

# The capability of the Humber region



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*This version of the report excludes the set of  
appendices referred to in the text.*

*The full report together with all the  
appendices is available from*

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# Executive summary

The Humber Local Enterprise Partnership (LEP) engaged the University of Hull to provide a high-level, baseline review of the Humber region's capability in order to inform its strategic planning processes.

In accordance with an agreed brief, the University of Hull has used a multidisciplinary academic group to review current academic research in the field and conduct interviews with external stakeholders around the UK and Europe to provide an evidence-based review.

The target sectors identified by the Humber LEP were ports and logistics, chemicals, and energy (particularly renewable energy). The first task was to determine whether these sectors can be described as clusters, as defined by current multidisciplinary research, or whether they represent other types of economic activities. This distinction is important as policy approaches for clusters and economic agglomerations are different. The sector reviews found a lack of evidence for clusters in each of the three target sectors. However there was clear evidence of economic agglomeration in and among the sectors.

The next task considered aspects of regional competitiveness and the competitive factors that the Humber region possesses or lacks to support sector success. Eight competitive factors of infrastructure, quality of life, human capital, skills, innovation and enterprise, financial capital, leadership and governance, and competition were selected for analysis.

Additionally, four other sectors were identified with the Humber LEP for review: agribusiness, including food processing; tourism; digital services, including both digital infrastructure and digital services; and manu-services, which includes enhanced service propositions by manufacturers and outsourced services.

In parallel, twenty-three senior managers, government officials and academics from the UK, Europe and Asia were interviewed to obtain an external perspective on the region.

Sector reports and interview feedback were used to prepare strength, weakness, opportunity and threat (SWOT) assessments for each sector against the competitiveness factors selected. Further, a distinctive ports-related processing agglomeration for the Humber region was proposed. The SWOT reports highlighted the strength of such an agglomeration in the region.

A summary of the sector SWOTs provides insights to the overall competitiveness of the region as follows.

- Major strengths of the Humber region lie in infrastructure, although there are weaknesses also.
- Major weaknesses in the Humber region lie in human capital and skills. Innovation and enterprise is also relatively weak and the region's economy, though mature and diversified, lacks obvious drivers of performance improvement.
- Major opportunities again lie in infrastructure with renewable energy and digital sector opportunities specifically highlighted.
- Principal threats are social, environmental and regulatory on the one hand, and competitive or corporate actions on the other.

The Humber region bears many of the problem symptoms of a peripheral region such as weak or missing clusters, low levels of product innovation and research and development, and low to medium level skill qualifications. But it also features some problem symptoms of an old industrial region as well, such as several mature industries and a traditional or primary industry orientation, the presence of a few large firms, and technical skill qualifications. The Humber region is considered a hybrid of these two types.

Briefly, conclusions and suggested actions for the Humber LEP are as follows.

- There needs to be a collective will to focus on the needed impact on competitiveness, acknowledging the value of a proactive LEP, the role of the University and effective inter-regional collaboration.
- The local economy is broad-based and hence there is a need to ensure that the broad base is supported, having determined which economic sectors should have the best chance of growth.
- In the short term traditional industries of ports, chemicals, agribusiness and food processing, and other production, that is, manufacturing and processing, should be encouraged to develop more added-value and interrelatedness.
- In the medium term the Humber LEP could help establish proper operating conditions for the manu-services and digital service sectors.
- The potential offered by the energy renewables sector has been recognised, and the LEP and its partners are currently working to establish the conditions and facilities to capitalise on this.
- Assistance could be given to encourage collaboration in the tourism sector in order to develop a region-wide strategy and implementation plan and to pursue relevant ERDF funding.
- The major strength of the region lies in its infrastructure and it is logical to seek to make this even stronger. The focus needs to be on facilitating transportation intra-region and with the rest of the UK.
- The major weakness of the region lies in its limited high-level skills base. An audit of the need for more skilled staff in future would be a logical starting point.
- Some of the efforts in raising awareness of the Humber region may not have been successful and the Humber LEP could address this by forming or supporting a regional marketing initiative and brand to ensure the Humber message is complete, cogent and succinct.

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# The capability of the Humber region

## Introduction

The Humber Local Enterprise Partnership Strategy Unit (the LEP SU) requested a baseline review of the Humber region's capability to inform its development and investment strategy over the next five years.

The Humber region needs to identify a strong competitive economic proposition. The emerging offshore renewable energy industry sector would appear to provide a significant opportunity for new business and employment, but otherwise the position inherited by the Humber LEP appears unchanged for the best part of a decade and has a concentration on mature industry sectors focused on ports and logistics, and chemicals.

The LEP SU asked the University of Hull to test this reliance on these three target sectors and to point the way towards a new economic strategy. In short, current strategy appears to be built upon internally identified regional strengths with little regard for how economically attractive this might be to external parties (deciding where to invest or re-locate) or otherwise stimulate business interest and activity to provide the levels of employment sought.

The University of Hull agreed to provide this study drawing on its academics' professional objectivity and using an evidence-based approach based on current research in this field and their understanding of the Humber region.

This report is structured as follows. First, the agreed study brief and the context for the study are presented. Second, the rigorous and objective methodology used for the study is described. Third, an analysis of work is presented including an appreciation of the three target sectors as clusters, separate sector reports for each of them and the other identified sectors, findings from interviews conducted with individuals external to the Humber region, and an overall SWOT and evaluation of potential strategies. Fourth, conclusions and suggestions for action are set out given the overall analysis. Source documents referred to are provided as appendices to the report.

## The brief

The LEP SU sought a research study (the study) to inform the Humber LEP's development and investment strategy over the next five years. The study's primary objective was to create an intelligent baseline or fundamental review that challenges hitherto held assumptions about the Humber region's capabilities and capacities.

The initial brief agreed with the LEP SU for the study is set out in Appendix 1. It was also agreed at the outset that the study should focus on providing a high-level, evidence-based, honest, fundamental review of the current position.

The brief also stipulated that the study was not to be about projects, programmes or a specific place; it was to be about the Humber region as a 'product' in the global economy, its current positioning and potential growth; and was not to provide an economic analysis, although the economy is obviously a strong influence.

At a meeting of the University of Hull and the LEP SU on 2 July 2013 to discuss interim progress, an amended brief was agreed with specific outcomes to include

- a strengths, weaknesses, opportunities and threats (SWOT) analysis of the contextual evaluation of the Humber region's economy based upon factors of competitiveness
- an analysis of the three target sectors and any emerging sectors
- a delta or comparative analysis from market-leading, outside perspectives

- a gap analysis of the Humber product.

## **Context and current situation**

Various pieces of economic, policy and analysis work have been undertaken for the Humber region in recent times. Such work has largely taken as a starting point that given parameters are predefined or accepted. This approach has limited the thinking and perspective behind such work and has laid it open to subsequent challenge and contributed to a failure to date to gain widespread agreement of a baseline strategy.

This study was not meant to duplicate that work; however an appreciation and understanding of such work was required so that it informed this study. The documents reviewed for the Humber region and other regions in the UK are listed in Appendix 2.

Although not part of the original brief, headline data by sector on gross value added (GVA) and employment follows to set out the current situation and to provide further context.

According to Grant (2013) the 2009 Regional Accounts data from ONS showed GVA in the Humber region was £14.0 billion, mainly made up of production, that is, manufacturing and processing, at £4.0 billion (28%), public administration, education and health at £3.1 billion (22%), and distribution, transport, accommodation and food at £2.92 billion (21%).

This is highly consistent with subsequent ONS Regional Accounts data for 2010 and published in late 2012 that shows GVA in the Humber region at £14.3 billion (2010); with production, that is, manufacturing and processing, at £3.94 billion (28%), public administration, education and health at £3.25 billion (23%), and distribution, transport, accommodation and food at £3.02 billion (21%).

The most recent work (Fletcher, 2013) used Experian's Regional UK Local Market Forecasts Quarterly 2013, which are modelled projections or predictions and form the basis of this following analysis. Again, these are broadly consistent with the ONS Regional Accounts data.

## **Employment structure – Humber versus the UK**

Figure 1 opposite illustrates the structure of employment in the Humber compared with the UK.

In most places in the UK, public administration, health, education and retail will be strong employment sectors – so there is nothing to differentiate the Humber from other places.

Where the Humber does differ can be seen in the presence of production, that is, manufacturing sectors, including food production, basic metals, pharmaceuticals, chemicals and fuel refining – all of which have concentrations of employment much greater than the UK. Fuel refining activities on the Humber represent 16% of all UK employment in this sector.

## **Sector output or gross value added (GVA)**

In 2013, the total output GVA of the Humber is predicted to be around £14.5 billion, or 1.1% of UK output. Figure 2 details the contribution each sector makes to total output and compares the Humber with national levels.

The Humber derives significantly lower than national contributions of output GVA from business services and banking and insurance sectors. At £1.06 billion (or 7.3% of total GVA), the education sector is the largest contributor to the Humber's output followed by health, public administration and wholesale – these are internally facing sectors that derive proportionally more output GVA locally than they do nationally.

Figure 1: Employment Structure 2013 (Source: Fletcher 2013 © Experian)

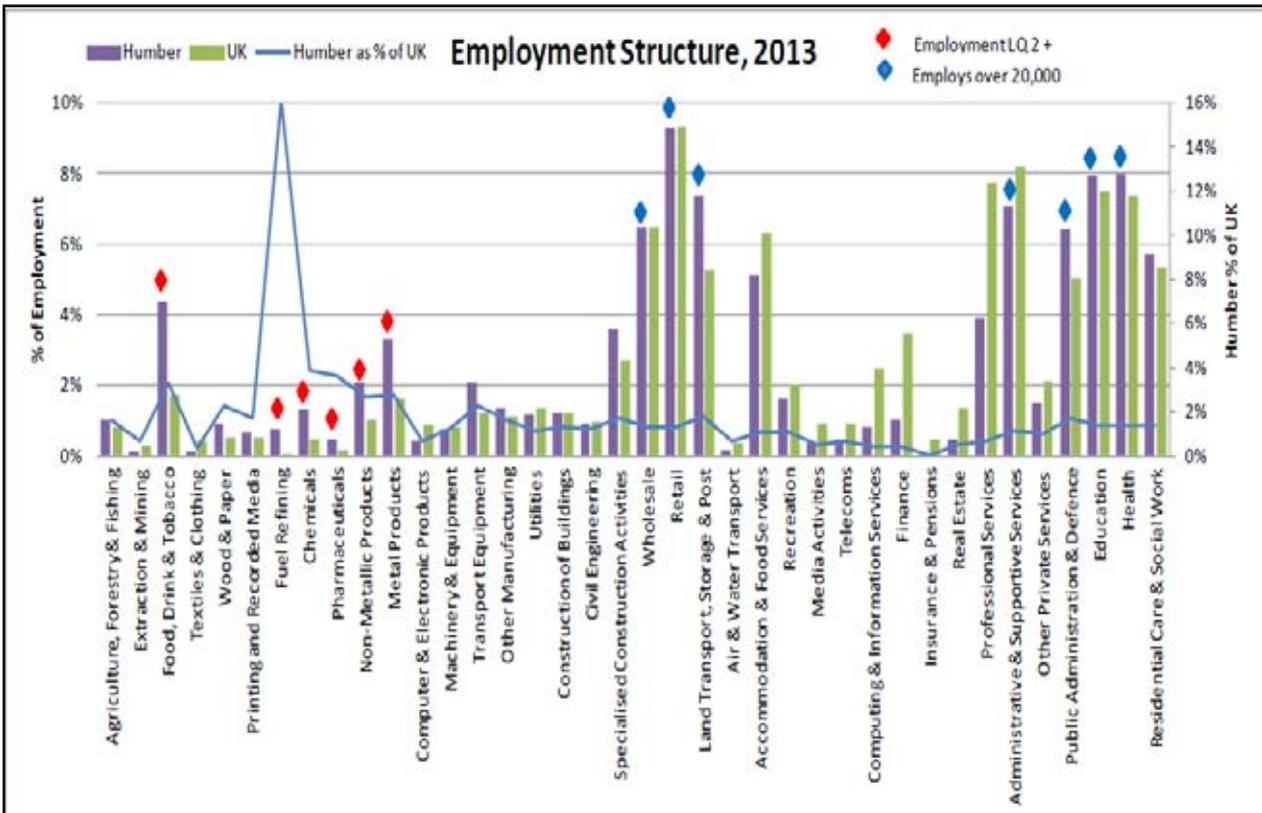
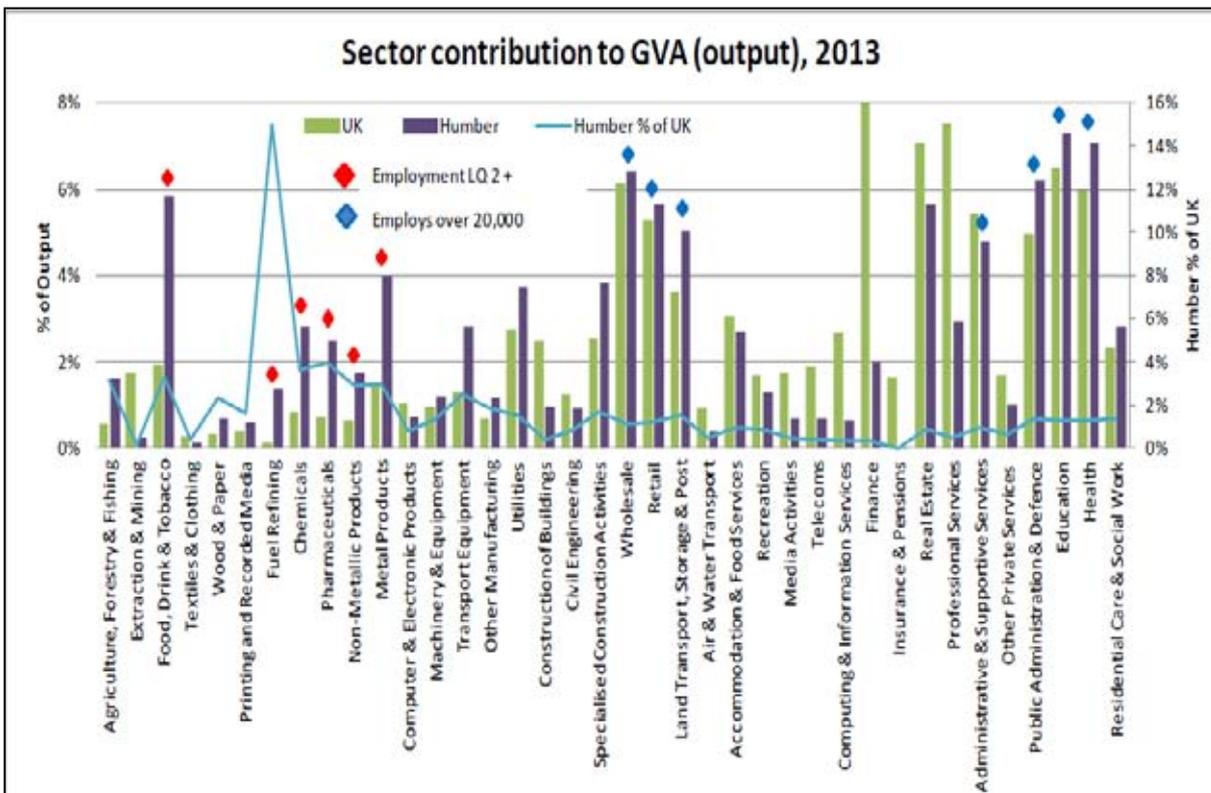


Figure 2: Sector Contribution to GVA 2013 (Source: Fletcher 2013 © Experian)



The second group of sectors includes food processing, retail, distribution and storage, and real estate activities, each contributing around 5% of total output. Notably, fuel refining activities on the Humber represent 15% of the total UK output from this sector, followed by pharmaceuticals and chemicals at around 4% of total UK output for these sectors. These represent significant concentrations locally but are externally facing sectors that serve UK and international markets.

A challenge for the Humber LEP and its partners is to recognise the different and competing priorities for policy of employment and output GVA and their relative significance at the local and national level.

- Some 28% of jobs are in the public sector and contribute 23% of output GVA.
- The second largest employment sector is production, that is, manufacturing and processing, representing 19% of all jobs across the food production, basic metals, pharmaceuticals, chemicals and fuel refining sectors, but some 26% of output GVA (UK=10% and 11% respectively).
- Business services, banking and financial services represent 14% of employment and 15% of output GVA (UK=23% and 31% respectively).

## **Methodology**

A study team was put together comprising a multidisciplinary group of academics at the University of Hull from the five disciplines of economics, regional and international business, geography, politics and the public sector, and logistics; one academic at the University of St Andrews; and a member of Hull University Business School's International Advisory Board. The project was coordinated by a leadership team from Hull University Business School and the University of Hull's Knowledge Exchange. Details of the team members are in Appendix 3.

The research methodology comprised seven main stages.

- Conducting a literature review of cluster, regional competitiveness and policy theory to inform the baseline perspective and subsequent research.
- Preparing sector analyses of the three target sectors to provide an appreciation whether any of them are technically 'clusters' as this is important regarding policy alternatives.
- Preparing sector analyses of four other potential sectors identified in conjunction with the LEP SU.
- Conducting qualitative interviews of leading managers, academics and experts in the UK, Europe and Asia to provide an outside perspective on the Humber product.
- Conducting a content analysis of the sectors analyses and interviews to generate SWOT assessments.
- Preparing a TOWS analysis to review potential strategies in light of policy alternatives.
- Developing conclusions and suggested actions for the Humber LEP to inform its development and investment strategy.

## **Analysis**

### **Discussion of clusters**

The starting point requested by the LEP SU was to assess whether the three target sectors identified by them: ports and logistics, chemicals, and energy (particularly renewable energy) can be described as competitive 'clusters', as defined by current multidisciplinary research in this field, or part of specific 'agglomerations' of activities in the region or both.

This assessment is important as policy approaches for clusters and agglomerations are different. For example, it is suggested that cluster policies should focus on prioritising the complementarities across related economic activity in the cluster and not offer incentives to benefit a small number of firms (Delgado et al, 2011). On the other hand, suggested policies for agglomerations should be aimed

at tackling weaknesses and inadequacies in regional fundamentals such as the adaptive capability of a region's economic asset base (Martin, 2011). Further details are contained in Appendices 4 and 5.

The five disciplinary groups in the study team each drafted a paper on clusters pertaining to their respective disciplines, three multidisciplinary groups prepared sector reports for the three target sectors, and a workshop with the study team was held subsequently to develop a consensus regarding clusters and the three target sectors: details are contained in Appendix 4.

The findings indicate a lack of evidence for clusters as defined above in each of the three target sectors of chemicals, energy including renewables, and ports and logistics. However there was clear evidence of economic agglomeration.

Further, ports and logistics were determined to be two independent sectors, rather than one, as their respective characteristics are very different. Hence, SWOT analyses discussed below were prepared for each of them.

### **Regional competitiveness and competitive factors**

With the apparent absence of formal clusters, the amended focus agreed with the LEP SU on 2 July 2013 shifted to identifying aspects of regional competitiveness and related competitive factors that the Humber region possesses or lacks in order to assess sector success. Appendix 5 provides a discussion of regional competitiveness and the selection of competitiveness factors for the study.

What is regional competitiveness? Kitson et al (2004) note that if regional competitiveness has 'meaning and value, it is as a much more complex and richer concept ... and focuses more on the determinants and dynamics of a region's long-run prosperity than on restrictive notions of competing over shares of markets and resources. It is one that recognises that ultimately competitive regions are places where both companies and people want to locate and invest in'.

The US Council on Competitiveness (2005) considers there are fifteen important factors for a regional innovation environment while Martin (2003) provides an overview of fourteen regional competitiveness factors (here grouped into twelve). The World Economic Forum's (WEF) Global Competitiveness Index (Schwab, 2012) proposes twelve factors of global competitiveness for nations under three sub-indices. They are quite similar to the former two studies and hence were used by the study team in selecting factors for further analysis.

The UK ranks 8th out of 144 nations worldwide with an average score of 5.4 out of 7 across the twelve WEF factors. Problematic factors for the UK include access to funding, tax rates and regulations, insufficient capacity to innovate, inefficient government bureaucracy, and inadequate educated workforce and supply of infrastructure. There is no breakdown for regions within the UK.

*Table 1* overleaf presents the categories of competitiveness factors from these three sources compared to the original LEP SU brief that contained seven factors of competitiveness.

Table 1: Comparison of competitive factors

LEP SU	US C on C (2005)	Martin (2003)	WEF (Schwab, 2012)
Underlying infrastructure	Physical infrastructure	Basic, technological and knowledge infrastructure	Infrastructure
	Quality of life	Quality of place	Health and primary education
	Human capital	Demographic trends	Labour market efficiency
	Regional appreciation of people		
Skills	Workforce development programmes	High skilled workforce	Higher education and training
		Entrepreneurial culture	
Innovation	Research partnering between universities and businesses	Innovation	Innovation
Enterprise	Incubators	Specialisation	Business sophistication
	Research and development institutions		Technological readiness
Investment	Financial capital	Capital availability	Financial market development
	Angel capital networks		
Leadership/governance	Legal and regulatory environment	Governance and institutional capacity	Institutions
Competition	Degree to which businesses are willing to collaborate and share ideas, even in competition	Nature of competition	Macroeconomic environment
	Industrial base	Sectoral concentrations	Market size
	Collaborative economic development partnership involving business, education, government and non-profits	Internationalisation	Goods market efficiency
	Regional attitudes towards risk		

The study team considered all the factors according to similarities and differences and combined them where appropriate, restating them into eight factors.

The eight competitive factors thus selected were

- *infrastructure* (underlying, physical, technological and knowledge)
- *quality of life* (place, health and primary education)
- *human capital* (labour market efficiency, demographic trends, regional appreciation of people)
- *skills* (higher education and training, workforce level, for example, high or low, and development programmes, entrepreneurial culture)
- *innovation and enterprise* (research partnering between universities and businesses, incubators, business sophistication, specialisation, technological readiness, research and development institutions)

- *financial capital* (investment and capital availability, financial market development, 'angel' capital networks)
- *leadership and governance* (institutions, legal and regulatory environment, governance and institutional capacity)
- *competition* (macroeconomic environment, degree to which businesses are willing to collaborate and share ideas, nature of competition, market size, industrial base, sector concentrations, goods market efficiency, collaborative economic development partnership involving business, education, government and non-profits, internationalisation, regional attitudes towards risk)

## **Economic activity sectors**

In addition to the original three sectors, four other sectors were added following discussions with the LEP SU and were evaluated.

- *Chemicals*
- *Energy* including renewables
- *Ports and logistics*
- *Agribusiness* including food processing
- *Tourism*
- *Digital services* including both digital infrastructure and digital services, that is, creative media
- *Manu-services* including enhanced service propositions by manufacturers and outsourced services in logistics

While production, that is, manufacturing or processing, represents a large amount of GVA for the region, discussions with the LEP SU focused around manu-services and hence production was not considered. However, a lot of production is taken up in the chemicals, energy including renewables and agribusiness or food processing sectors.

Sector reports for the seven sectors are contained in Appendix 6 while SWOT analyses for eight sectors, recognising the different characteristics of ports and logistics, are contained in Appendix 7. The sector SWOT analyses review each sector against the competitive factors in Appendix 5 and the sector reports in Appendix 6.

## **Interviews**

In keeping with the brief, face-to-face or telephone interviews were conducted with senior managers, government officials or academics in the UK, Europe and Asia to obtain an outside perspective on the research issues in terms of both a broad perspective as well their own specialisms.

The semi-structured interviews investigated factors and importance of competitiveness, important sectors in the interviewee's own region and the Humber region, a comparison of their region to the Humber region, and important SWOT elements in the Humber region.

Forty-three interviewees were invited to participate in the research and were spread across the seven sectors as well as including other stakeholders from, for example, government and academia. All interviewees were contacted at least twice by email, telephone or both, which resulted in 23 interviews being conducted (54% acceptance rate). The interview protocol and the semi-structured interview guide are contained in Appendix 8.

The interview findings confirmed *a priori* suppositions about competitive factors and sectors. The most important competitive factors reside in some strong themes: infrastructure, human capital and skills were the overwhelming themes, with quality of life seen by many as an enabler to developing and retaining skills. Leadership and governance and innovation and enterprise were important but

less so. Attracting foreign direct investment, providing a favourable tax regime or economic incentives and encouraging integration were mentioned as important aspects.

Leadership and governance was often prioritised by those outside the UK but not by UK respondents. Another minority theme was that competition which resulted in efficiency and collaboration was valuable, but not all forms of competitive behaviour led to this. A number of respondents also highlighted demand or market size as being important to achieving economies of scale.

The interviews suggested a breadth of activity in the Humber region, much of which relies on the ports, and supported the port-related processing agglomeration below, as opposed to the focused sectors of economic activity in some interviewees' regions. In essence, the broad economic activity in the Humber region suggests it has a higher diversity of leading sectors than the European average.

Major economic activities in the Humber region that were repeatedly raised unprompted by interviewees were ports, logistics and manufacturing (but not necessarily manu-services). Chemicals and agribusiness and food processing were in the next tier of frequency. Renewable energy, digital services and tourism were not widely discussed which suggests that while they are important to the Humber region they are not largely known outside of it. There was also no respondent from the tourism sector which limits the reliance that can be made on interview responses. Probing of all sectors took place if unprompted responses were not forthcoming.

A number of respondents commented that while significant, particularly in capital investment, chemicals, energy–renewables and speciality manufacturing do not require large numbers of workers if this was the definition of a major activity.

In future it was suggested that the Humber region focuses on fundamentals such as infrastructure, education and skills, and develops the breadth of sectors that are related to the region's largest natural resource – the ports. Manu-services, short-sea shipping and feeder traffic were highlighted as natural areas to follow the other port-related activities. There was specific support from several respondents for developing knowledge skills through initiatives with the University to increase professional services, technological innovation and start-ups in order to support these sectors.

There was limited awareness of companies that are currently leading economic activity in the Humber region or capable of stepping forward in future and there appears to be a correlation between distance from and awareness of the region as a whole.

Major strengths in the Humber region include ports, logistics and infrastructure, particularly international connections; innovation and enterprise of local businesses; quality of life related to cost of living; and certain skills and human capital.

Major weaknesses in the Humber region include higher-level (college or university) skills and professional services – for example only about 25% of the workforce aged 16-64 have NVQ4+ qualifications (Grant, 2013) – compounded by the media image of quality of life (not attracting people to the region) and low levels of attainment in education and attitude to work. Also noted were infrastructure and geographical isolation within the UK, a mature enterprise base, and lack of leadership and governance, particularly when the four local authorities need to work together. A number of specific points were also raised regarding the lack of collaboration and dynamism of the ports and the resulting lack of competitiveness.

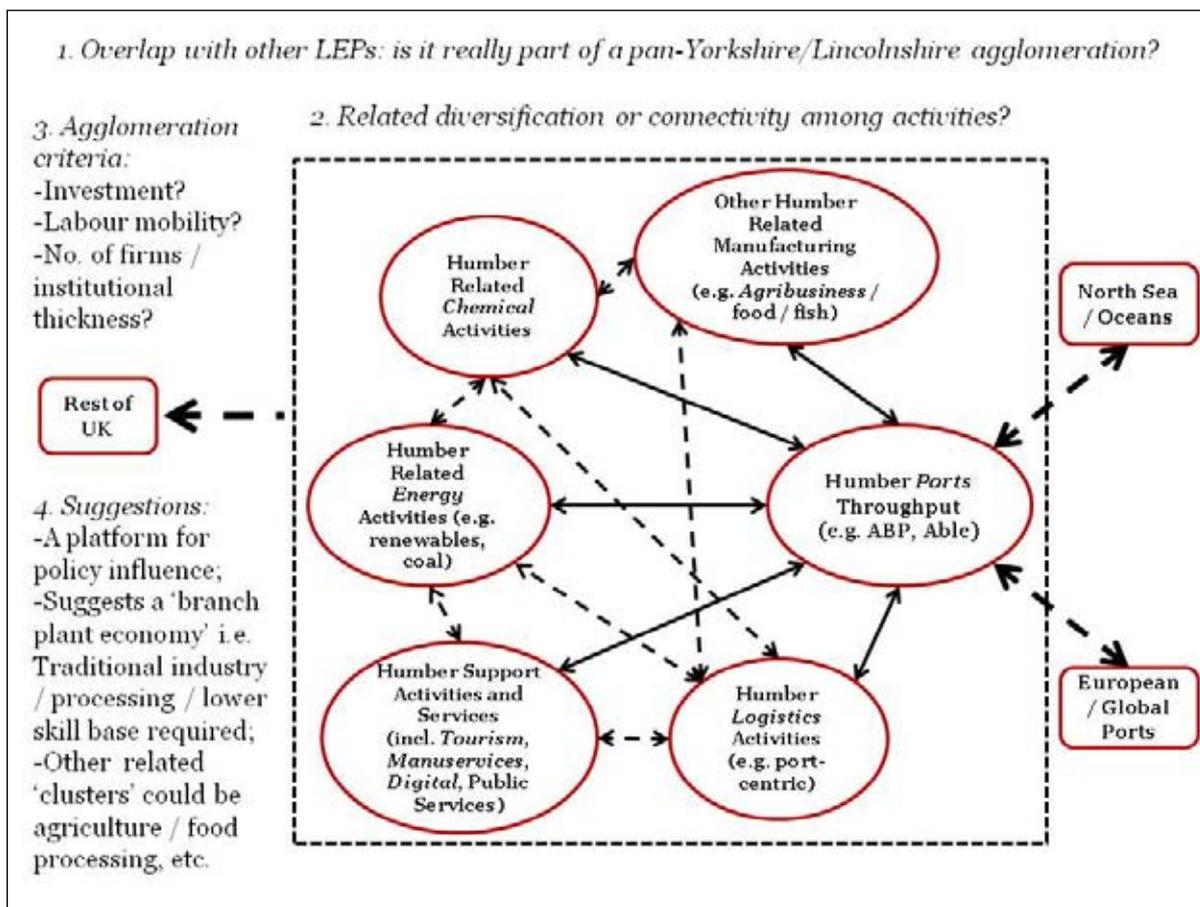
Opportunities included the growth of SMEs, in part through business competency training and support; facilitating improved networks between the University and business; improved intra-region infrastructure recognising the region's interconnectedness; and labour through market efficiencies (that is, low-cost).

Threats included control and legislation from the European Union and a lack of sufficient, available financial capital, and an indication that if the region failed to address its weaknesses while the rest of the world moved forward, it would be left in a weaker state.

### A port-related processing agglomeration in the Humber region

Given the relatedness among the economic sectors observed in the sector studies, a distinctive current agglomeration for the Humber region, related to processing through the ports, was developed as shown in Figure 3. While interviews focused on competitive factors and sectors, this agglomeration was supported by a majority of interviewees' responses and the sector SWOTs.

Figure 3: A Humber ports-related processing agglomeration



The basis for the agglomeration is that

- the Humber Ports complex principally leverages its geographical access to European and global ports and to the North Sea and further oceans to provide a conduit for regional processing activity
  - principal tonnage includes primary manufacturing and energy related feedstocks
- the energy sector is highly inter-dependent with the Humber Ports for
  - access to feedstocks – historic (coal) and new (woodchips)
  - access to offshore wind farms (for renewable energy)
- chemicals and other manufacturing and processing activity segments also use the Humber ports for access to raw materials
- potentially the local labour market would be best suited to basic, physical processing activities or primary manufacturing

- it supports a focus on wider (non-port) logistics and support activities, which would include an assessment of current infrastructure and required development for road and rail

This hypothesis is supported by the current economic structure of the Humber region as noted in *Context and current situation* above.

This agglomeration appears to have parallels to other observed areas where related diversification is continuing to provide growth, for example, in Aberdeen, with post oil-related growth and in Bremen, Germany, with offshore wind.

However, as noted above this hypothesis has not been fully developed at this time and requires further assessment in light of primary research with other areas across the UK and Europe regarding the Humber context.

Further, an appropriate methodology needs to be designed regarding proper comparison of the various areas and the factors of competitiveness, including like-for-like comparisons and weighting of individual factors, to ensure a rigorous and robust analysis.

There is a need to establish the strength of the agglomeration and hence whether this is a useful platform for growth and policy. Issues to be considered include the following.

- Definition and absolute and relative size (versus benchmarks from around the UK and elsewhere in the world).
  - Other significant primary industry segments involved, for example, the steel industry at Scunthorpe?
- What are other related market opportunities? Common versus specific–specialist externalities?
  - Do these inter-dependencies influence investment and location decisions?
- Evidence of agglomerative innovation, specific skills, enterprise, and so forth.
- Actual ‘region’ being served, for example, all of the Yorkshire and Humber region, and hence the total political area requiring coordination (for example, across other LEPs in the UK, particularly in the North)

## **Summary SWOT and TOWS analyses**

### **SWOT analysis**

The summary SWOT in Table 2 below was compiled from the sector SWOT analyses in Appendix 7 and from responses to the interviews. It indicates the strengths and weaknesses that are highlighted as **relative** strengths or weaknesses in the sector SWOTs (compared to other regions elsewhere). The opportunities and threats shown are the external factors highlighted in the sector SWOTs only – strategies to address weaknesses or utilise strengths are examined in the later TOWS analysis.

Table 2: Summary SWOT analysis

<b>SWOT</b>	<b>Strength Regional (relative)</b>	<b>Weakness Regional (relative)</b>	<b>Opportunity External</b>	<b>Threat External</b>
<b>Infrastructure</b>	<p>1: Humber Port conurbation largest in the UK in terms of tonnage</p> <p>2: Established power and process industry, and chemicals with nationally significant assets</p> <p>3: Lower energy transmission costs</p> <p>4: Manufacturing/agribusiness base</p> <p>5: Geographic access to renewable energy sources locally and via ports</p> <p>6: Suitable land for development/agriculture</p>	<p>1: Ports lack of dynamism and investment historically</p> <p>2: Low levels of integration among chemical and oil and gas industries due to specialisms</p> <p>3: Intra region and UK transport links</p>	<p>1: Deepwater developments proposed for North and South banks and logistics parks</p> <p>2: Renewable energy development (including related processing/support)</p> <p>3: Carbon capture and storage development</p> <p>4: Growth in agricultural feedstocks for energy/chemical industries</p> <p>5: Manufacturing/logistics moving north/closer to distribution points</p> <p>6: Demand for 'greener' data centres</p> <p>7: Offshore wind farm development</p>	<p>1: East coast ports competition</p> <p>2: National/international plant owners' decisions</p> <p>3: Decarbonisation strategy/demands</p> <p>4: Alternative energy sources e.g. shale gas</p> <p>5: Social/environmental restrictions/impact on land usage</p>
<b>Quality of life, human capital, skills</b>	<p>7: Low cost of living</p> <p>8: Lower salaries</p> <p>9: Training facilities e.g. CATCH</p>	<p>4: Perception of quality of life</p> <p>5: Economic inactivity rate</p> <p>6: Educational attainment</p> <p>7: Shortage of higher level skills</p> <p>8: Low-skill economy</p>		<p>6: Mechanisation and automation removing food manufacturing jobs</p>
<b>Innovation and enterprise</b>		<p>9: Low level of absorptive capacity of firms (mainly technology implementers)</p>	<p>8: There appears to be an appetite for developing additional value-added services by several of the sectors, including chemicals, energy, ports and logistics</p>	

<b>SWOT</b>	<b>Strength Regional (relative)</b>	<b>Weakness Regional (relative)</b>	<b>Opportunity External</b>	<b>Threat External</b>
<b>Financial capital, leadership and governance</b>	<p>10: Ability to attract/retain significant private sector investment</p> <p>11: Public (and private) support available for growth projects</p> <p>12: Degree of institutional thickness with well-established and dynamic industry bodies e.g. HCF</p>	<p>10: Large-firm dominance limits LEP's influence in specific sectors to assist smaller firms in engaging with the sector</p> <p>11: Lack of effective local political structure for coordinated intervention</p> <p>12: Limited understanding of new bodies and funding structures</p>	<p>9: Established relationship with the EU to attract foreign direct investment</p> <p>10: Local and national Government support for funding</p> <p>11: Research and initiatives on developing cross-border activities through bilateral cooperation between maritime regions</p>	<p>7: Unclear government policies delay investments</p> <p>8: Competition among UK regions to develop ports, logistics parks, renewables and digital services</p> <p>9: Bad debt risks increase for SMEs</p> <p>10: Changes in EU funding and regulation</p>
<b>Market/competition</b>	<p>13: Diversified mature economy with some evidence of agglomeration amongst major sectors</p> <p>14: Processing with a strong association to food, e.g. seafood</p>	<p>13: Lack of specific sector clusters</p> <p>14: Current performance and growth</p> <p>15: Large 'branch' plant dominance</p> <p>16: Limited professional services</p>	<p>12: Digital economy growth</p> <p>13: Emergent diversification in the chemicals sector into the energy sector e.g. biofuels</p>	<p>11: Market uncertainty and oil price fluctuations (for renewable energy in particular)</p> <p>12: Increased buyer power and international competition for processing output</p>

## **Observations on the summary SWOT**

### *Strengths and weaknesses*

The major strengths of the Humber region lie in the infrastructure factor of competitiveness; although key weaknesses are also highlighted in this factor particularly intra region and UK transport links. The major weaknesses in the region lie in quality of life, human capital and (higher) skills, with the latter lacking any counterbalancing advantage. Innovation and enterprise is also relatively weak, in part reflecting the dominance of large 'branch' plants. Financial capital, leadership and governance were more balanced, but the lack of effective local political sectors for coordinated intervention was highlighted across multiple sector reports. Finally, the region's economy or market, though mature and diversified and hence offering potential resilience, lacks obvious drivers of performance improvement or focus areas.

### *Opportunities and threats*

The major opportunities again lie in the infrastructure factor with renewables and digital sector opportunities specifically highlighted (here and in market). The principal threats are social, environmental and regulatory on the one hand, and competitive or corporate actions on the other. The Humber leadership will need to find a way to balance these two forces if it is to exploit these opportunities. Opportunity is highlighted in innovation and enterprise but in quality of life, human capital and skills only a threat is shown suggesting this area is at risk of further deterioration. There are both opportunities and threats raised in financial capital, leadership and governance, and for the region's economy or market.

## **TOWS analysis**

TOWS analysis helps generate and evaluate strategic options (Wehrich, 1982). It places strategic options in the context of the strengths, weaknesses, opportunities and threats that they address or utilise.

- Strengths and opportunities (SO) – strategies that use strengths to maximise opportunities
- Strengths and threats (ST) – strategies that use strengths to minimise threats
- Weaknesses and opportunities (WO) – strategies that minimise weaknesses by taking advantage of opportunities
- Weaknesses and threats (WT) – strategies that minimise weaknesses and avoid threats

Typically the most impactful strategies, in relative performance, are those that use strengths to maximise opportunities (SO).

Successful enterprises, even if they temporarily use one of the three other strategies, will attempt to get into a situation where they can work from strengths to take advantage of opportunities as Wehrich stated in his paper setting out the approach.

Table 3 below maps strategies proposed in the sector SWOTs (within opportunities and threats) to the overall SWOT above. Each factor based strategy is mapped to the strengths or weaknesses that prompted it and the opportunities or threats that it responds to.

The reference numbers in brackets refer to the specific points in the summary SWOT above (Table 2).

Table 3: TOWS analysis

TOWS	Strengths and opportunities	Strengths and threats	Weaknesses and opportunities	Weaknesses and threats
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>: Pursue renewables market opportunity (S2,3,4 5,6,7,8,9,10,11,12 and O2,4,7,8,13)</li> <li>: Marketing the Humber as the 'UK's Energy Estuary' with a message about the Humber's contribution to UK energy security/supply/targets (S1,2,3,5,6,9,10,12 and O2,3,4,7,10,13)</li> <li>: Leveraging diversity of local energy supply and demand for energy efficient data centres (S1,2,3,5,6,10 and O2,3,4,6,7,8,12,13)</li> </ul>	<ul style="list-style-type: none"> <li>: Position the ports and related logistics as a better international feeder hub than Southampton and for Nordic and Baltic countries for carbon impact, reliability, costs etc. (S1,4,6,8,11 and T1,2,3,8,11)</li> </ul>	<ul style="list-style-type: none"> <li>: Creative industries and digital media firms may follow 'server farms' and broadband (W5,13,16 and O6,12)</li> <li>: Improve intra region infrastructure recognising region's connectedness (W3,5 and O1,4,5,10)</li> <li>: Derive further economic benefit from tourism as most areas have capacity to cope with more visitors (W4,5,7,14 and O10)</li> </ul>	<ul style="list-style-type: none"> <li>: Utilise carbon capture and storage technologies to ensure future competitiveness of the Humber's power and process industry (W5,15 and T2,3,6)</li> </ul>
<b>Quality of life, human capital, skills</b>	<ul style="list-style-type: none"> <li>: Expand training programmes tailored to sectors e.g. Leisure and tourism management (S1,2,4,5,9,11,12,13 and O1,2,5,7,10,12,13)</li> </ul>		<ul style="list-style-type: none"> <li>: New MIS system that can track higher skills (W7,16 and O 2,3,10,12,13)</li> <li>: Build around Sport, Creative Arts and community engagement (e.g. City of Culture) to develop tourism and human capital/skills (W4,5,6,8 and O10)</li> <li>: Target related skills and technologies and develop a learning region (W6,7,8,9,16 and O2,3,5,8,10,12,13)</li> <li>: Make marketing skills available to SMEs (W1,5,8,10,12,15 and O1,4,5,8,12,13)</li> </ul>	

TOWS	Strengths and opportunities	Strengths and threats	Weaknesses and opportunities	Weaknesses and threats
<b>Innovation and enterprise</b>	<p>: Collaboration between research bodies, the higher education sector and strategists to innovatively address increased demand for food and biofuel production and energy generation (S2,4,6,11,12 and O2,4,8,10,13)</p> <p>: Encourage 'branch-plant' level innovation/develop functional centre of excellences to enhance/increase activities (S2,9,11,12 and O2,3,4,7,8,13)</p>	<p>: Green infrastructure networks (S6,7,12 and T5,6)</p>	<p>: Attract competence creating strong R&amp;D mandate/ R&amp;D activities of flagship firms e.g. renewable research centre (W8,9,15 and O2,3,4,10,13)</p> <p>: Encourage informal and formal knowledge sharing and co-development (e.g. of key energy-related technologies) by the lead firms with SMEs and beyond the local milieu (W2,8,9,13,15 and O2,3,4,7,8,11,13)</p> <p>: Role for Higher Education in establishing/developing computer/gaming/media sector and incubators for other related sectors (W5,6,7,8,10 and O10,12)</p> <p>: Improved networks between University and business (W6,7,8,9,10,11,12 and O1,2,3,4,5,6,7,8,10,11,12,13,14)</p>	
<b>Financial capital, leadership and governance</b>	<p>: Pursue tourism funding (ERDF) with effective networks that allow work across tourism brands/themes (S7,8,9,11 and O10,11)</p> <p>: Pursue EAFRD funding for agribusiness (S4,6,14 and O4,10)</p> <p>: Leverage initiatives on developing cross-border activities (including bilateral cooperation between maritime regions) (S1,2,3,4,5,6,7,8,9,11,12,13 and O1,2,3,4,5,7,9,10,11,13)</p>		<p>: Develop brand of Humber and its regional-global connectivity (W1,4,11,13 and O1,2,3,5,7,9,10,11,13)</p> <p>: Connectivity of local and non-local actors to tackle issues of rent seeking and local lock-in (W1,2,7,11,15 and O1,2,3,4,5,6,7,8,9,11,13)</p> <p>: Establish regional agents in renewable energy sectors overseas (W4,9,11,12,13,14,15,16 and O2,4,7,8,9,11,13)</p>	

<b>TOWS</b>	<b>Strengths and opportunities</b>	<b>Strengths and threats</b>	<b>Weaknesses and opportunities</b>	<b>Weaknesses and threats</b>
<b>Market/competition</b>	: Pursuit of growth across port related processing agglomeration (S1,2,3,4,5,6,7,8,9,10,11,12,13,14 and O1,2,3,4,5,7,8,9,10,11,13) : Development of Humber as quality agricultural produce hub and exporting fresh produce (S1,4,6,7,8,11,14 and O1,4,11)		: SME development through business competency training and support (W1,2,5,8,9,12,13,14,15,16 and O1,2,3,4,5,6,7,10,12,13)	

## Observations on the TOWS analysis

The mapping indicates that there are a broadly similar number of strategies proposed which leverage strengths to address opportunities and those that seek to minimise weaknesses by taking advantage of opportunities. The former are, as argued above, generally more likely to generate growth. However both should be considered. Similarly while some of the strategies leverage more strengths (and opportunities) than others it is not necessarily the case that these will have the most impact. Different relationships may have different weights in terms of their potential, so each should be carefully evaluated. Still, it is a relatively simple way of recognising promising strategies that use strengths to take advantage of opportunities in the external environment (Wehrich, 1982).

Reviewing the strategies proposed confirms that although the list is obviously not exhaustive (of all potential strategies), those proposed address or utilise all the weaknesses and strengths in the summary SWOT above.

Some of the strategies proposed are already being pursued (for example, the renewables market opportunity). However some are new or enhancements to existing strategies (for example, pursuing tourism funding with networks that allow work across tourism brands and themes) and so offer additional intervention suggestions.

## Policy theory

How should competitiveness be fostered and measured? A deeper discussion about regional competitiveness and policy implications is contained in Appendix 5. A framework by Tödtling and Trippel (2005) shown in Table 4 suggests some possible policy approaches to regional problems based on three model types of regions.

Table 4: Policy approaches (Tödtling & Trippel, 2005)

	Types of region		
	Peripheral regions (organisational thinness)	Old industrial regions (lock in)	Fragmented metropolitan regions
<b>Strategic orientation of regional economy</b>	Strengthening/upgrading of regional economy	Renewal of regional economy	Improve position of regional economy in global knowledge economy
<b>Innovation strategy</b>	“Catching up learning” (organisation, technology) Improve strategic and innovation capabilities of SME’s	Innovation in new fields/trajectories Product and process innovation for new markets	Science based and radical innovation, new ventures Enhance interaction between industry and knowledge providers
<b>Firms and regional clusters</b>	Strengthen potential clusters in the region Link firms to clusters outside the region  Attract innovative companies New firm formation	Support clusters in new/related industries or technologies Restructuring of dominant industries  Diversification New firm formation: attract cluster related FDI	Support emerging clusters related to region’s knowledge base Develop specialisation advantages to achieve synergies and international visibility Attract cluster related FDI Support start ups and spin-offs in knowledge based industries
<b>Knowledge providers</b>	Attract branches of national research organisations with relevance to the regional economy	Set up research organisations and universities in new relevant fields	Expand and set up high quality universities and research organisations in relevant fields
<b>Education skills</b>	Build up medium level skills (e.g. technical colleges, engineering schools, management schools) Mobility schemes (e.g. “innovation assistants” for SME’s)	Build up new skills required (technical colleges, universities)  Attract new skills	Set up universities/schools for highly specialised qualifications and skills required
<b>Networks</b>	Link firms to knowledge providers and transfer agencies inside the region and beyond, demand-led approach	Stimulate networking with respect to new industries and technologies on regional, national and international levels	Promote regional networks among firms, encourage local research-industry interfaces

It is inaccurate to suggest that the Humber region fits only one type.

It does bear many of the problem symptoms in a peripheral region, such as weak or missing clusters discussed above, low levels of product innovation and research and development, and low to medium level skill qualifications.

However, it also features some problem symptoms of an old industrial (lock-in) region, such as several mature industries and a traditional or primary industry orientation, for example, chemicals and ports, the presence of a few large firms, and technical skill qualifications.

Depending on how the Humber LEP views what type of region the Humber belongs to, for example, as peripheral, old industrial or a combination of types, certain strategies may or may not be entirely appropriate. The study team believes the Humber region is a hybrid of these two types and the policies suggested by the literature for the Humber LEP include

- assisting firms in catching up with their organisational learning to improve innovation by supporting educational and knowledge assistance programmes
- linking firms to others of similar economic activity outside the region and supporting growth in new economic sectors by conducting business needs analysis and hosting trade missions and workshops within and outwith the region
- establishing collaborative research organisations or associations in conjunction with existing efforts to assist firms with R&D and product innovation efforts
- conducting a skills analysis of what skills actually exist in the region and what skills are demanded in order to determine the magnitude of the skills gap and prescribe appropriate skills action plans.

## **Conclusions and suggested actions for the Humber LEP**

There now needs to be a collective will to focus on the needed impact on competitiveness. The recent past has seen challenges with reorganisation of structures and institutions and uncertainty (with funding cuts).

Interviewees confirmed the need for, and value of, a proactive LEP (a cohesive business–public sector partnership) and the role that the University can play.

Interviewees highlighted the need for effective inter-regional collaboration by the LEP: the local authorities have an opportunity to use their multiple memberships to facilitate this.

The local economy is broad based and hence pursuing a few narrow projects may be counter-productive. It will probably be more effective simply to ensure that the broad base is supported where required, to stimulate steady and productive sustainable growth. That needs an evolutionary process rather than a revolutionary one.

The Humber LEP must determine which economic sectors should have the best chance of growth given their respective SWOT analyses which were also informed by outside perspectives from interviewees.

The traditional industries: ports, logistics, chemicals, agribusiness and food processing, and other production (manufacturing and processing) should be supported by the LEP in the short-term and also encouraged to develop more added-value interrelatedness and hence GVA. This may need to be led by the SMEs in the area as the larger, older firms are mature and potentially restricted or constrained in their scope for regional growth due to structure, ownership or factors and forces external to the region. In agribusiness and food processing, SMEs and small holdings may be able to provide consumers in the region with locally grown or raised products to capitalise on consumer interest in local quality food that has proper and traceable provenance, and pursue relevant EAFRD funding. The chemicals and ports sectors in particular are controlled by large national or multinational organisations. It is unclear whether the Humber LEP can exercise sufficient influence

on these players; it may simply have to assist smaller firms in engaging with these sectors and with other stakeholders such as the University, the World Trade Centre, the Hull and Humber Chamber of Commerce, and the like.

In the medium term the Humber LEP could help establish proper operating conditions for the digital services and manu-services sectors and explore whether either or both could have a significant impetus for the Humber region. The development of both sectors is dependent on factors which may not exist for the region. For example, infrastructure, higher-level skills required for creative media, and other digital services may need fostering in the digital sector. Regarding the production and manu-services sectors, engineering firms may require transition assistance to provide additional service-based offerings to enhance their activities while infrastructure improvements, some of which are currently planned by Associated British Ports, would provide sufficient deepwater port capacity for container handling to allow third-party logistics services to thrive as they do in Teesport.

The energy sector regarding renewables appears well-served by various associations at present and is working its way towards higher activity levels which the arrival of Siemens and Able UK or another significant operation will accelerate. The Humber LEP and its partners have already recognised the potential offered by this sector and are working to establish the operating conditions and facilities to capitalise on it.

The region has many tourism assets as outlined in the sector report, and the award to Hull of the UK City of Culture 2017 after this study was concluded further highlights the potential of this sector. However, we did not obtain any outside perspectives on tourism in the primary research-interview process to enable a deeper analysis of it. Considering the sector report in isolation, it is suggested that the LEP assist the four local authorities in encouraging increased collaboration for marketing the Humber product among the various extant tourist agencies in order to develop a region-wide strategy and implementation plan, and in pursuing relevant ERDF funding, in conjunction with the other Yorkshire and regional LEPs in east, west, north and south Yorkshire and Lincolnshire.

The major strength of the region lies in its infrastructure and it is logical to seek to make this even stronger and build on it to support the port-related processing activities highlighted above. The focus needs to be on facilitating transportation intra-region and with the rest of the UK.

The major weakness of the region lies in its limited high-level skills base. Hence any significant additional need for skilled and technically proficient employees means they will have to be brought in from outside. The Humber LEP could conduct an audit of firms in the region to determine what need there will be in future for more skilled staff and to continue to assist local firms and SMEs to improve their knowledge base and skills, in association with efforts currently in place at the University.

Quality of life in the Humber region has its strengths and weaknesses, but the latter may be magnified by the bad press it receives. Further, the lack of awareness of the Humber region, increasing with distance away from it, suggests some of the efforts in raising awareness have not necessarily been successful. The Humber LEP could address that by forming or supporting a regional marketing initiative and branding to ensure the Humber message is complete, cogent and succinct.

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