

Yorkshire Forward and Economic Development

Learning Legacy Module 9:

Sectors and Clusters



The Region's
Development Agency

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Executive Summary

This module concerns support for sector and cluster development, whether within Yorkshire and Humber or elsewhere. It reflects on Yorkshire Forward interventions in this sphere and the overall outcomes and impact made.

After a brief period when a somewhat fragmented approach to key sectors was in place in the late 1990s, cluster policy was introduced to regions with some gusto from around 2001. Yorkshire Forward identified five regional clusters in 'key growth sectors' and invested major resources and effort in these. Between 2004 and 2006, the approach was reviewed, with two new clusters added whilst support for two others was phased out. As the initial fervour around clusters faded, the approach was again reviewed and a more sectoral approach was reintroduced. The five clusters that went forward from that point became:

- Advanced Engineering and Metals
- Digital Industries
- Food & Drink (including agriculture)
- Environmental Technologies
- Healthcare

A range of case studies are presented that point to some of the successes and the lessons learned from the different approaches to supporting clusters and growth sectors. Landmark projects included the Advanced Manufacturing Park in South Yorkshire which became emblematic of the success a visionary, intensive and long term clusters approach could bring, and more widely what a development agency could achieve with good partnership.

The outcomes of Yorkshire Forward interventions are assessed against the performance of the sectors as a whole. This concludes that while individual projects and programmes often produced good results, the extent to which they impacted on the overall performance of the sectors and clusters they were targeting varied substantially.

Throughout the document eight key lessons emerge which may be of particular use to those engaged in the policy area in the future. These are:

- a) Success can be impressive but is far from guaranteed – clear rationale and informed judgement are critical.** Some of the clusters Yorkshire Forward identified saw impressive growth but in others impact was disappointing. Clarity about the nature and scale of the economic outcomes that are sought is crucial, together with good judgement about what clusters or sectors and interventions will best deliver these results.
- b) Utilise economic evidence.** Selecting sectors with growth potential that will benefit from intensive support requires an understanding of the economy, the sectors within it and the drivers of change. Evidence needs to be not only developed, but properly questioned and combined with a strategic rationale and transparent options analysis. Building in evaluation activity and collecting accurate outputs data from the start helps to assess progress, aid prioritisation and learn from experience.
- c) Investment has a greater impact when it is part of a strategy or programme of activity rather than an isolated project.** Sector or cluster development is carried out because of wide ranging issues or opportunities and fragmented projects rarely address these sufficiently. The Food and Drink Investment Programme was a good example of how projects that are developed as part of a strategy can have bigger impact. This was a lesson learnt from cluster development and was integrated into the sector strategies.

- d) **Build sustainability into the business model from the outset.** Initial cluster interventions were intended to be medium term, but it proved difficult to exit from support activity once it had been started. The same goes for supporting sector networks, where some can become sustainable and have a lasting impact whilst others do not. Sustainability needs to be factored into project development from the outset.
- e) **Develop flagship and even those projects with an element of risk.** Major investments in bold and high profile initiatives, while involving some risks, provide the opportunity to significantly increase the scale and performance of a sector, potentially in a transformational way. Critical mass, reputation, and wide ranging support are important. The impact of smaller projects can get lost given the scale of sectors at regional level. Larger and more ambitious projects supporting a particular sector can provide a unique selling point, like the Advanced Manufacturing Park (AMP), which continues to be a focus for AEM companies.
- f) **An integrated approach that addresses issues and opportunities together** works best. It is important to be able to respond to needs flexibly, whether this is about access to finance, potential for spin out companies from HE, or the opportunities at the crossover between different sectors. A major strength of the clusters approach is the value of combining and linking different types of intervention within a sector.
- g) **Employing staff with experience in the relevant sector pays dividends.** It is important to understand businesses specific needs, and the issues affecting them. Utilising staff with knowledge in the respective businesses sectors gave Yorkshire Forward's projects more legitimacy because they had knowledge of the industry.
- h) Making a cluster approach work requires **a flexible, specialised approach focused on the right geography.** The regional scale was in reality too wide for most clusters, which are more usually concentrated in a more localised area. It is important to work with the real geography of business whatever that is, and to build bridges and new partnerships if required. Working with more specialised clusters/sub sectors can lead to a more intensive, focused approach. In some instances, a wider area umbrella concept (e.g. '*Deliciously Yorkshire*') can support more localised and specialised cluster activity.
- i) **Constructive partnership counts.** The development of the initial clusters was somewhat top down in nature. Whilst clarity of vision and business support for them was an asset, the way that they were developed could sideline partners, in local government especially, who felt clusters were done to them not with them. This meant that valid points about local contexts could be missed, and it was counterproductive to the sustainability of clusters policy. A more open, engaged and even approach to partnership may have taken longer and resulted in more compromise, but would have probably worked better long term. That learning was taken on board in later cluster and sector development work in which approaches were significantly adapted.
- j) **Bandwagons come...and bandwagons go.** Clusters were a prime example of how a policy that is viewed as the next big thing can be exaggerated, rushed into and blown out of proportion. In the case of clusters, the policy was nationally led then quickly cascaded down to and taken on by regions. Once the gloss has faded, ardent support can switch quickly to wholesale dismissal. Clusters theory did have merits – especially about integration of support and supply chains, and nurturing industrial concentrations where they genuinely occurred. But these benefits risk being lost because of the way it was forced too far and too fast early on. Being suitably independent, questioning and focused on evidence helps in taking measured decisions on priorities.

1. Task and Purpose:

'Sector development' is centre stage in economic development because it has such a direct relationship with the size and nature of the economy overall. In many ways, the economy is the sectors it is made of: productivity, economic growth, employment and future prospects are all determined by the mix of sectors and their relative size and performance.

When Yorkshire Forward was established at the end of the 1990s, the Yorkshire and Humber economy had just been through major restructuring and in many cases traumatic decline. Sectors that had been mainstays of the local or wider economies had been downsized, in some cases virtually wiped out, or become locked into what seemed like terminal decline. This formed the backdrop to the first Regional Economic Strategy (2000-2010):

*"We have experienced painful economic upheaval over the last two decades, such as the run-down of the coal industry, a decline in heavy engineering, textiles and fishing, and the restructuring of the steel industry. The State of the Region report produced in January 1999 shows how this upheaval has fed directly through into statistics measuring overall competitiveness compared with other regions."*¹

It was clear that new growth was needed to replace what had been lost, and that this would be fuelled by different and sometime new sectors. Identifying these sectors and helping them to grow was at the heart of the Regional Development Agencies' (RDA's) task.

Industrial structure and the nature and extent of the task varied around the region. The impact of decline on South Yorkshire had been particularly striking, and evidence from the state of the region report showed GDP per head fell sharply from over 92% to around 75% of the European average between 1981 and 1995. This resulted in the area being accorded European Objective One funding status. GDP per head was higher but still below national average in the sub regions of West Yorkshire and the Humber and each contained concentrations of deprivation. North Yorkshire fared better but still had challenges of its own.

The evidence cited problems of underproduction and underemployment in the regional economy, linked to its economic structure. Around a fifth of employment was generated by the public sector, providing important jobs and services, but under-performing in terms of GVA. In addition to this the top ten industries in terms of employment and output did not contain any of the industrial sectors that were considered to contribute high added value to the economy².

Forecasts for the regional economy up to 2010 predicted jobless growth whereby economic output was expected to rise by more than a third, while the number of full-time equivalent jobs would remain unchanged. The evidence did show manufacturing to be a well performing sector and the focus of the sectors and clusters programme was therefore to drive the areas of the economy that performed well, as a stimulus for economic growth across the region.

Subtle but important distinctions about the theory and language of economic development – specifically about the difference between 'sector' and 'cluster' based approaches were starting to emerge around the time of the writing the first Regional Economic Strategy (RES), but didn't really take hold strongly until the years just after their publication.

¹ The Regional Economic Strategy for Yorkshire and the Humber 2000-2010, Yorkshire Forward, 2000,

² Top Ten Industries, Business Strategies Limited, 1999

A sector is a distinct subset of the economy in which businesses share similar characteristics e.g. financial services. A cluster is also focused on a particular specialism but focuses further on the supply chain, the interconnected factors that affect success and locational concentrations, rather than just the characteristics of the business. The DTI defined clusters in relation to the research by academic Michael Porter, whose work was pivotal to cluster theory and its direction and uptake in the UK:

“Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, and trade associations) in particular fields that compete but also co-operate”³

All the three RESs produced by Yorkshire Forward contained strong content on sectors/clusters. Objective 1 of the first RES was to *“grow the region’s businesses in key economic sectors to create a radical improvement in their competitiveness and contribution to the region’s wealth”*. It also stated there would be *“an early emphasis on natural ‘clustering’ of businesses”*. In the second RES (2003-2012) the focus had moved clearly to clusters, whilst by the final RES (2006-2015) it was back to a mix of sectors and clusters.

Section 2 (Approaches Adopted) will touch on changes of approach to do with clusters or sectoral models and choices within them further. But the key point is that work to grow sectors and clusters was central to economic development at regional, national and local level throughout the life of Yorkshire Forward. It was seen as critical to achieving growth, creating employment and closing the productivity gap to more prosperous regions. Success in this would be both about stimulating growth (or arresting decline) in individual sectors, but also about how these added up to positive impacts in the regional economy overall.

³ On Competition, Michael Porter, 1998

2. Approaches Adopted

Part 1: Cluster development 1999-2007

Approaches to economic development reflect the time they were written, not just the evidence in play and the task ahead. That is particularly pertinent to work on 'sector' and 'cluster' development. This now seems like a technical detail, one that is arguably as much about the fickleness of economic fashion as actual substance. But it was a live issue during the time of most of Yorkshire Forward's work on sectors/clusters, and one which shaped activity.

Cluster theory starting to emerge as a favoured approach in the UK around about the start of the Millennium. The first RES for Yorkshire and Humber just predated this, and said little about 'clusters'. Its approach to sectors was somewhat mixed. The first Objective of the RES was framed in terms of growing businesses in 'key economic sectors', but its deliverables tended to be more general. They did not include a mechanism or action point to identify the key sectors, and the Objective's deliverables (on business support, exports and e-business) did not stipulate any particular focus on sectors.

Elsewhere in the strategy, the Objective on inward investment did specify 'targeting key sectors', whilst that on skills made a reference to developing 'key sector skills plans'. What was not so clear was whether the different parts of the strategy – led in effect by different specialisms/professions or agencies – were talking about the same sectors as each other. As Yorkshire Forward started to establish itself properly as a single agency and to formulate its priorities for investment, the need for more joining up and coherence became clear. Against that backdrop, the adoption of a clusters approach appeared an ideal tonic.

Like other RDAs, Yorkshire Forward's uptake of a clusters approach was heavily influenced by the then Department of Trade and Industry (DTI), which was promoting the use of cluster theory to drive economic strategy and to deliver the required growth in key economic sectors. Initially, when the Agency started to develop a clusters policy it took a fairly pragmatic view:

*"Yorkshire Forward does not propose to take an unduly strict definition of "sector" or "cluster", but has sought to identify projects with high value-added and growth potential, that map to the key sectoral priorities established in the RES...The clusters dimension is further enhanced by focusing on location specific projects that bring together a wide range of partners; including businesses, universities, Government and support agencies."*⁴

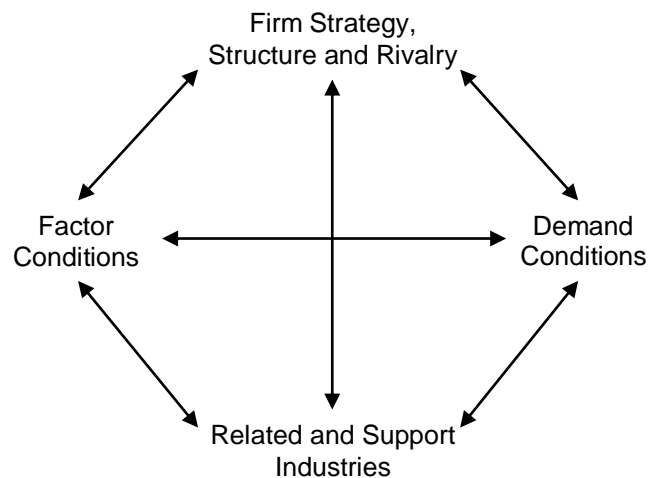
We will see that clusters policy in the region experienced something of a rise and a fall. The prominence and 'academic purity' of the clusters approach taken grew until around 2004 before a more pragmatic view, and one more reflective of partner preferences, again took hold.

The idea of specialisms benefiting a particular geographic area was not a new idea, and was first suggested by Alfred Marshall in the 1890s after he examined the structure of the metals industry in Sheffield and other centres of manufacturing in the UK. In the 1980s Michael Porter at Harvard University picked up the same idea that specialism can be an advantage, but he referred to the specialism areas as 'clusters'. He developed the 'Diamond Model' and his theory utilised dynamic examples such as Silicon Valley in California, becoming a popular approach to economic development across America and Europe that governments were keen to replicate.

⁴ Clusters Business Plan, Yorkshire Forward, 2000

Clusters theory in essence had two main strands. One concerned the geographic concentrations of a sector. The other stressed holistic and integrated interventions – across the supply chain and bringing together all the aspects that would affect a sector’s success – including skills, access to finance, public sector and HE support and expertise, etc.

Porter’s Diamond Model for the Competitiveness Advantage of Nations:



In the late 1990s the DTI commissioned a study investigating clusters in the UK: ‘Business Clusters in the UK, a first assessment’. Published in 2001, it set out the potential for utilising cluster theory as a method of supporting economic growth. The RDA network was establishing itself in parallel to this development and was seen as an instrument for delivering cluster theory on a regional scale:

“DTI steered RDAs towards clusters in their brief. It wasn’t necessarily written down but there was a clear understanding that RDAs should adopt cluster based policy and every RDA did.”⁵

A member of the sectors and clusters team at Yorkshire Forward described the decision to focus on clusters as a response to what was happening elsewhere in economic development:

“Clustering was quite a big thing at the time: the DTI and Europe were looking at how businesses in the whole supply chain were located in a relatively small area and because of their interaction and collaboration that activity tended to grow faster. So the aim was to try and develop our own clusters and our own areas of activity around a particular technology but through the whole supply chain.”⁶

In their 2001 paper ‘Deconstructing Clusters: Chaotic Concept or Policy Panacea?’ Rob Martin and Peter Sunley were more frank about their judgement of governments’ rush to adopt cluster strategies: *“Clusters, it seems, have become a world-wide fad, a sort of academic and policy fashion item.”*

In hindsight, the idea that clusters were a fashionable economic development tool seems at least partially accurate considering that the economic evidence for cluster development in the UK is far from overwhelming. The DTI report on clusters found that the UK was not actually strongly clustered. 154 clusters were identified through cluster mapping but the report questioned whether these were real clusters or just industrial concentrations. The report emphasised that this report was a first assessment stating:

⁵ Yorkshire Futures Programme Manager, Interview with Kate Parry, February 2011

⁶ Senior Manager Sectors, Interview with Kate Parry, January 2011

“It would not be appropriate to identify all 154 cases as targets for cluster development policies. However, the map does represent a useful starting point for more detailed analysis, which should include further testing for the presence of - or potential for - the linkages and knowledge flows that would be expected to be found in a fully functioning Porter-type cluster.”

This report was the starting point of Yorkshire Forward investment in sector and cluster initiatives and influenced the organisation’s adoption of cluster policy. It was hoped this policy would drive forward investment in industries of significant economic value to the region resulting in increased competitiveness across the region.

Yorkshire Forward built on the research completed by the DTI, analysing the economy to identify potential clusters in Yorkshire and Humber. This research concluded there were a number of industries that provided significant economic value to the region. These were Agriculture and Food (processing), Chemicals, Construction & Construction products, Financial Services, Furniture Manufacture, Leisure Software, Medical/Surgical Equipment, Metals (steel processing & products), Web Design/Internet Services and Woollens.⁸

The RES (2003-2012) detailed Yorkshire Forward’s aim for the cluster programme was to design a holistic approach which could promote sustainable economic growth across the region, incorporating skills, business support, investment, sites and premises, supply chain development, social inclusion and sustainable development. In practice, some elements were more central than others, with social and environment elements more secondary than others. Its ambition for the regional economy was to develop diverse and knowledge-based industries, extending current strengths in services and consolidating the region’s manufacturing tradition. Financial Services and Manufacturing were recognised as strengths the region already had, with high-growth sectors, such as Environmental Technologies identified as opportunities that could be capitalised upon.

It was recognised from the beginning that certain sectors would benefit from more concentration of resources than others. The first RES stated that:

“This Strategy advocates a concentration of effort on a limited number of priorities in specific areas and sectors over the ten-year period. This does not, of course, mean that work stops in those areas and sectors that are not early priorities. This long-term approach will allow those areas to grow and prepare for the next two-year phase of priorities to be set. However, the focus of discretionary resources will need to be on the priority actions.”⁹

Yorkshire Forward’s Business Directorate completed analysis on the potential of the sectors that were already established and significant in the region. Five clusters were identified for targeting as a result and included in the by now reviewed RES, launched in 2003¹⁰:

- Advanced Engineering and Metals
- Bioscience
- Chemicals
- Digital Industries
- Food & Drink (including agriculture)

⁷ Business Clusters in the UK – a First Assessment, DTI, 2001

⁸ Business Clusters in the UK: A first Assessment, DTI, 2001

⁹ The Regional Economic Strategy for Yorkshire and the Humber 2000-2010, Yorkshire Forward, 2000

¹⁰ The Regional Economic Strategy for Yorkshire and the Humber 2003-2012, Yorkshire Forward, 2003

The rationale presented for these concerned their growth and employment potential, and significance to the future of the region's economy. The strategic and employment importance of other sectors, such as Financial Services, Health, Textiles, Construction, Tourism and Environmental Technologies were also recognised; as was the role certain sectors played within specific sub-regions. Hence some flexibility was built into the approach as set out. This stated *"In such a fast changing and developing global market, we shall need to build in flexibility over the next ten years to allow us to change the priority sectors."*

However, the selection of clusters was not straightforward and was a matter of debate and argument across the region, especially as it was seen as a decision that would trigger significant resource allocations. Even within Yorkshire Forward there were differing views about the evidence supporting cluster choices. One view is that the selection of clusters was not entirely driven by the areas in which Yorkshire and Humber was strong, but by areas which were perceived to be most worthwhile. The Chief Economist at Yorkshire Forward stated:

"RDAs built on BIS research but the evidence we found was that clusters were strong in areas that were never going to be a cluster. Furniture manufacturers are an example of this in Yorkshire – we had lots of data telling us that furniture manufacturing was a crucial cluster in the region. But there was a disconnect between the analytical approach to clusters and the eventual policy options that were made. Yorkshire Forward chose technology that was regarded as 'fashionable' and networks and clusters were built around that."¹¹

There were some differences of opinion in Yorkshire Forward around cluster development about the way in which target clusters were selected and pursued. In some parts of the organisation, particularly the Chief Economist Unit, there was a desire to follow what the quantitative evidence was suggesting about the scale of key sectors in the region and growth forecasts for them. Other lines of debate were about how far public sector interventions were needed and would trigger growth, and how far growth in emerging new sectors might rocket.

The focus throughout the first stage of cluster development was technology. Whilst some technology based clusters were large and pronounced in the region, others were selected for targeted cluster support even when their economic contribution was modest. Bioscience is a good example. The evidence was that this was a small and immature industry cluster (it was too small to be properly mapped and analysed in the way other sectors were). While there was potential for this cluster to create thousands of jobs there was a lot of work to do to make this a competitive cluster, and other parts of the UK seemed better placed to exploit its growth. Arguably, Porter's Silicon Valley example had a big influence on thinking. Positioning the region to take advantage of the next new boom industry was seen as crucial, and bioscience looked just the sort of industry that might grow exponentially at the time.

Another example is Chemicals, where the region did have a distinctive concentration of businesses, but its contribution to the economy was quite modest, supply chain decisions were made outside the region and prospects for employment growth were remote. This led to the cluster eventually being replaced, with the 2006-2015 RES focusing on an exit strategy from the cluster rather than ongoing development.

If chemicals and bioscience were examples of clusters where the rationale for inclusion was debateable, other cluster choices proved to be sensible and effective. For instance the region did have distinctive strengths in Advanced Engineering and Metals and the cluster's development led to one of Yorkshire Forward's most prominent successes, the Advanced Manufacturing Park (see part 3). Likewise the Digital Industries sector saw major growth in output and jobs, which the cluster programme had helped to stimulate.

¹¹ Yorkshire Forward Chief Economist, Interview with Kate Parry, January 2011

Whilst some new (and old) industries were pursued as priorities, other major sectors of the Yorkshire and Humber economy were missed out because the focus was on technology driven clusters. Financial and Business Services for example was not a priority area during the cluster programme, even though it made up a large part of the economy and employment in the region. This was largely because it was felt the sector was growing strongly on its own and did not need large scale public sector interventions or a cluster team to support it. The 2005-2012 RES would in future pick up on this issue by including a deliverable to “Boost key sectors of regional significance” (which included financial and business services) alongside a separate deliverable on growing “knowledge based regional clusters”.

One lesson is the need for clear and open analysis about the decisions made and the basis for making them in such major areas of policy and investment. The RES (2003-2005) sought to address this by including both an action to “*identify the next three 3 clusters for priority investment*” and selection criteria that would include “*presence in the region, potential long term benefits for jobs and business growth, scope and need for intervention, and sustainable development*”.

Whilst the issues are not clear cut and choices will always involve a combination of analysis and judgement, there was scope for clearer and more effective utilisation of evidence in strategic decision making around sectors and clusters. This could have potentially resulted in more targeting of clusters and sectors more universally focusing on the areas where there was a larger contribution to the national economy. Some of these issues were down to the way the evidence on sector contribution was assessed. SIC codes were not effective at recording the contribution of a cluster because it wasn't arranged by technology. There was a large amount of work done to try and provide this data but initially this discrepancy contributed to the difficulty in assessing the contribution of different target clusters.

Yorkshire Forward's approach to clusters did not differ significantly to the rest of the RDA network. The clusters and sectors of each region were often similar with Advanced Manufacturing, Digital and New Media and Environmental Technologies popular in most regions. Just as Yorkshire Forward included some clusters (e.g. chemicals) that were distinctive if not always very large, other RDAs also included examples that linked to their region's specialisms. So in the West Midlands Automotive and Rail were target clusters, and they targeted areas less focused on technology, such as Interiors and Lifestyle. In the North West, as well as the mainstream sectors they targeted Sport, and One North East chose Defence and Marine, recognising it as a major employer.

The focus on 'regional' clusters may have meant that more niche and specialist clusters were not picked up as headline priorities. Certainly as clusters developed, so did representations from local partners suggesting that genuine and concentrated (if smaller scale) clusters in their areas were not always picked up. In some cases local partners felt that Yorkshire Forward projected a view that clusters were regional matters and need not seriously involve local interests. This was technically incorrect and certainly counterproductive.

When more focused clusters were supported (sometimes subsumed into a larger cluster), there were some notable successes. The 'metals' element of the AEM cluster is one example. The Seafood Cluster around Grimsby is another. The Seafood Cluster was specifically focused on Grimsby and had evolved naturally as a result of historic links to the fishing industry. The seafood cluster already existed but Yorkshire Forward and other agencies support helped to build up the manufacturing element of the cluster, funding the Humber Seafood Institute to develop seafood businesses in the Grimsby area. The work by Yorkshire Forward and other business organisations to fund research facilities, skills training and infrastructure has helped develop the cluster, which now holds 70% of the UK market in the Seafood sector and employs 4,000 people. The cluster is now finding opportunities to

expand globally and in 2010 Grimsby's Seafood Industry cluster won the Best Overall Cluster award at the Cluster Marks Awards. The lesson here is that this cluster wasn't forced, and was simply a development of a geographic industry strength that already existed.



Grimsby Docks by Steve Morgan

The ability to develop clusters on a fixed regional geography is an issue. Cluster theory was based on the strength of certain industries in a particular geographic location, and the scale of this location is not related to the administrative boundaries drawn by government. Staff close to cluster policy in Yorkshire Forward have reflected on these issues of scale:

“Yorkshire and Humber is probably too large an area to look at developing clusters in its truest form in hindsight.”¹²

“Geography is an issue – clusters can exist on a range of scales – they can be local or national. It's the interactions that matter and these are not constrained by administrative borders. The remnants of the Sheffield cutlery cluster is very small and specialised in the direct area around Sheffield but the Sheffield steel manufacturers are part of a global cluster across Northern Europe. So trying to dictate cluster policy around regional scales doesn't work because this isn't the scale that the clusters work on.”¹³

Arguably this combination of economic history, scale and specialisation is why the Seafood Industry Cluster was a success. It was based on the historic ties to the fishing industry in Grimsby and the cluster developed naturally out of this, with further public sector support simply enhancing a cluster that was already established. Some clusters may approximate to a regional geography and succeed, but often they will not.

Operationally, Yorkshire Forward used clusters as a targeting mechanism to prioritise investment. Technically, the approach was initially focused on both the strands identified earlier – that is to build on *geographic concentrations* of industry, and to *integrate* different strands of support for a sector and to build stronger linkages, networks and relationships (as was supported through Sector Cluster Champions and Access to Markets network activity). Over time, the balance switched from the former to the latter.

¹² Senior Manager Sectors, Interview with Kate Parry, January 2011

¹³ Yorkshire Futures Programme Manager, Interview with Kate Parry, February 2011

This led to a more flexible and pragmatic approach that was in essence a hybrid of sector and cluster approaches. If the clusters bandwagon had not quite left town, it was certainly playing less loudly. The 2006-2016 RES identified two new clusters (Environmental Technologies and Healthcare) and ended those in Bioscience and Chemicals. It expanded the Digital Industries cluster which had been highly successful. And perhaps ironically, it reintroduced a sectors approach that in two of its three priorities focused on needs in specific and smaller geographic areas – Financial and Business services in the Leeds City Region, and Logistics around the Humber Ports, Hull and Doncaster areas.

This marked the start of a new phase of activity on sector development, informed by evaluation of and lessons learned in progressing clusters work¹⁴ and supported by organisational change and learning within Yorkshire Forward.

¹⁴ Yorkshire Forward Cluster Review, Renegeris Consulting, 2004 (See Annex A)

Part 2: Sector Development from 2007 Onwards

In 2005 there was an internal review of the work of Yorkshire Forward, which contained analysis of the success of the clusters approach in response to the 2004 Regeneris review. The final report, completed in 2007, resulted in a move away from the clusters strategy towards a focus on key sectors, which were more about the particular industry, rather than the whole supply chain.

The report acknowledged that the approach adopted by Yorkshire Forward was more 'pragmatic sectoral business support' than a purist approach to cluster policy. Despite difficulties in delivering cluster theory the report suggested the approach had been a useful tool in the prioritisation process.¹⁵

The Yorkshire Forward Board approved a revised approach to developing and supporting the region's priority sectors. The high growth sectors that YF prioritised for strategic intervention by the Sector teams were Advanced Engineering & Materials, Digital & New Media Industries, Food & Drink, Environmental Technologies and Healthcare Technologies.

Chemicals were removed as the cluster was not considered to be a significant enough contributor to the region's economy, and not one that would benefit from further intensive cluster support. There was also more of a focus on 'secondary' sectors where less work had been done in the first seven years - notably Construction, Logistics and Financial and Business Services.

Internally, there was change in the structure of the sectors and clusters teams within Yorkshire Forward, with the cluster teams being replaced by smaller, more strategic, sector teams. It was felt that a more outward looking approach could be fostered, stimulating more learning and interaction than had occurred between the previous cluster teams and other teams in the organisation:

*"The aim was that the sector teams would work with other parts of the organisation to develop programmes around that particular sector, so if it was a skills issue in advanced manufacturing, that sector team would work with the skills team to develop a skills project. That was a change from the way we worked in clusters, when we kept everything with a very narrow focus."*¹⁶

Interviews with Yorkshire Forward staff reveal the importance of using staff with experience within the relevant sector when developing sector projects:

*"In the sector teams, and the cluster teams before them, we took on people generally from the industry so they had the knowledge about the industry, where it was going and future development and what was happening externally. That was the role that the sector teams had – just two person teams going out regionally and nationally to work with the organisations to look at where the industry was going."*¹⁷

In dealing with businesses it is important to understand their needs and the issues affecting them. Utilising staff with knowledge in the respective businesses sectors gave Yorkshire Forward's projects more legitimacy because they came from the perspective of knowledge of the industry. Within the private sector there can be a perception that the public sector does not necessarily understand businesses needs. So employing staff with a business

¹⁵ Seven Year Review of Yorkshire Forward, Yorkshire Forward, 2007

¹⁶ Senior Manager Sectors, Interview with Kate Parry, January 2011

¹⁷ Senior Manager Sectors, Interview with Kate Parry, January 2011

background and sectoral knowledge was important in establishing the reputation of the sector teams, along with the networks they developed.

CASE STUDY: Strategic Cluster Champions

A major success of the sectors strategy was the development of the Strategic Cluster Champion (SCC) programme. This was designed to stimulate cross cluster linkages and knowledge transfer collaborations between higher education institutions, research bodies and businesses.

The programme recruited experienced senior industrialists as Strategic Cluster Champions, which gave them credibility to interact with senior business people and researchers.

The aim was to overcome barriers to innovation and knowledge transfer by acting as champions and relationship brokers in regional clusters. A pilot programme was developed from 2003-2005 with a full programme running up until 2008 with champions for each of six clusters/sectors.

The pilot project was developed after a review of the science base in the region concluded that businesses did not have a strong awareness of the expertise available in Higher Education Institutions (HEI) and that this was a significant barrier to innovation. The cluster champions worked to stimulate culture change within the region's companies and knowledge providers by encouraging greater networking between the knowledge base and companies, supporting the creation of formal networks and brokering relationships between the two.

The needs of each sector within the region were very different. The evaluation of the Strategic Cluster Champions conducted by EKOS Consulting assessed that for the Bioscience and Digital and New Media clusters there were a number of small innovative companies whose support needs would often relate to the need to access finance or business customers for their product. For these companies, SCC support to make the right connections to access finance and markets was valuable.

However, the Chemicals and Advanced Engineering and Materials sectors were more mature and here support was more likely to be about horizon scanning, developing corporate strategy in a global environment and linking to other Yorkshire Forward initiatives, for example, around workforce skills. They assessed that for smaller companies in these more traditional sectors, the support needs were around mitigating the risk that failing to adjust to new technologies would result in business failure. They concluded that for strategic cluster support "*linking into appropriate networks and knowledge providers will be vital to supporting smaller companies which have been slow to understand and adjust to rapid technological change.*"¹⁸

An evaluation of the clusters programme in 2007 showed that there had been significant benefits to business from support initiatives like the cluster champions. However, the evaluation also suggested there had been problems with collaborative working:

A number of delivery partners highlighted issues relating to collaborative working in terms of the number of projects that involved multiple delivery partners. This meant that the initial phases of the project often took much longer than planned as organisations were forced into developing relationships overnight where none had existed previously."¹⁹

Monitoring and reporting systems were also highlighted as a problem, with output evidence difficult to collect. The evaluation recommended that Yorkshire Forward should put in place an overarching Sector Strategy to give overall direction to its industry interventions. It proposed that greater consideration should be given to assessing the likely additionality of support and to potentially target those companies who were most likely to derive benefit from intervention. Finally, it concluded that the sector teams should have a better framework to monitor outputs.

¹⁸ Sector Cluster Champions Evaluation, EKOS Consulting Ltd, March 2007

¹⁹ Evaluation of Yorkshire Forward's investment in Cluster Initiatives, DTZ, 2008

While the individual projects appear to have been successful, the scale of the businesses affected by sectors and clusters work is huge and its impact is hard to assess. Yorkshire Forward found it difficult to assess progress partly because baseline data and SMART objectives had not been established at the outset.:

“One way we look at success is GDP and size of the activity of the sector in the region. But to do that you need to know what it was at the beginning, when you start programming, and we didn’t, so we hadn’t got that data from very early on when we started doing cluster work”²⁰.

In evaluation too there was a lack of preparation for how the success of the programme would be measured:

“The problem was that we could only evaluate projects, as opposed to the sector or the cluster activity, because they were all developed individually. We didn’t look at the beginning and think ‘how are we going to evaluate this work, we need to do it at a cluster level as opposed to a project level’. That would be useful to do for any [body] looking at how they develop sector and cluster activity.”²¹

Any organisation taking on sector and cluster work would benefit from starting evaluation activity from the word go. This enables more effective assessment of the success of such a wide ranging intervention area, and allows learning to inform and enhance future work.

Although outputs were significant, the sectors and clusters programme was also about the strategic added value of collaboration between businesses and how it strengthened the key sectors and clusters. The Access to Markets programme and the support of Sector Champions created a significant number of collaborations both between companies and also between companies and research and development organisations.

This collaboration directly deals with market failures by encouraging businesses to build relationships with other businesses, overcome coordination barriers and increase knowledge exchange. This is still a fundamental part of the government’s agenda for growing the economy, and the revised Solutions for Business programme include several products which promote this agenda, including Collaborative Research and Development, Knowledge Transfer Partnerships and Networking for Innovation.²² While the responsibility for this activity will be led nationally, networks require significant coordination to gain a prominent and respected role within the region, and local authorities and other public sector organisations can play a key role in providing support to achieve this.

The benefits of these networks have been significant but the challenge for them is to be sustainable in the long term, without public sector support. The original aim was to make the networks sustainable within three years. However, this has not happened and it is not yet clear if networks will be able to exist in their current form without public sector support. While businesses see networks as valuable, it is not a service they necessarily are willing to pay for and there is the risk that they may need to change their business model to become viable:

“The networks provided a valuable role in supporting businesses, providing information and getting collaborations together, being the voice of the industry. If you are looking at being commercial and making money you end up being consultants or trade associations which is not what we are trying to fund, it was not what we wanted the networks to do.”²³

²⁰ Yorkshire Forward Senior Sector Manager, Interview with Kate Parry, February 2011

²¹ Yorkshire Forward Senior Sector Manager, Interview with Kate Parry, February 2011

²² Solutions for Business Government Funded Business Support, BIS, 2011

²³ Senior Manager Sectors, Interview with Kate Parry, January 2011

CASE STUDY: Access to Markets Programme

Yorkshire Forward wanted to ensure businesses were tuned into support infrastructure and this led to the development of the Access to Markets programme. Networks were developed, often membership organisations within each sector where businesses could come together and share best practice.

“The networks aimed to be the voice of the industry, both regionally and nationally and they could lobby where necessary. They also had links with Europe and knew about the legal requirements coming out of Europe – they could work with their businesses in the region to assess how it affected them, what they needed to do and how they could fit in with that or any other European legislation.”²⁴

These organisations were set up with support from Yorkshire Forward initially but now exist as separate entities, many of which aim to be self sustainable. This collaboration has been beneficial for supporting innovation (see module 10: Innovation) and has assisted business growth. Various market failures affect areas like innovation, mainly due to the complex nature of knowledge, and the difficulty in protecting it. As a result, innovation brings about issues of public goods, externalities and uncertainty.²⁵ Public sector funded collaboration and partnership directly deal with these issues by encouraging businesses to build relationships with each other, improve knowledge exchange and make linkages across the supply chain. This has direct benefits for the business sector as a whole.

Yorkshire Forward typically stipulated that networks must be regional rather than smaller scale which led to them having greater impact and prevented duplication which might have undermined their role:

“We insisted the network was a regional organisation – there’s no point in having a food group in North Yorkshire, and a food group in West Yorkshire – it’s economies of scale. The network also aimed to be the voice of the industry, both regionally and nationally and they could lobby where necessary.”²⁶

There were many networks developed across target sectors. However, the outcomes have not been consistent and while some are now considered sustainable, others will struggle to survive without Yorkshire Forward funding.

Particularly interesting examples of Yorkshire Forward networks include:

Techmesh (Digital & New Media) – is the Information Technology & Telecommunication network for Yorkshire & Humber. It was created because there was no dedicated voice representing the needs of IT and Telecommunications businesses in the region. The network is now part of Connect Yorkshire and has created a sustainable membership model which will enable organisation to survive long term.

Water Industry Forum (Environmental Technologies) - a membership business network for suppliers of water and waste water products and services. The forum consists of 200 member organisations who supply to the water industry and commercial users. The Forum helps companies in the sector export to new markets, develop new products and find new contract opportunities.

Electronics Yorkshire (Digital & New Media) - a membership network delivering skills training and support to electronics companies in Yorkshire & Humber. This network provides a resource to members through its Leeds based technology centre. They struggled to receive an appropriate level of income from membership fees and therefore continued to source public funding.

Learning Light (Digital and New Media) – is a hub for e-learning technology businesses in the UK. They have been particularly successful in brokering E-learning providers on behalf of businesses and providing high quality E-learning information reports, which are recognised internationally.

The reasons why some networks will be sustainable and others will not seem to be partly about attitudes. All networks were made aware funding would not be available after March 2011 due to funding cuts. Some managed to create revenue streams from membership and services, while others were convinced that public funding would be available. The original intention of the sector teams was for sustainable networks and public funding was reduced over time. However, some networks still rely wholly on public sector funding, which raises question about their value as well as their longevity.

²⁴ Yorkshire Forward Senior Manager Sectors, Interview with Kate Parry, January 2011

²⁵ Economics Paper No 7: Competing in the global economy. The Innovation Challenge, DTI, 2003

²⁶ Yorkshire Forward Senior Manager Sectors, Interview with Kate Parry, January 2011

Part 3: Individual Sector Approaches

Strategic network activity was the key remit of the sector teams at Yorkshire Forward. However, projects were also funded which aimed to increase innovation and knowledge transfer activity, as well as provide finance to support businesses in specific target sectors. This section summarises the key activity supported in each target cluster or sector and the impact that Yorkshire Forward intervention had.

a) Advanced Engineering and Metals

The investment in the AEM sector has been one of Yorkshire Forward's most ambitious strategies, with the majority of funding focused on developing the sector in South Yorkshire, a traditional manufacturing heartland.

It is the landmark projects within this area of work that are generally considered to be the most successful. The Advanced Manufacturing Park is consistently cited as the Yorkshire Forward's most significant achievement, because of its scale, transformational impact and the nationwide recognition it has gained for the Advanced Manufacturing sector in the region. Developing the centre to the maturity it had reached by 2011 was a long process, and there were not immediate results. One of the main benefits of Yorkshire Forward's approach was that it was able to establish a long term vision for the AMP, had the breadth, capacity and resources needed to bring the various components of the project together, and the perseverance, patience and longevity needed to implement it:

"It was the vision of the AEM to develop a location which would be world class, which would have the world class technologies, be recognised internationally and attract the big players. So a lot of time and effort was spent very early on working with some of the bigger names and Boeing was the one that started it all off. It took a long time and that's one of the things the sectors and cluster programme has been good at ...focusing on a fairly long term programme...we had a good 10 or 11 years with the AMP from inception, including acquiring the land, the preparation of the land and all the things that go with it. In the meantime we were working with some of the bigger players and the work with Boeing eventually paid off. But even having the anchor tenant it still took a very long time to take off fully."²⁷

Sometimes it is difficult for the public sector to focus on projects with such long term strategies, as the focus is on delivering value for money and results quickly, and structures and priorities can change. Equally not all the public sector has the ability or appetite to take risks – but doing so is important in sectors and clusters work, especially with long term projects. A few years are rarely enough to deliver results across a major sector in a large geographic area. In the case of the AMP its longer term strategy and evolution has resulted in a major step change for the Advanced Engineering sector in South Yorkshire, attracting companies who would otherwise most likely have located elsewhere:

"There was a quote from Roger Bone, the chair of Boeing, who said to Terry Hodgkinson that had the AMP not existed Boeing would not be operating in the UK."²⁸

The AMP continues to be a focus for the AEM industry in Yorkshire and beyond. Companies in the AEM sector now choose to site their businesses in the Rotherham and Sheffield area, because of the wealth of skills and R&D in the locality. Property developers are also realising the potential of the area and are increasingly choosing to build modern AEM workspace facilities, which shows confidence in the sector, given the difficulty in generating viable developments post recession.

²⁷ Senior Manager Sectors, Interview with Kate Parry, January 2011

²⁸ Yorkshire Forward Policy Manager, Interview with Kate Parry, October 2010

CASE STUDY: The Advanced Manufacturing Park (AMP) at Waverley, South Yorkshire

In 2001 Yorkshire Forward selected Advanced Engineering and Metals as a priority cluster for targeted support. Evidence had shown that there were low levels of R&D, low awareness and availability of new technology, an under-exploitation of growing international markets, a shortage of advanced skills and strategic management, and low inter-business trading within the region. The objectives of the cluster were therefore:

- To significantly increase the AEM industries contribution to the GDP of the region, and to establish the AMP as a place where international companies “want to do business”.
- To achieve a common sense of purpose with public and private partners and establish the region as an internationally recognised centre for excellence in AEM.
- To establish the international reputation and competitiveness of the region in AEM by significantly increasing its contribution to GDP through the development of technology, people and their productivity.²⁹

The AMP was always seen as a landmark development, focused on tackling some of the barriers that were preventing growth in the AEM sector:

*“It was the vision of the AEM at the time to develop a location which would be world class, which would have the world class technologies, be recognised internationally and attract the big players”.*³⁰

Ten years on the AMP is a nationally recognised facility, home to international research and manufacturing organisations such as the AMRC, a Boeing and University of Sheffield partnership; Rolls Royce; Castings Technology International (Cti); Dormer Tools and TWI's Yorkshire Technology Centre. Some of the centre's achievements include:

- Attracting 26 companies, 481 employees and 150 graduates/PhD's
- Generating over £500 million in contracts and collaborative research and innovation projects.
- Enabling regional firms to make £45 million in additional sales.
- Influencing Boeing to award a contract for landing gear outside of the US for the first time – worth \$2 billion to UK engineering company Messier Dowty.
- Attracting £180 million investment by Rolls Royce through their nuclear and aerospace factories.

The future of the AMP looks positive. The government cited it in its 2011 growth strategy in relation to a new Technology and Innovation Centre in high value manufacturing.³¹ Local partners see it as the anchor for future sector growth. And in cluster terms the AMP's strength is that it is not an innovation project, an inward investment one, a land and property one or a low carbon one. It is a project that a genuinely brings all those things together and makes them real.



²⁹ Advanced Engineering and Metals, Presentation by Yorkshire Forward, Updated October 2006

³⁰ Senior Manager Sectors, Interview with Kate Parry, January 2011

³¹ The Plan for Growth, HM Treasury/BIS, 2011

b) Digital and New Media Industries

The Digital and New Media sector saw huge developments during Yorkshire Forward's operation, and the organisation undertook many initiatives to develop businesses in the sector, particularly through developing networks and projects to increase innovation.

The nature of the sector in the region has changed significantly. The Digital and New Media sector accounts for more than 13,000 businesses and employs 123,000 people in the Yorkshire and Humber region, adding almost £5.25 billion of gross value. Twelve per cent of the UK's electronic games developers work in the region in 35 development studios. Some of Europe's largest procurers of e-learning technology and content are also based here, including the University for Industry (Ufi) which is the UK's largest commissioner of e-learning³²

CASE STUDY: Round Foundry Media Centre, Leeds

The Round Foundry was a collection of former manufacturing and engineering buildings in the Holbeck area of Leeds. Holbeck was formerly the industrial heart of Leeds but had fallen into decline. The Round Foundry development was part of the vision for Holbeck Urban Village, which aimed to be a new creative quarter for the city focused on new media and digital technologies that would strengthen Leeds as a regional business centre, while retaining the character of the area's industrial heritage and utilising it as an asset.

Completed in 2004, the Round Foundry redevelopment created purpose built office accommodation for 50 businesses and start ups in the creative and digital sector. The centre proved successful in attracting businesses into the area, with all the offices filled within 18 months of opening. The accommodation provided an excellent SME facility, with companies moving onto larger accommodation once established.

Building on this success a new annex is being developed on the nearby Tower Works site which will offer additional and larger accommodation for the growing Digital and Creative sector and secure the long terms sustainability of the centre.

The Round Foundry has had a huge impact on the development of the Holbeck area and has established a Digital and Creative quarter in Leeds, gaining a national reputation for excellence in this sector.



Yorkshire Forward also invested funding in Digital and New Media projects aimed at increasing innovation in the sector.

Melt was a three year pilot programme which gave research and development awards to those working in the Creative and Digital Industries sector to explore new creative content concepts which genuinely exploit new digital platforms. The programme received over 200 applications, made 52 pilot awards and 14 major R&D awards of £50,000. It was judged to be extremely successful in encouraging the sector to experiment, take risks, be innovative, establish new cross disciplinary partnerships, increase technical, business and creative skills, diversify business models and to gear up for new market dynamics and opportunities.

³² Leeds Round Foundry Media Centre, IDEA, <http://www.idea.gov.uk/idk/core/page.do?pagelId=11227348> [accessed May 2011]

Evaluation of the programme concluded the benefits went beyond those who received an award but to the sector as a whole. The project encouraged broader collaboration and partnership, raised awareness of the value of R&D and innovation and supported sector networking in a sustained way.³³

Projects like the Digital Media Content Fund, run by Screen Yorkshire, attracted major film and television productions to the region which otherwise would not have happened. Crucially this supported the Digital and New Media supply chain in the region, creating links between Yorkshire businesses and global providers of media content.

c) Chemicals

The Chemicals cluster was one of the initial clusters Yorkshire Forward focused on. Work on the cluster followed a mapping exercise that established that the level of collaboration between companies and with academia was lower than in other regions. The Chemical Cluster Mapping report described an industry whose companies had developed largely independently of each other. This meant that although there were many areas in which companies might reasonably collaborate, in general, this did not happen. The absence of interaction was considered to inhibit the potential dynamism of the cluster.

The aims of the cluster were for:

- *World class competitiveness/ productivity*
- *Creating more value in the business chain*
- *Competitive workforce development*
- *Attract and retain investment*

In the event, a limited range of projects was funded, mainly focused on marketing activity. An example of a successful project within the cluster was the Centre for the Assessment of Technical Competence Humber (CATCH), a training centre which helped to upskill staff working in hazardous environments.

However, by 2004 it was felt that Yorkshire Forward interventions had achieved all they could and the strategy for the cluster was incorporated into the work of the Northern Way (until that ceased its cluster activity after a review), rather than through a regional action plan.

d) Environmental Industries

The environmental sector has changed considerably during Yorkshire Forward's lifetime. The sector was recognised as an important contributor to the region's economy in the first RES, but did not become a target sector for the organisation until 2004, when there was full recognition of the important role the sector would play. Previously, the reviewed 2003-2012 RES included an action to "develop niche markets in Environmental Technologies and industries and promote resource efficiency within all the key clusters".

The attention given to opportunities for the sector has continued to grow (see module 4: Low Carbon Economy), including the potential for biorenewables (especially in York and North Yorkshire), the civil nuclear supply chain (in South Yorkshire), low carbon finance (in Leeds) and most prominently the offshore wind energy industry in the Humber. 50% of the UK's developable offshore wind is on the Greater Wash, off the Humber estuary which is a significant draw to environmental technology companies. The potential for carbon capture and storage linking power stations and other emissions point sources in the region to potential storage sinks under the North Sea has also been highlighted and progressed.

³³ Melt Final Report, Yorkshire Forward, 2009

The role of sector specialists and having expertise in these niche areas within Yorkshire Forward (and CO2 Sense) was one of the key factors in being able to identify potential, broker partnerships and catalyse activity.

Yorkshire Forward invested in a number of projects to support environmental technology developments, including the Environmental Energy Technology Centre and an innovative Hydrogen grid at the Advanced Manufacturing Park in Rotherham. It won coveted 'Low Carbon Economic Area' designations from the government in 2009/10 in the areas of carbon capture and storage and the nuclear supply chain and was seeking similar status recognising its leading edge potential in offshore wind and biorenewables.

e) Food and Drink

Yorkshire Forward invested in project specific interventions for the Food and Drink sector from its inception. However its focus has tightened and become more strategic since 2006. Since then there have been significant investments in the sector.

Major investments included the Food and Drink Investment Programme (FDIP), which ran from 2008-2011. This programme is considered successful as for the first time it created a strategy for Food and Drink investment, which had previously consisted of isolated projects. The FDIP had two objectives: exploiting and reducing the effects of future market trends and fostering a more collaborative approach to the sector.³⁴ For the most part this was successful. The evaluation of the programme concluded that the FDIP had addressed its core objectives in a cost effective manner and highlighted some valuable insights into good practice. Its strategic focus was considered to be a core strength. The Fair Exchange and Regional Food Group projects also emerged as particularly successful elements of the programme. However, other projects like 'CenFRA' and 'Appetizing Innovation' did not perform so well and were disappointing in terms of take up of activity by businesses.

CASE STUDY: Regional Food Group ('Deliciously Yorkshire')

The Regional Food Group was a core project of the FDIP and a membership organisation designed to support the growth and development of food and drink businesses. Its membership grew steadily and now stands at over 600 companies. The business priorities of the group involve marketing and promotion, supply chain opportunities, networking events, addressing changing legislation, accessing market research information and developing workshops and seminars.

Following a review the RFG rebranded themselves as Deliciously Yorkshire, a brand that has won greater prominence and uptake and provided a helpful and appealing umbrella for local food producers to market themselves under. Following the withdrawal of Yorkshire Forward funding the group have reduced their staff numbers but are now in a position to be sustainable.

Lessons from the project include:

- The advantage of marketing RFG's services and products sub regionally provides greater exposure alongside efforts to underline its role as a regional body.
- Developing offers for the hospitality sector has opened the door for new opportunities and collaboration for RFG.
- Refining the types of membership offered by RFG was important to re-positioning its offer.
- Project costs could in hindsight have been managed down earlier than actually took place and applications for funds such as ERDF could have begun earlier.

³⁴ Evaluation of Yorkshire Forward's Food and Drink Investment Programme, Mtl, 2011

Other niche areas within Food and Drink were given priority support, such as Seafood, an existing cluster at that time which was developed through co-operation with the Humber Seafood Group. It was felt developing this niche cluster could solve common issues and build competitive advantage through a collaborative approach. The cluster continues to perform well, as has already been discussed earlier in this report (see section 2, part 1)

f) Healthcare Technologies

Yorkshire Forward started to work on Healthcare Technologies as a target cluster in 2004. Although modest in scale, the RES suggested that the cluster had significant growth potential, positive social and sustainability benefits, and strong links to other clusters like bioscience. It built on real strengths in health and medical in the region, for instance in Leeds and Hull.

The Healthcare cluster faced specific challenges in delivering support for businesses. The Health Technology sector is highly fragmented, with Yorkshire and Humber's Health Technology industry being composed of a small number of global companies, and a large number of SMEs operating within diverse sub sectors. The sub sectors span drug delivery systems, orthopaedics, imaging systems, dentistry, urology, cardiology, woundcare, in-vitro diagnostics, hospital equipment and surgical instruments. They complement major public sector health provision and innovation centres plus university expertise.

Sectoral demographics show that 95% of SMEs in the UK medical technology sector have less than 25 employees. SMEs are a major powerhouse driving innovation into the market place. Furthermore, the health and life sciences sector is designated by government as having high growth potential and, by contrast with most other industry sectors in the UK, it has maintained a positive balance of trade.

There have been significant changes in the Healthcare industries in recent years. National policy changes in the NHS have disproportionately burdened SMEs and the lack of finance due to the recession has decreased their ability to fund R&D. These barriers have discouraged the development of medical technologies across the UK. Yorkshire Forward interventions in the healthcare sector were focused on these specific challenges with projects such as Access to Finance for Healthcare Technologies and Medilink.

CASE STUDY: Medilink

Medilink is a Healthcare Technologies sector network set up to help medical technology companies and regional product design and development companies collaborate and access new markets and supply chains.

Fundamentally, many businesses, especially SME's operate in very isolated environments, often stuck in the cycle of working within their narrow supply chain. Medilink provided the infrastructure to broaden engagement outside of the day to day operations, create unique (to the business) collisions, reduce the duplication of effort, and increase the effectiveness of the exchange of information.

The project was successful and has provided a useful resource for companies providing advice on the NHS landscape and on NHS procurement. At the start of the project it was intended that, if successful, its services would be turned into a fully commercial offering. The best measure of the project being a success is that this happened 12 months early. The services of Medilink are now provided on a consultancy basis.

g) Bioscience

Bioscience was one of Yorkshire Forward's initial five target clusters. The 2001 Cluster Mapping Study identified an embryonic regional bioscience cluster in Yorkshire and Humber which had a strong focus on research. The emergent nature of the cluster indicated a need to grow the number of core bioscience companies in the region, and this informed the priorities for the first round of cluster development investment (2002-2006).

The aims of the Bioscience cluster were to:

- support growth of existing SMEs;
- increase business start-up activity;
- facilitate commercialisation of research base;
- support inward investment; and
- promote collaboration and networking.

Major projects undertaken included:

- Bioscience and Chemicals Inward Investment and Marketing
- Bioscience Yorkshire Enterprise Fellowship
- Specialist Bioscience Advisory Service
- Bioscience Yorkshire Network
- Bioscience Young Entrepreneurs Scheme

CASE STUDY: Bioscience Yorkshire Enterprise Fellowship

The Bioscience Yorkshire Enterprise Fellowship (BYEF) was set up in 2004 to support budding entrepreneurs studying and working within the regions' universities. Targeted towards recently qualified post-doctoral and post-graduate students who were interested in exploiting the commercial potential of their research, the project sought to increase entrepreneurial activity in and around the regions' Bioscience departments and support the formation of spin-out companies.

The Fellowship intended to support both the development of the science *and* the business skills of participants. Research and development of the science was monitored through academic mentoring, while individuals' skills sets were supported through entrepreneurial and business skills training and through events, seminars and workshops. £30,000 of financial support was provided for each fellow, split into a £15,000 research grant to support 'proof of concept' development and a £15,000 business grant used to support their entrepreneurial development. An optional £10,000 interest free loan from HSBC was available plus office accommodation at a Science Park. There was also business support through mentoring, seminars and introductions to investors.

Stakeholders involved in the programme were positive about its performance. They felt that graduates lacked commercial awareness and that the project was an important progression route for student bio scientists to extend their career beyond academia.³⁵ The project had a significant impact on the region's bioscience sector. The pilot BYEF programme received £1.2 million from Yorkshire Forward to establish 30 Enterprise Fellowships in universities. At the conclusion of reporting in 2007, 9 new spin out companies had been formed and return on investment in terms of levered funds was almost 400%.

This success of the programme meant that when the programme was renewed in 2007 it covered not only Healthcare (the sector replacing bioscience after the seven year review) but also Chemicals. This programme is also considered successful with the stakeholders suggesting that the project: *"is widely acknowledged as delivering a step change in the enterprise culture of participating Fellows."*³⁶

³⁵ Evaluation of Yorkshire Forward's Bioscience Cluster Development Initiative, Shared Intelligence, 2005

³⁶ Yorkshire Enterprise Fellowship ERDF Outline Business Plan, YTKO Consulting Ltd, 2011

Like the Chemicals clusters, Bioscience interventions were reduced in 2004, with a strategic decision made to target related sectors such as Healthcare, Environmental Technologies and Food and Drink. On a general level, it was becoming clear that many of the best business and innovation opportunities concerned the crossovers between clusters and sectors. Bioscience was a good example, and many of its best growth opportunities related to the medical sphere and to environmental technologies such as biorenewable fuels, energy and products.

Inward investment and market activity was considered successful, with the region communicating a more coherent message on the Yorkshire and Humber bioscience and chemicals offer following Yorkshire Forward projects, and overachieving on outputs.³⁷

However, in some contrast, at the macro level the evaluation of bioscience projects in 2005 suggested little progress had been made across the sector as a whole since the mapping study in 2002:

*“The work that we have done shows that the cluster is at best stable in terms of employment and company growth. The cluster remains comparatively immature although there is now some evidence of spin out activity from within the private sector”*³⁸

³⁷ Bioscience and Chemicals Inward Investment and Marketing Activity Evaluation, Shared Intelligence, 2005

³⁸ Evaluation of Yorkshire Forward's Bioscience Cluster Development Initiative, Shared Intelligence, 2005

3. Resources Results and Outcomes

The DTZ evaluation of Yorkshire Forward’s cluster strategy concluded that interventions had often been very successful, with numerous benefits to businesses and a significant economic impact:

“Many AEM businesses have benefited from efficiency improvements and faster production, increased turnover and staff levels, and funding which has financed research and capital equipment. For CDI businesses funding has produced new products, for example films, and helped to finance training. The impacts for the Food and Drink cluster have been greater market awareness, new contacts, improved business strategy and business growth. The businesses in Chemicals have found that access to training facilities locally has benefitted them.”³⁹

The evaluation gathered information on employment and turnover from the beneficiaries over the three financial years between 2005/06 and 2007/08. The results suggest that the annual final net impact steadily increased over the period 2005/06 to 2007/08 from 3,359 to 3,932 jobs created per annum and £195 million to -£371 million additional turnover. The average final net impact over the three-year period is 3,615 jobs created and £284 million additional turnover.

Outputs	To 2008 actual	% of outputs delivered to date
Jobs created or safeguarded	7,122	65%
Businesses created/attracted	34	18%
Businesses assisted	5,430	130%
People assisted in skills	5,299	71%
Increased sales	£84,746,500	55%
Private sector investment levered	£70,454,189	49%

Taking into account direct, indirect and induced impacts, the impact assessment showed that output in the region is estimated to have increased by an average of £498 million. The evaluation concluded that these figures showed the cluster programme was contributing to RES targets for economic growth and employment by stimulating impact in assisted companies.

In terms of overall value for money the report ‘Estimate of GVA impact of Yorkshire Forward PPR spend 2007-10’⁴⁰ shows the anticipated GVA impact of Yorkshire Forward projects. The impact of the business improvement product under the competitiveness PPR is assessed and represents the sector and cluster projects. It assessed that £100million was spent on these projects over the three years considered, which resulted in a total of £872.6 million additional GVA – this equates to an impact of £8.7 per pound spent. This is slightly above the average GVA across of Yorkshire Forward projects and shows a good return on investment in sector and cluster initiatives.

The DTZ evaluation also attributed some benefits in the sectors and clusters targeted directly to Yorkshire Forward interventions. These included:

- The impacts of projects for AEM businesses included efficiency and faster production, increased turnover and staff levels, and financing of research and capital equipment.

³⁹ Evaluation of Yorkshire Forward's investment in Cluster Initiatives, DTZ, 2008

⁴⁰ YF Policy Product Range Evaluation – Estimating Potential GVA, Regeneris Consulting, 2010

- For Creative and Digital Industry (CDI) businesses funding led to new products, for example films, and helped to finance training.
- The impacts for the Food and Drink cluster have been greater market awareness, new contacts, improved business strategy and business growth.
- The businesses in Chemicals have benefited from local access to training facilities.

This DTZ report is now a few years out of date but does show the impact of the entire cluster initiative. There are evaluations of individual sector and cluster programmes which show more recent performance. The 2011 Food and Drink Investment Programme evaluation for example shows that of a total programme spend of £8 million the project produced £35.3million net GVA impact.⁴¹

These successful outputs demonstrate the success of the relevant initiatives. Whether interventions improved the performance of the sectors and clusters they targeted as a whole, especially in comparison to the rest of the UK, is another question.

The following analysis provides a comparison of target clusters prior to Yorkshire Forward investment – then, and after Yorkshire Forward investment - now. Data has been utilised from 1998 to show the picture in the region then and data from 2008 has been utilised to show the picture in the region now.⁴² Baseline data has been gathered from cluster mapping reports and the DTZ evaluation has been used to show the situation in clusters as of 2008.

AEM Then	AEM Now
Second highest level of investment in manufacturing by UK firms	Decline in UK manufacturing investment and now sixth lowest ranking in England out of nine
Low exploitation of international markets - Lowest level of investment in manufacturing by foreign firms in the UK	22% increase in investment by foreign owned manufacturing firms. Nearly all other regions saw a decrease
154,000 FTE Jobs and £5bn output but in a sector with long term declining employment	3.6% decline in output and 40,000 fewer jobs
Low levels of R&D/Technology investment and awareness of new technology	Advanced Manufacturing Park Expansion of NAMTEC
Chemicals Then	Chemicals Now
31,000 FTE Jobs and £1.8bn output	5.7% decline in output and 12,000 fewer jobs
Average R&D intensity of 1%, compared to national average of 1.4% for UK companies and 4.1% internationally ⁴³	The productivity gap between Yorkshire and the UK (in terms of output per head) has trebled from £5,000 to £15,000 from 2002-2007. ⁴⁴
Increasing costs to chemicals companies and competition from far east markets, particularly in textiles	The internationalised nature of the industry has harmed output growth in rubber products and basic chemical production but exports by the pharmaceuticals industry has increased by more than 6 times from 1998-2008.
Need for companies to make significant upgrades to ensure the competitiveness of	High levels of innovation allow the high value added parts of sector chemicals to keep growing, but

⁴¹ Evaluation of Yorkshire Forward's Food and Drink Investment Programme, Mtl, 2011

⁴² Data from Progress in the Region, Yorkshire Forward/Yorkshire Futures, 2000-2009

⁴³ Chemicals Cluster Mapping Report for Y&H, DTI, 2001

⁴⁴ Evaluation of Yorkshire Forward's Investment in Cluster Initiatives, DTZ, 2008

plants in the future	production of basic chemicals and rubber products increasingly relocated in lower-cost bases abroad.
Digital & New Media Then	Digital & New Media Now
130,000 FTE Jobs and £4.3bn output	164% increase in output and 35,000 more jobs
Underperforms the rest of the UK in the number of people employed in Digital & New Media companies	CDI sector output grew by 18% in the region from 2002-2008, as opposed to 7.6% across the UK as a whole
Low level of innovation and technology take-up by companies	Increase in networks with sustainable examples such as the Advanced Digital Institute, Techmesh, Print Yorkshire and Learning Light promoting innovation in the sector
Food & Drink Then	Food & Drink Now
64,000 FTE Jobs and £2.5bn output	9.9% decline in output and 15,000 fewer jobs. Regional employment in food and drink manufacturing has contracted by 25% from 2000 to 2007, in comparison to UK industry average decline of -17%.
Strong regional presence - food and drink manufacturing accounts for a higher proportion of employment in Y&H than in any the other region	Strong Regional presence - Y&H accounts for 15% of the food and drink manufacturing industry's total workforce in England. Food and drink also accounts for 17% of the region's total manufacturing workforce..
Major food processing firms have a significant presence within the region, including Northern Foods, Hazlewood Foods, Rank Hovis, Bird's Eye, Wall's, and Nestle.	Some closures, but continuing presence of food processing firms and largest concentration of national retail buyers in the UK. Asda, Morrisons, Netto and Costcutters all have their purchasing departments based within the region.
Environmental Industries Then	Environmental Industries Now
169,000 FTE Jobs and £6.6bn output	15% increase in output and 35,000 more jobs
Underutilised potential, in the Humber ports and elsewhere. 267 unique companies active in the environmental technologies sector in Yorkshire and Humber	Significant investment by large companies on the Humber, such as Siemens. Considerable growth and activity around the low carbon economy, e.g. n offshore wind and carbon capture and storage.
Healthcare Then	Healthcare Now
10,000 FTE Jobs and £327m output	213% increase in output and 3,000 more jobs
Issues with companies being able to raise venture capital and progress development	227 firms in Healthcare Technologies have a base in Y&H including Smith & Nephew, Swann-Morton and DePuy International
Links between Bioscience companies, hospitals and universities are strong but there are low levels of collaboration and competition between core companies	Healthcare included within the Centres of Industrial Collaboration (CIC) funded by Yorkshire Forward to bridge gap between academia and market.

The comparison reveals a mixed picture in how much improvement there has been in Yorkshire Forward target sectors. There are clear and sizeable improvements in some sectors, notably Digital & New Media, Healthcare and Environmental Industries. In contrast

the scale of the Food and Drink and Chemicals sectors has declined. In AEM, decline has continued but the picture is more mixed, with signs of a turnaround. It's position and performance is a good illustration of the more subtle and complex stories within each cluster.

Advanced manufacturing is judged to be one of Yorkshire Forward's success stories, with the Advanced Manufacturing Park a landmark development which has drawn investment into the region. However, the comparison shows that up to 2008, cluster activity had been much more successful in attracting (often prestige) foreign investment than in attracting UK manufacturing investment, which actually fell. The sector was already in long term decline at the point at which interventions started, and cluster activity had been unable to halt that decline by 2008, with lower jobs, output and investment from UK firms than in 1998. However, in part linked to the increase in foreign investment and the completion of key developments at the AMP (which only really took off from 2006-2008) and a heightened national profile, there are strong signs that performance of the sector in the region may now be turning around.

In terms of sectors like manufacturing the key question is did Yorkshire Forward's intervention in high risk projects like the AMP have a significant impact on advanced manufacturing that prevented the sector from contracting as much as it might have otherwise? This is impossible to assess definitively, and the only conclusion to draw is that Yorkshire Forward spending had a positive impact in the individual projects funded, which might (and for the AMP looks likely to) affect the sector's fortunes more widely in the long term.

Further results come from one of the few empirical studies carried out on a cluster in the region as part of a PhD study. This found that:

"Businesses themselves had no understanding about clusters. The finding from my PhD was that there didn't seem to be any benefit from being part of the cluster. I looked at a sample of businesses in the metals industry in South Yorkshire and looked at the extent they were linked in with the local economy and the ones that weren't and there was not much difference in performance so there isn't much evidence that clustering brings any advantages."⁴⁵

This suggests that certainly early on (the PhD was completed in 2004) the cluster work did not always benefit individual businesses within it. However it does not cover issues about the scale or growth of the cluster as a whole (not just individual firms within it) or whether businesses benefit from improvements like raised profile or an improved skills base.

It is difficult to assess the improvement in the productivity of target clusters, as these are not consistent with the economic reporting SIC codes, as discussed previously. The recession also makes it difficult to assess the results that the region's target sectors might have produced without the decline in productivity seen after the economic downturn post 2007.

Overall, it is hard to avoid the conclusion that the initial selection and badging of clusters as 'key growth sectors' was flawed. Only one of the original five clusters saw notable growth. However, selection did improve over time, with the two new clusters (Environmental Technologies and Healthcare) both successful additions. Likewise, whilst AEM and Food and Drink were not growth sectors per se, they did have strong concentrations and history across much of the region, and cluster interventions may well have helped to lessen their decline and to provide a foundation for long term growth. We will come back to this issue of timescale in concluding.

⁴⁵ Clusters and Cluster Policy: Advanced Manufacturing and Metals Industries in South Yorkshire, Bea Jefferson, 2004

One further reflection about the process of identifying and establishing clusters is that it seemed to be rushed onto the region and then imposed by it. There was little time (and questionable will) to really engage with localities and mould clusters policy to their needs and realities, or even to weigh up the sometimes conflicting sets of evidence about what clusters should be selected. The bandwagon type qualities of early clusters policy perhaps eclipsed more studied consideration of the real merits, appropriateness and limitations of a clusters approach.

This is not to say that early cluster work did not produce positive impacts, in fact evaluations showed that they did. In 2004 Regeneris Consulting were appointed to carry out a short review of the cluster approach to review how the cluster teams developed their cluster policies and to consider the impact these policies had. The overall conclusions of the processes adopted were positive.⁴⁶ The strategies developed for each cluster were considered sensible, and addressed the issues and opportunities for each cluster (see annex A for more detail on its findings and lessons).

The issue of timescale is a key one. The sectors and clusters are being assessed over a relatively short period of time. The strategy for cluster development only started in 2001, with the projects taking time to get going; and with Yorkshire Forward being wound down from 2010 it can be argued that interventions and assessment did not cover a sufficient period to really analyse long term impact.

It is also important to consider that development of sectors and clusters was in part about strategic added value, and some interventions were much more focused on this than directly delivering outputs. For example the impact of Strategic Sector Champions and Sector Networks were always going to be more strategic interventions which were designed to improve performance indirectly, unpredictably and over a longer time frame.

Given the long strategy of sectors and clusters activity the real results of the programme may only begin to be realised over 5, 10 or even 20 years. To what extent for example, are current planned investments in Environmental Technologies in the Humber by Siemens (and potentially others) a result of Yorkshire Forward's promotion of the area as an ideal place for these activities? Yorkshire Forward undertook extensive work to make the case for the Humber as a global centre for the offshore wind energy industry, promoting the supply chain opportunities it would create across the region and beyond. And it had promoted both the Humber Ports as a key asset and the region's low carbon credentials from the first RES in 2000. Hence it can be well argued that without the intensive networking, promotion and sector support activity undertaken by Yorkshire Forward over the last 10 years the region would have been less well positioned to attract big commercial investors like Siemens (see module 1: economic strategy)

⁴⁶ *Yorkshire Forward Cluster Review*, Renegeris Consulting, 2004

4. Insights and Lessons Learned

A number of overall lessons emerge on sector and cluster development:

- a) **Success can be impressive but is far from guaranteed – clear rationale and informed judgement are critical.** Some of the clusters Yorkshire Forward identified saw impressive growth (e.g. Digital & New Media, Environmental Industries, Healthcare); but in others impact was disappointing. Later and better reasoned judgements about what clusters, and then sectors, to invest in led to better results than some of the early ones. Clarity about the nature and scale of the overall economic outcomes that are sought is crucial, together with good judgement about what clusters or sectors will best deliver those, and what interventions are feasible, effective and required.
- b) **Utilise economic evidence.** Selecting sectors with growth potential that will benefit from intensive support requires an understanding of the economy, the sectors within it and the drivers of change. Yorkshire Forward became much better at utilising economic analysis. But initially, it did not sufficiently question some of the evidence that was presented, ensure it was combined with a proper strategic rationale, or transparently assess the full range of options. Investing in and applying good evidence reduces the risk of expensive failures. Building in evaluation activity and collecting accurate outputs data from the start helps to assess progress, aid prioritisation and learn from experience.
- c) **Investment has a greater impact when it is part of a strategy or programme of activity rather than isolated projects.** Sector or cluster development is carried out because of wide ranging issues or opportunities and fragmented projects rarely address these sufficiently. The Food and Drink Investment programme was a good example of how projects that are developed as part of a strategy can have bigger impact. This was a lesson learnt from the cluster development and was integrated into the sector strategies.
- d) **Build sustainability into the business model from the outset.** Initial cluster interventions were intended to be medium term, but it proved to be very difficult to exit from cluster support activity once it had been started. The same goes for supporting sector networks, where some can become sustainable and have a lasting impact whilst others become dependent upon their public funding. Making these projects sustainable should be a key requirement from the beginning of project development, with realistic, revenue raising forward strategies built into their business plans.
- e) **Develop flagship and even risky projects.** Major investments in bold and high profile initiatives, while risky, provide the opportunity to significantly increase the scale and performance of a sector, potentially in a transformational way. This relates to the importance of critical mass, reputation, and wide ranging support in attracting inward investment and supporting the whole supply chain. The impact of smaller projects can get lost given the large scale of sectors at regional level. Larger and more ambitious projects supporting a particular sector can provide a unique selling point, like the Advanced Manufacturing Park (AMP), which continues to be a focus for AEM companies.
- f) **An integrated approach that addresses issues and opportunities together** works best. It is important to be able to respond to needs flexibly, whether those be about access to finance (which is crucial in high technology sectors), potential for spin out companies from HE, or the sometimes considerable opportunities at the crossover between different sectors and areas expertise. A real strength of the clusters approach, and one that has stood the test of time, is the value of combining and linking different types of intervention within a sector. The AMP is a good example of a project that brings

together aspects such as innovation, inward investment, low carbon, and property development in a single development.

- g) **Employing staff with experience in the relevant sector pays dividends.** It is important to understand businesses specific needs, and the issues affecting them. Utilising staff with knowledge in the respective businesses sectors gave Yorkshire Forward's projects more legitimacy because they had knowledge of the industry. This helped to establishing the reputation of the sector teams and the networks they developed.
- h) Making a cluster approach work requires **a flexible, specialised approach focused on the right geography.** The regional scale was in reality too wide for most clusters, which are more usually concentrated in a more localised area. Sometimes a cluster will fall roughly within a convenient boundary, more often it will not. It is important to work with the real geography of business whatever that is, and to build bridges and new partnerships if required. The very broad sectors that characterised the regional clusters also mitigated against strong interaction between businesses and others. Working with more specialised clusters/sub sectors can lead to a more intensive, focused approach. In some instances, a wider area umbrella concept (e.g. '*Deliciously Yorkshire*') can support more localised and specialised cluster activity.
- i) **Constructive partnership counts.** The development of the initial clusters was somewhat top down in nature. Whilst clarity of vision and business support for them was an asset, the way that they were developed could sideline partners, in local government especially, who felt clusters were done to them not with them. This meant that valid points about local contexts could be missed, and it was counterproductive to the sustainability of clusters policy. A more open, engaged and even approach to partnership may have taken longer and resulted in more compromise, but would have probably worked better long term. That learning was taken on board in later cluster and sector development work in which approaches were significantly adapted.
- j) Bandwagons come...and bandwagons go. Clusters were a prime example of how a policy that is viewed as the next big thing can be exaggerated, rushed into and blown out of proportion. In the case of clusters, the policy was nationally led then quickly cascaded down to and taken on by regions. Once the gloss has faded, ardent support can switch quickly to wholesale dismissal. Clusters theory did have merits – especially about integration of support and supply chains, and nurturing industrial concentrations where they genuinely occurred. But these benefits risk being lost because of the way it was forced too far and too fast early on. Being suitably independent, questioning and focused on evidence helps in taking measured decisions on priorities.

Annex A: Findings from a Review of Clusters Policy in 2004

The report⁴⁷ identified a number of learning points which would aid the future development of cluster strategies:

1. **Clarify the role of steering group members** *“We recommend that Yorkshire Forward more positively encourages and works with steering group members to help them fulfil an ambassadorial and communication role”*
2. **Better articulate and document cluster strategies.** *“We recommend that each cluster team prepare a short summary of the strategy”*
3. **Communicate wider range of cluster related projects supported by Yorkshire Forward.** *“We recommend that there is a more systematic reporting of all wider cluster activity to the steering groups.”*
4. **Further integration across Yorkshire Forward of all cluster related activity.** *“We recommend that cluster managers be given clear responsibility for reporting all cluster related activity supported by Yorkshire Forward.”*
5. **Prioritise projects which have a strong strategic fit.** *“We recommend that any future projects supported should demonstrate very strong fit to the strategy.”*
6. **Ensure focused approach within each cluster.** *“We recommend serious consideration be given to a further focusing of the approach in the digital industries cluster to increase further impact.”*
7. **Ensure duplication and potential “turf wars” are minimised.** *“We recommend that cluster teams continue to encourage project networking and joined up working across key organisations.”*
8. **Improve wider engagement of firms in the cluster.** *“We recommend that Yorkshire Forward consider careful monitoring of the degree of engagement of businesses in each cluster.”*
9. **Improve the metrics and systems to record impact from cluster policies.** *“We recommend that for cluster business support projects careful consideration is given to requiring projects to report on productivity and sales measures.”*

Lessons 2 and 9 represent particular issues with the cluster development process. The decision to focus on particular cluster approaches was not well documented and it was not a priority of the cluster teams to document their strategies. The way in which the cluster teams measured progress was also highlighted as an area to improve. The review suggested that reporting on jobs created was not meaningful for businesses and that measuring improvement in productivity and sales would make much more sense to firms and be relevant to their bottom line.

⁴⁷ Yorkshire Forward Cluster Review, Regeneris Consulting, 2004

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This paper is part of a suite of 'Learning Legacy' reports produced by Yorkshire Forward in 2011. The series is intended, as far as we can, to capture knowledge, achievements and lessons learned from regional economic development. It seeks to pass knowledge on to other bodies who may be able to apply it now or in the future.

We are grateful to all the many partner organisations, businesses and individuals who have contributed to this work over Yorkshire Forward's lifetime.

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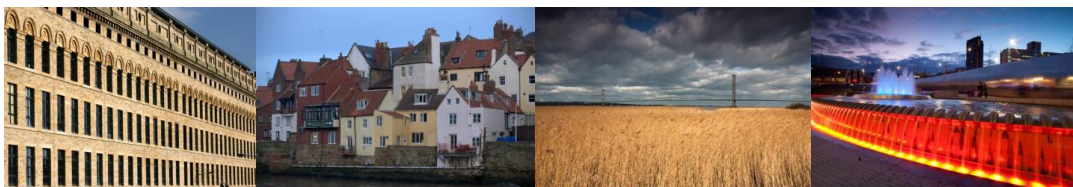
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