring the performance of clusters is based upon improvements in the performance of the constituent parts of the cluster, and establishing the effect that cluster policies have had upon this. It is common practice to seek to:

- identify the outcomes of any intervention;
- the results achieved by this; and potentially,
- the impact that this has had on the development of the cluster as a whole.

When deciding which indicators to use ensuring their relevance to the action in

hand is not the only consideration. We should also consider whether they have a wider relevance. Indicators that are unique to a particular cluster or context will not always be useful in trying to measure relative performance compared to similar clusters elsewhere in the UK or abroad. Examples of unique indicators can include the absolute increase in research funds received by an individual university. A better measure might be to measure the overall level of research expenditure in the cluster as a whole.

The science of measuring clusters remains in its infancy. So it will not be possible to definitively measure the performance of a particular cluster. However, it is possible to aim for is an understanding of the results of particular interventions on the identified cluster and its component firms.

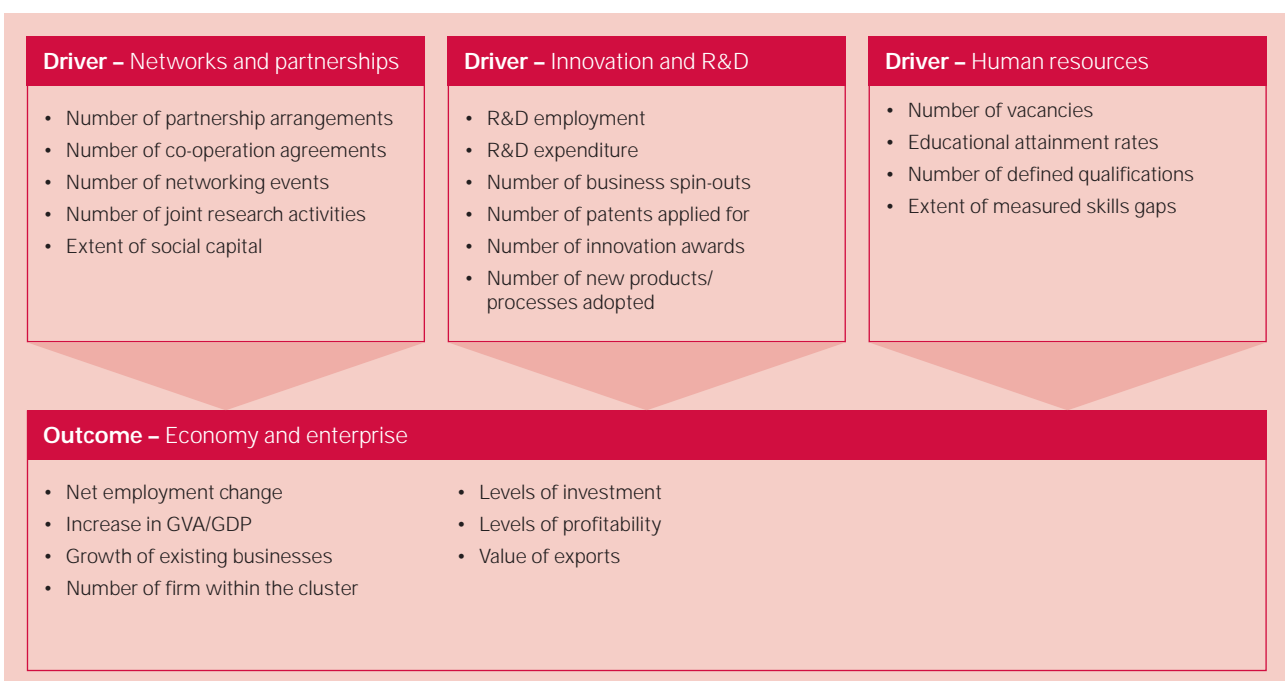
## What types of indicators might we use?

The choice of what indicators to use will depend on:

- The nature of the cluster;
- The nature of the interventions adopted; and
- The overall policy objective.

We have already suggested that when measuring the development of clusters we should distinguish between the different dimensions of clusters. The choice of indicators should reflect this approach. Some possible indicators of success are suggested in Figure 4 below. These are neither definitive nor exhaustive but provide an illustration of potential indicators by which the development of clusters can be measured.

**Figure 4: An illustrative monitoring framework**



## Where does the information come from?

In general, there are three potential sources of information which might be drawn on to assess the development of clusters:

- Official statistical data sets.
- Commissioned survey work.
- Qualitative understanding based on discussions with cluster members.

Each of these have their own strengths and weaknesses and choosing appropriate indicators might be influenced by what information can be readily accessed. The measurement of some indicators is complicated by the manner in which statistics are collected. The pros and cons of different measures should be carefully assessed before indicators are ascribed to particular actions.

Overall a mix of the three sources referred to above will provide the fullest understanding of the development of clusters and the effects that this is having on the performance of a wider economy. There will of course be a trade off between the resources expended and the depth of understanding achieved.

There is some albeit limited evidence that practitioners are using more sophisticated methods of cluster development such as business profiling (an analysis of companies by product), supply chain analysis and input/output analysis. Where this latter analysis can be refined down to the regional level it can provide key data on linkages between sectors.

## Over what timescale should measurement take place and targets be set?

Clusters take a long time to develop; most successful clusters have a history stretching back several decades. In deciding upon an appropriate monitoring framework it is important that we ensure that the indicator mix identified is capable of providing information on a regular basis to assist understanding of progress towards more long-term targets. Ideally, a monitoring framework will set out a number of indicators capable of being measured every year, coupled with some to be measured only every few years. Different aspects of cluster development will also require different monitoring schedules and this can be built into the framework just described. For example interventions supporting innovation may take some years to come to fruition, whilst initial partnership building initiatives might have a shorter timeframe.

A framework that identified indicators and targets capable of being monitored and reviewed on 1 year, 2 year, 5 year and 10 year cycles can provide an informative mix that is responsive to change. This will also allow for different sets of data to be collected depended upon statistical reporting cycles and the frequency with which surveys can be undertaken.

## Establishing targets

Establishing targets for particular indicators is an important aspect of cluster development initiatives. It is important not only to know the direction we wish to head, how far we have to go and how long this is likely to take us.

Targets should be:

- **specific** to the initiative in hand;
- **measurable** using identified data sets;
- **achievable** by the initiative in question with the resources available;
- **realistic**, given the existing state of play; and
- **timebound**, in that there is an agreed data by which they will be achieved.

## Learning from experience

The aim of measuring cluster development is so that we can learn from our experience in order to improve the actions that we are taking. Unsuccessful actions should be ended, successful actions continued, replicated where relevant or discontinued where no longer appropriate. New actions should be adopted where information suggests that weaknesses are emerging or opportunities present and things should be left well alone where no actions are needed.

Monitoring and evaluation is part of the policy cycle and information gained from measuring cluster development should be fed back into the policy process to inform future policy development. This requirement may itself influence the timeframe adopted for the monitoring of cluster development.