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Contact:	Rebecca Pates Simon Pringle Luke Delahunty	Tel: 0161 475 2105	email: rpates@sqw.co.uk springle@sqw.co.uk ldelahunty@sqw.co.uk
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Approved by:	Simon Pringle Director	Date: 1 May 2016
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1. Introduction

Context

- 1.1 In late October 2015, SQW Ltd and Cambridge Econometrics Ltd (CE), supported by Steer Davies Gleave Ltd (SDG), John Jarvis Consulting, and (as peer reviewers) Professors Philip McCann (Groningen), Ron Martin (Cambridge) and Roger Vickerman (Kent) were appointed by Transport for the North (TfN) on behalf of wider partners, to undertake **an Independent Economic Review (IER) of the Northern Powerhouse (NPh)**.
- 1.2 Partners' intentions in commissioning the IER were threefold, namely to provide:
- **data, evidence, and intelligence to underpin TfN's Northern Transport Strategy in Spring 2016**, as an input to the Spring 2016 Budget, and subsequent proposals for transport investment.
 - the evidence and arguments around **which the 'narrative' for the NPh** could be forged and developed.
 - the **analytic bedrock on which subsequent NPh development**, – including, but not limited to, strategy and action planning – could be built and progressed for the future.
- 1.3 The work was undertaken between late-October 2015 and March 2016. It comprised five workstreams as follows:
- Workstream 1 – analysis of the **prosperity and productivity gaps in the North**, and the potential contribution role of different drivers, including (proxies for) transport connectivity, in closing these.
 - Workstream 2 – a focused analysis of the **economies of the 11 Local Enterprise Partnership (LEP) areas, which together form the North**, including an assessment of local productivity performance and causes, sectoral specialisms, capabilities, and assets, and major investments planned/underway to address the causes of the performance gaps and realise sector opportunities.
 - Workstream 3 – analysis of **distinctive competitive advantage and sectoral strengths, capabilities, and industrial potentials** of pan-Northern significance.
 - Workstream 4 – **modelling future growth scenarios for the North, including growth consistent with NPh's aspirations**, and the role of agglomeration and transport in influencing the growth across the North.
 - Workstream 5 – developing **suggested proposals for an Independent Panel** to act as the guardians of the IER's evidence base going forward.

What the Review was . . . and what it was not

- 1.4 The Review was seeking to characterise the North's economic position and the causes underpinning its performance, and to identify opportunities where 'pan-Northern' effort can sensibly support existing 'local' activities. Whilst key elements of the work involved drilling

down into transport specifics, the Review as a whole was intended to reflect on the wider ‘ecosystem’ in the North of England, of which transport is a part.

- 1.5 Importantly, the Review was not intended as a fully-dimensioned ‘economic baseline’ for the North, although in undertaking its work it ranging widely across a range of domains. Equally importantly, the IER was not about developing the NPh strategy or action plan, nor was it concerned with any NPh governance arrangements. Rather, it relied heavily on a review and synthesis of existing literature and evidence, with additional modelling work by Cambridge Econometrics, building on analysis of the North’s ‘prosperity’ and ‘productivity’ gaps, and sectoral performance, as its key evidential foundations.

This Report

- 1.6 This report is the final output of Workstream 2. It has been written to report fully on the content, findings, and conclusions of the Workstream. As such, it is designed as a self-standing output, but it should also be read in the context of the companion reports which have been produced for the other Workstreams. **The local area profiles that the report contains have been written to inform the Review, and they have not been designed and are not intended for use, other than within the context of the Review.**

- 1.7 The remainder of this report is as follows:

- Section 2: Method
- Section 3: Local Area Profiles, presented in the alphabetical order
 - Cheshire and Warrington
 - Cumbria
 - Greater Manchester
 - Hull and Humber City Region
 - Lancashire
 - Leeds City Region
 - Liverpool City Region
 - North East
 - Sheffield City Region
 - Tees Valley
 - York, North Yorkshire and East Riding.

- 1.8 Two Annexes are attached:

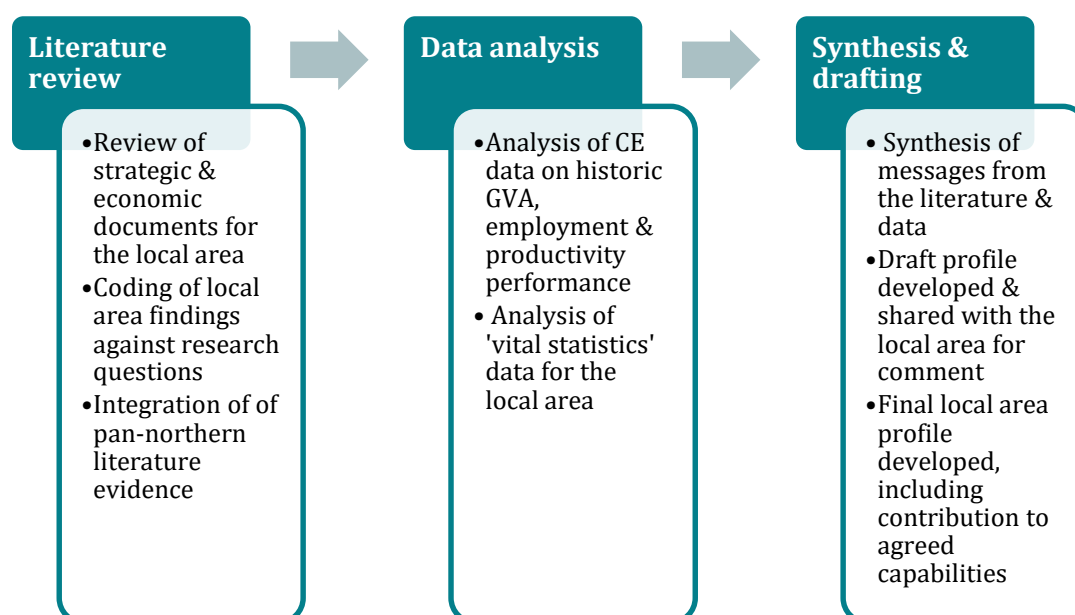
- Review Definitions
- Bibliography.

2. Method

Overview

- 2.1 The City Region and local area profiles have been developed by the Review Team as a key part of the evidence base for the Review, and as an input to other Workstreams, particularly in identifying sector strengths and opportunities in areas across the North. The profiles draw on an extensive process of literature review, data analysis, and synthesis undertaken by the Review, and represent the Team's objective and independent assessment of each area based on the evidence.
- 2.2 An overview of the process undertaken by the Study Team is provided in Figure 2-1, with further details on each stage described in the paragraphs that follow.

Figure 2-1: Overview of process for developing City Region and local area profiles



Source: SQW

Literature Review

- 2.3 Undertaken using Eppi Reviewer, the literature review focused on strategic and economic documents for each of the 11 local areas. This included *in all cases* reviewing the Strategic Economic Plan, European Structural and Investment Funds Strategy, and details of the Growth Deal with Government. Local areas were also asked to provide further documents for review by the Study Team, including, for example, Smart Specialisation strategies/reviews and local economic assessments. These documents were reviewed as far as practical by the Study Team.
- 2.4 To ensure consistency of treatment and meet the requirements of the IER, the review was completed using a set of research questions, with evidence from the literature identified and collated for:

- The area’s **economic growth ambitions and transport priorities**, in local strategic documentation
- The **scale and cause of productivity ‘gap’** (or potentially ‘advantage’) of the local area relative to comparators
- The scale and nature of **current interconnections with other northern cities/areas**, and wider strategic transport linkages and disconnects
- The **critical committed investments** to close the productivity gap and/or unlock sector opportunities.

2.5 Where relevant, findings from the wider literature review undertaken for Workstreams 1 and 3 were also integrated into the review process with findings identified against the research questions. In total the literature review for this Workstream was based on **over 115 documents** across the North, with at least five separate documents reviewed in each area.

Data Analysis

2.6 Alongside the literature, the local area profiles draw on a consistent data-set of key economic indicators for each area. The data included in the local area profiles is set out in Table 2-1. It should be noted that the data used in the local profiles was intentionally focused: the intention was to provide a set of consistent headline measures of economic performance and trends for each area, with the literature review used to identify bespoke information on issues such as innovation, investment, and sector strengths to complement this consistent headline suite of indicators.

Table 2-1: Data included on the City Region and local area profiles

Group	Data
Headline economic performance	<ul style="list-style-type: none"> • Historic growth rates (2000/13) for GVA, Jobs, GVA per Job (productivity), and Population
Vital economic statistics	<ul style="list-style-type: none"> • Demographics: Population (2014), and Working Age Population (2014) • Economic performance: Employment: Jobs (2013), GVA (2013), GVA per job (2013) • Enterprise: Local Enterprise Units (2015) • Skills: Qualified to NVQ Level 4+ (2014) • Labour market engagement: Economic activity rate (2014)
Commuting flows	<ul style="list-style-type: none"> • Location of usual residence and place of work for outward and inward commuting flows (2011)

Source: SQW and Cambridge Econometrics

Synthesis and Drafting

2.7 The findings from the literature review and data analysis were synthesised to produce a concise narrative profile for each area. The development of each profile was led by a dedicated individual selected from the Review Team with experience/knowledge of the relevant local area, providing further insight and ‘tacit understanding’ to the synthesis process. The profiles were written to a consistent template.

2.8 The profiles have also informed, and drawn on, the wider work of the Review to identify the North’s ‘prime’ and ‘enabling’ capabilities¹ (discussed in more detail in Workstream 3). An assessment of the alignment and contribution of each local area to the ‘prime’ and ‘enabling’ capabilities has been summarised at the end of each profile, as follows:

- **Alignment:** meaning the relative importance of the North’s seven capabilities to the economy of each local area – practically, the proportion of total GVA/employment in each local area accounted for by each of the seven capabilities has been identified, with these proportions then ranked for each capability (where 1 = the local area with the highest proportion of its total GVA/employment accounted for by each capability)
- **Contribution:** meaning the importance of each local area to the North’s total GVA/employment in each ‘prime’ and ‘enabling’ capabilities – practically, the total GVA/employment for each capability generated by each local area has been identified, with the local areas then ranked by the scale of their contribution to the North’s total (where 1 = the local area that contributed the greatest level of GVA/employment to the North’s total).

2.9 The principal focus for the assessment was on GVA rather employment, and in most cases the rankings were consistent between the two indicators (where this is not the case, GVA has been used). The rankings have then been grouped to provide an indicative assessment (based on the quantitative evidence), for the alignment and contribution of each local area to each capability, set out in Table 2-2.

Table 2-2: Assessment scoring based on grouped rankings

Ranking	Assessment
First to fourth	✓✓✓
Fifth to eighth	✓✓
Ninth to eleventh	✓

Source: SQW

2.10 For example, the data indicate Advanced Manufacturing accounted for 16.1% of GVA in Cheshire and Warrington (C&W), this was the highest proportion across all 11 areas (the next highest was Cumbria at 15.7%) – meaning that C&W is ranked first, and a ‘✓✓✓’ assessment is applied for *alignment* for C&W for Advanced Manufacturing. However, C&W’s absolute contribution to the North’s total GVA in the Advanced Manufacturing capability (at £3.2bn) is the sixth highest across the North (with Leeds City Region at £4.7bn and Greater Manchester at £4.1bn the two areas with the greatest contribution) – meaning that C&W is ranked sixth, and a ‘✓✓’ assessment is applied for *contribution* for C&W for Advanced Manufacturing.

2.11 This analysis enables the profiles to provide, in headline, both an absolute and relative assessment of the role of each local area in the North’s capabilities, reflecting the very different scales of the economies across the 11 local areas. However, it should be noted that the

¹ The ‘prime’ and ‘enabling’ capabilities cut across sectors to some extent, but Cambridge Econometrics have provided a very broad estimate of scale by building up from “best fit” 4-digit SIC codes in CE’s model. This is not a precise measure – some of the capabilities are narrower than the SIC codes allow, others will be absorbed by much broader SIC codes; and some SIC codes contain a combination of higher and lower productivity activities which we are not able to disaggregate further in the SIC coding system. This data should therefore be treated as indicative.

assessment is focused on GVA and employment only, and does not consider the wider economic benefits that the capabilities may bring to each area.

- 2.12 **The profiles have been shared with the lead from each area on the Economic Reference Group for review and comment on factual accuracy; they remain fully the work of the Review Team, and have not been designed for use other than within the context of the Review.**

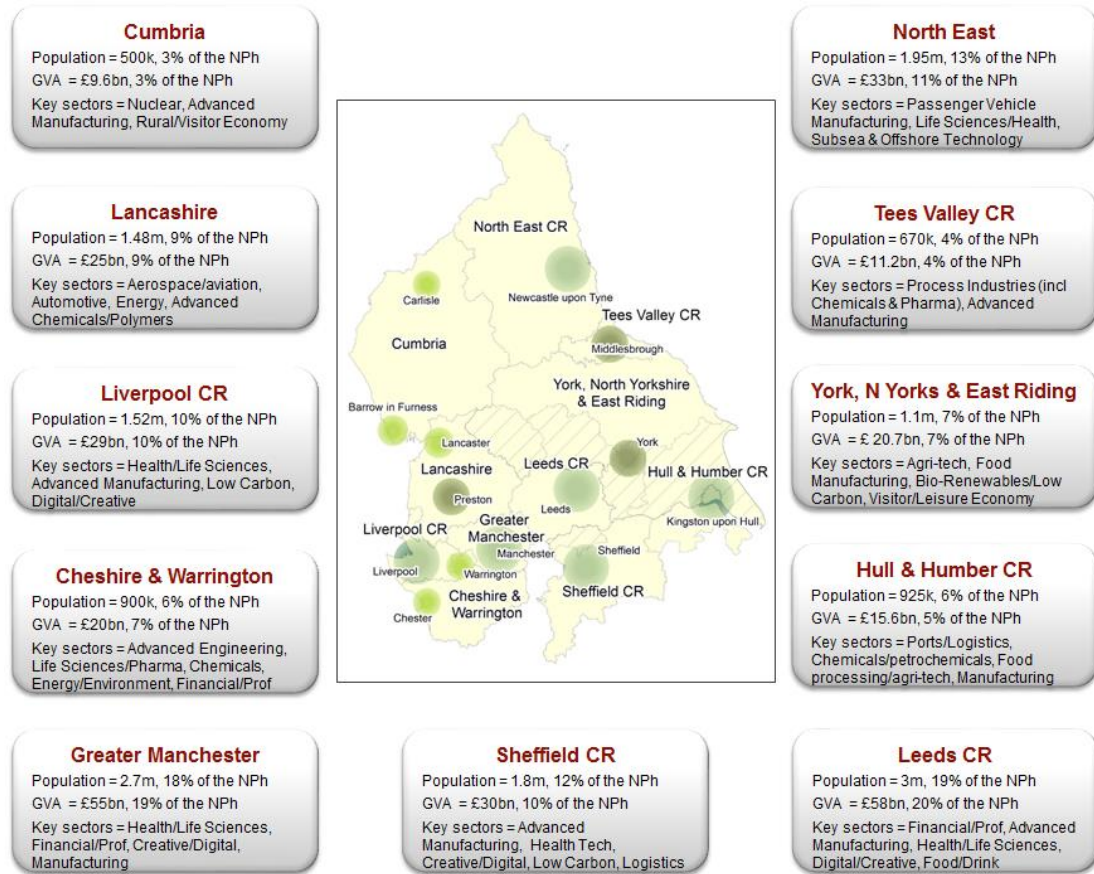
Parameters

- 2.13 Three points are made regarding the profiles set out in this Workstream 2 report:
- First, they have been written to a standard template, and as far as practical the Review Team has sought to be consistent in approach, tone, and length. However, the profiles also aim to reflect the specific conditions in each area, so some flexibility has been built-in to their drafting.
 - Second, the ‘Critical Investments’ sections in each profile focuses principally on committed public sector investment, identified through the literature reviews, and drawing feedback from the lead from each area on the Economic Reference Group; they do not cover planned potential investments, including by the private sector.
 - Third, consistent with the wider focus of the Review, the profiles have taken into account, but not been driven by, transport and connectivity issues; they have been reviewed by the Review Team’s independent Transport Advisor, with key transport issues and committed investments identified where relevant.

3. Local Area Profiles

3.1 This section presents the 11 local area profiles for areas across the North. A summary of the areas, their contributions to the North’s population and GVA, and sector strengths identified in the review, is provided in Figure 3-1. The spatial definitions for each area are set out in Annex A.

Figure 3-1: Overview of the 11 local areas across the North



Source: SQW

Cheshire and Warrington

Story of place

C&W is a polycentric economy with key centres including: Chester, Warrington, Crewe and Macclesfield. It has a strong and diverse economy, outperforming the North, and has a widely recognised quality of life offer. C&W's ambition is to build on this by generating more jobs, more GVA, and increasing the housing stock.

Cheshire and Warrington (C&W) is a large and diverse geography, containing a mix of large urban areas, market towns, and rural villages. Major urban areas, and important economic centres, include the historic city of Chester, Crewe, Macclesfield and the rapidly growing Warrington. C&W also has a significant stock of industrial and innovation assets. The various sites, assets and settlements are of vital importance to the strong economic role that C&W plays in the North's economy, with leading businesses and innovation assets spread across the geography. In addition, C&W provides a high quality of life offer, with an excellent rural environment and attractive residential locations.

More widely, C&W plays a pivotal role for the North, at the centre of a broad economic geography, with close links to Manchester and Liverpool City Regions. C&W also plays a key role in linking the North to elsewhere: C&W is the main gateway to the North from Wales (and Ireland), the West Midlands and much of the South.

C&W is ambitious, its vision is to build on its strengths in order for the area to reach its full economic potential, with an aim for GVA to increase by £15bn to £35bn by 2030, equivalent to an ambitious annual growth rate of 2.75%; and longer term to double the area's economic output within 25 years.

The productivity picture

Productivity levels have been high historically, even compared to the rest of England. However, growth in recent years has lagged behind both the North and the rest of England.

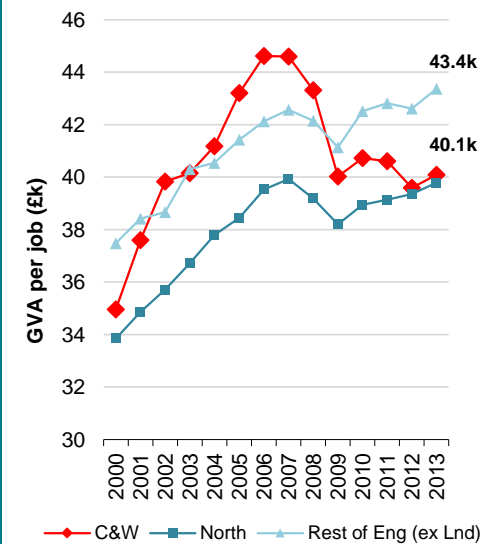
C&W's economy generated GVA of some £20bn in 2013, supporting almost 500k jobs. Per job, this represents higher productivity than for the North overall. Indeed, in the 2000s, C&W's productivity was higher than the rest of England (excluding London).

In 2013, productivity in C&W stood at 101% of the level across the North, but 92% compared to the rest of England (excluding London). However, since the recession, productivity growth has lagged behind that of the North and the rest of England (excluding London), with productivity itself falling from a peak of almost £45k per job, to £40k per job in 2013.

A number of factors are responsible for this emerging productivity gap:

- **Underperforming sectors.** In particular, C&W's ESIF Strategy recognises that productivity enhancement in Professional Services, Banking and Finance, Other Business Services, Distribution and Chemicals will be essential to closing the productivity deficit. Were productivity in these sectors to rise to match the productivity of the same sectors across the wider UK, the C&W economy would generate an additional £2bn pa. (the equivalent of 10% of current GVA).

Productivity over time



- **Declining highly productive sectors.** The emerging productivity gap is exacerbated by the decline of higher value manufacturing sectors. Although this decline has been common across the UK, it matters more to C&W than elsewhere, in productivity terms, given the high propensity to manufacturing.
- **Public sector growth was prominent in the 2000s.** The public sector grew strongly in the 2000s, accounting for 46% of all employment growth in the last growth cycle, or 32,000 net new jobs. These are typically less productive jobs than their private sector counterparts, and so may have held back productivity growth in the area, although this is likely to have been less of a contributor to the deficit more recently, given public sector retrenchment nationwide.
- **The gap between demand from employers for skilled workers and the supply of skilled labour.** In the 2011 C&W Business Needs Survey, some 66% of respondents reported skills gaps. Like many other areas, C&W struggles to retain its graduates, with only 34% of those growing up here returning after graduation. Nevertheless, while that holds the area back in terms of reaching its full potential, the proportion of the working age population qualified to NVQ4+ level is higher here (38.7%) than anywhere else in the North (North Yorkshire is the second highest at 36.9%), and higher than the rest of England including London (38.0%).
- **Poor connectivity.** Whilst linkages across from Warrington to the Manchester and Liverpool City Regions are strong, and good north-south connectivity exists by road and rail specifically through the centre of C&W, poor connectivity within and across C&W limits economic growth potential in the area. For instance, very poor connectivity exists along an east-west axis from Macclesfield through Crewe and onwards to Chester, limiting potentially the opportunities to benefit from agglomeration and economies of scale in many of its main settlements.

Sector strengths on which to build ...

C&W has some niche sector strengths in Advanced Engineering, Life Sciences and Pharmaceuticals, Chemicals, Energy and Environment, and Financial and Professional Services. Future potential exists around Agri-tech.

Various documents² identify the key sectors that make important contributions to C&W's economic output and employment, and that have the potential to grow in the future. The existing sector strengths are Advanced Engineering, Life Sciences and Pharmaceuticals, Chemicals, Energy and Environment, and Financial and Professional Services. In addition, Agri-Tech/Food is a sector with notable growth potential for C&W.

Existing sector strengths

Advanced Engineering

The Advanced Engineering sector is significant in C&W, and lies across a number of sub-sectors, ranging from high level research and niche production, to mass production. The sector:

- Has a long history, and is well-embedded, in the local area. Bentley Motors has been headquartered in Crewe since the 1940s, and continues to employ around 4k people locally. Crewe itself grew on the back of the railways, with the area having significant rail heritage.
- Employs around 24k people. This includes almost 10k in Architectural and Engineering activities (including technical testing and analysis) and 7k in Automotive Manufacturing.
- Contains around 1,600 firms, including 20 large enterprises employing more than 250 people each.
- Includes a number of key sub-sectors: Automotive, Machinery Manufacture, Consulting Engineering, and Engineered Products. The proportion of workers in C&W employed in Automotive is three times higher than the England and Wales average.³

² These include the LEP's SEP, ESIF, Growth Plan and Business Plan, and a sectoral analysis by Mickledore in 2012

³ This is the geography that was used to help define key differentiated sectors for C&W in 2012 research into sector strengths across the area.

	<ul style="list-style-type: none"> • Contains some high profile employers, including Bentley Motors, Tata and Vauxhall in Automotive. Bentley is the third largest R&D investor in the UK's Automotive sector, and the country's 18th largest investor overall. Moreover, their Integrated Logistics Centre manages a supply chain of over 650 suppliers. Also includes RSK Plc, MWH UK, EA Technology, AMEC (including the HQ of their Nuclear arm), Bombardier, Waters Corporation, C-Tech Innovation, and Land and Marine Project Engineering are present in other Advanced Engineering sub-sectors. • Within this broad sector, R&D in Advanced Materials and Engineering, Engineering and Technical Consultancy, and Automotive are identified as potential areas of Smart Specialisation for C&W.
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<p>Life Sciences and Pharmaceutical Manufacturing</p>	<p>Life Sciences and Pharmaceuticals is a key strength across C&W, particularly within Cheshire East:</p> <ul style="list-style-type: none"> • This sector employs around 6.5k people across C&W, with 2,000 working in Manufacturing of Pharmaceuticals (three times more concentrated here than elsewhere in England and Wales). • C&W has a long history of working in the Life Science and Pharmaceutical industries: Alderley Park site has been associated with Pharmaceutical research since 1950. • High profile firms within the Life Science and pharmaceuticals sector include AstraZeneca (including their second largest manufacturing site and European centre for packing, at Hurdfield), Advanced Medical Solutions Group, Sanofi, Peckforton Pharmaceuticals, Sinclair Pharmaceuticals, Life Technologies, Phenomenex, Cyprotex, Medtrade, Claris Lifescience, and Lupin Europe Ltd. • Although AstraZeneca is disinvesting at its Alderley Park site, this remains a key research asset to C&W, through the redevelopment of the site, including the opening of the BioHub; now run by Manchester Science Partnerships, linkages with the Manchester Health Corridor will increase. • Biological Engineering is reported as a sector with significant growth potential.
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<p>Chemicals</p>	<p>Chemicals is a key strength across C&W, with a particular focus on the Cheshire West and Chester area:</p> <ul style="list-style-type: none"> • This sector employs around 5k people, including 4k in the Manufacture of Chemicals and Chemical Products and 1k in the Manufacture of Coke and Refined Petroleum Products. • Employment in the manufacture of Chemicals and Chemical Products makes up two and a half times as much of the total employment in C&W as is the case across England and Wales more widely. Employment in the Manufacture of Coke and Refined Petroleum Products is five times more concentrated here than across England and Wales. • The sector is well-embedded within the local area. C&W has a long history of working in the Chemicals industry. For instance, the Stanlow Refinery has existed since the early 20th Century, while salt mining has been a mainstay of the local economy for centuries. • There are a large number of high profile employers in the sector, including Salt Union and British Salt (both among the top 30 firms in C&W in turnover), Essar Energy, Growhow, Tata Chemicals, Henkel Consumer Adhesives, Britton Taco, Flexifilm, Thor Specialities, Harman Technology, Genesys International, PennWhite, Centrec International, Unilever, PQ Silicas, United Phosphorous, and Air Products. • Chemicals are also identified as a potential area of Smart Specialisation for C&W, building on its existing strengths.
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<p>Energy and Environment</p>	<p>There is a critical mass of activity that takes place in C&W within the umbrella of Energy and Environment, particularly around Nuclear and Utilities Supply:</p> <ul style="list-style-type: none"> • This broad sector employs almost 31k people in C&W. This includes 11k in specialised construction activities and 10k in Architectural and Engineering Activities (including Technical Testing and Analysis). However, these do not capture the specific key sub-sectors; research from 2012 identifies these as Nuclear and Utilities Supply.
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	<ul style="list-style-type: none"> • Over 7k businesses operate in the sector in C&W, including around 30 that employ more than 250 people. • Key businesses in the nuclear sector include Urenco at Capenhurst, AMEC Nuclear, which is part of Sellafield Ltd (with its Nuclear Engineering Design Centre located in Warrington), Rolls Royce Nuclear, the National Nuclear Laboratory, headquartered in Warrington, and the National Decommissioning Authority. • Key organisations within the utilities supply sector include United Utilities and Electricity North West (which are both headquartered in the area), Schneider Electric, Boulting Group and EA Technologies. • Moreover, the area contains key sites for innovation in the sector, including Thornton Science Park, formerly Shell's Thornton Technology Centre, near Ellesmere Port. • Within this broad sector, energy is identified as a potential area of Smart Specialisation for C&W, with the ESIF specifically citing linkages to the emerging Hydrogen Fuel Cell cluster at Runcorn in the Liverpool City Region, and building on existing expertise in Nuclear.
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Financial and Professional Services	<p>C&W has a strength around Financial and Professional Services, across all three local authorities comprising this area. This is particularly notable across Financial Service Activities and Activities of Head Offices:</p> <ul style="list-style-type: none"> • The sector employs 45k people in C&W, including 15k in Finance and Insurance and 10k in Head Office and Management Consultancy Activities. Both of these sub-sectors comprise a higher proportion of total employment in C&W than is the case across England and Wales overall. A further 8k work in Legal and Accounting. • Over 7k firms operate in the sector, including around 30 large enterprises employing more than 250 people each. • High profile employers in Financial Services include MBNA and its parent company Bank of America (with its Global Technology and Operations Centre), Barclays, M&S Money, Goldtree Financial Services, LJ Financial Planning, and Tuxedo Money Solutions. • Head office activities include those of NWF Group, Marlowe Holdings, Holidaybreak Plc, Lightcatch, and UK HQ's of Asics, New Balance, Phonak and MWH. • Financial Services and support functions in ICT, Legal and Operations, are identified as having Smart Specialisation potential for C&W.
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Potential growth sectors

Agri-tech and Food	<p>Agri-tech and Food have been identified as having growth potential:</p> <ul style="list-style-type: none"> • As a largely rural geography, Agriculture and its related sectors have been of significant importance to the local economy throughout C&W's history. The area has well-developed Agriculture, Dairy and Food Production sectors. Key food businesses include Morning Foods (including Mornflake Oats), Meadow Foods, Bakkavor (New Primebake), Fayrefield Foods, Joseph Helers, and Wrights Pies. Reaseheath College has expertise in Animal Husbandry and Agri-tech, and the area is to have a Food Innovation Centre led by the University of Chester. • The sector is already a specialisation for the area, with both Agri-tech and the Food sector comprising a larger proportion of the economy than elsewhere. As such, C&W is well-placed to develop its strengths in Agri-tech, identified by the Government as a national priority sector, and continue to develop its Food sector. • Investment in the sector is proceeding; this includes through niche areas of expertise for C&W, including an £85k grant from the GREAT UK Challenge Fund to boost the area's reputation and profile as a super hub for breeding and animal science. Key organisations already working in this specific sub-sector in C&W include Cogent, Genus ABS, Chester Zoo, Bolesworth Estate, Harthill Stud, Wheatsheaf and Aviagen.
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Across each of these sectors, and across the economy more widely, C&W benefits from a suite of interconnected centres of expertise that have the potential to contribute to national innovation and science. These include assets at Capenhurst, Thornton, Birchwood Park's nuclear and forensics clusters, Jodrell Bank and Alderley Park, with Sci-Tech Daresbury nearby in Halton. C&W LEP's SEP identifies this as the 'Cheshire Science Corridor', which could be developed to further complement assets in the neighbouring City Regions of Greater Manchester and Liverpool, the three areas together comprising the Atlantic Gateway.

Enabling sectors, such as Transport and Logistics, are also important to the C&W economy. This sector has seen, and continues to see, significant investment, including the Port Warrington, Port Ince and Port Cheshire developments and the ongoing development of Omega at Warrington. Given their location in Warrington or along key transport corridors, these particular developments are important beyond C&W, serving markets in the Liverpool and Greater Manchester City Regions and beyond. The proposed development of HS2 is also likely to cement the importance of Transport as an enabling sector for Cheshire and Warrington.

... and linkages across the North (and beyond)

C&W's key linkages to elsewhere in the North are with the City Regions of Greater Manchester and Liverpool. Together, the three comprise the Atlantic Gateway, with linkages through commuting patterns and sectoral complementarities.

Compared to other areas of the North, C&W has strong commuting flows with neighbouring areas: 33% of C&W's workers live outside of the area, and 31% of C&W's residents work outside of the area. These proportions make C&W the most interconnected (in terms of commuting flows) part of the North. Particularly strong commuting movements are seen between C&W and the Greater Manchester and Liverpool City Regions:

- c.39k people commute to C&W from Greater Manchester, with c.44k commuting in the opposite direction: a substantial bilateral flow of c.83k.
- c.38k people commute to C&W from the Liverpool City Region, with c.29k commuting in the opposite direction: a substantial bilateral flow of 67k.

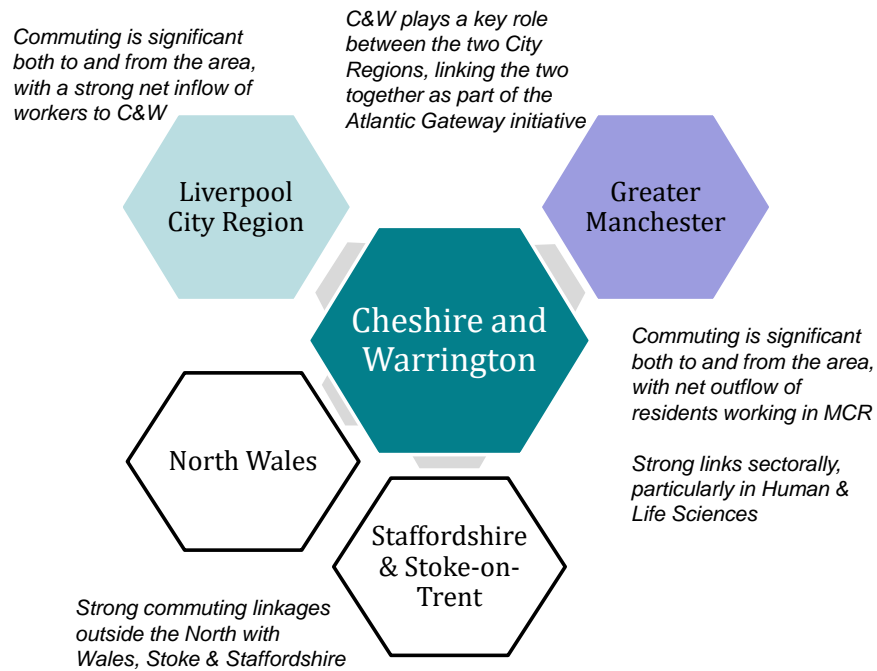
C&W also plays an important role in linking the two City Regions to *each other*, through the numerous rail and road routes that run through C&W, and through sectoral and research linkages too via the 'Cheshire Science Corridor'. For example:

- a strong relationship between the east of Cheshire and Greater Manchester in the Life Sciences; particularly notable is Alderley Park, including the BioHub, operated by Manchester Science Partnerships, linking in to the Health Corridor in Manchester (the Greater Manchester and Cheshire Life Science Investment Fund will be central to supporting the continued development of this important cluster).
- linkages with Sci-Tech Daresbury (a National Science Institution Campus) and C&W, with a significant proportion of the campus's workers living in the area.

There are also strong university linkages between C&W and the City Regions: Manchester Metropolitan University has one of its two campuses in Crewe; the University of Liverpool Leahurst Campus, in Neston, comprises the University's School of Veterinary Science; and Jodrell Bank (part of the University of Manchester), is based in Cheshire East and is set to be the global headquarters for the Square Kilometre Array – given the emphasis on Big Data, there are strong potential linkages here with the Hartree Centre at Sci-Tech Daresbury

That said, more could be done to increase these linkages. Strong research assets exist in the Manchester and Liverpool City Regions, particularly in relation to their universities, but analysis shows that businesses in C&W are not collaborating as much as they could with these assets; if they were to do so, they could add substantial value to their products and processes.

Key relationships with other local areas across the North



Source: SQW

Given C&W's location at the North's southern boundary, external linkages are also important:

- over 23,000 people commute to C&W from those areas of England outside of the North, with 20,000 commuting in the opposite direction – Stoke-on-Trent and Staffordshire are prominent here, with rail and road (M6) as important connectors.
- almost 19,000 people commute into C&W from Wales, with 12,000 commuting the other way – a net inflow of almost 7,000. Much of this inflow is to Chester, serving as a regional business centre for workers from North East Wales.
- the area benefits from close proximity to Manchester Airport for international connectivity, and through the West Coast Mainline south to Birmingham, London and the Greater South East, and north to Scotland.

Critical investments

Critical investments are planned or underway to support innovation and business in the area. These are focused on key sectors, with substantial investment planned on connectivity improvements, both within the area and between the area and other places.

Faced with the productivity challenges and to address or exploit the sector opportunities and linkages across the North, partners in C&W are progressing a range of critical investments, including projects funded through the Growth Deal agreement with Government. An overview of the key committed critical investments in current investment plans is set out below.

Critical investments

Knowledge and innovation

- A £23m investment in Thornton Science Park to establish an internationally recognised **centre of excellence in Advanced Energy Systems, including a SMART Grid Demonstrator**, to allow businesses to test new technologies and model energy usage.
- **BioHub at Alderley Park**, providing 86k sq. ft. of lab and office space for early stage and growing firms operating in drug discovery and development, medical technologies and healthcare industries. This is part of a **wider remodelling and redevelopment of the campus**, including a **£5m investment in a Centre for Anti-microbial Resistance**, and a **£40m Greater Manchester & Cheshire Life Science Investment Fund**, to provide investment finance to support Life Science SMEs, particularly at Alderley Park.

Transport and infrastructure

- **Investment in a variety of transport improvements**, including an upgrade to the Halton Curve railway line and new railway stations in the west of Warrington, improvements to Junction 8 of the M62 to improve access to Omega, and a variety of other schemes to improve access to various urban areas, including in Chester city centre and Warrington, the Poynton Relief Road, the Congleton By-pass and improvements at Middlewich.
- **A £100m Housing Investment Fund**, which will comprise a revolving fund to unlock housing developments that have stalled across the area.
- **Investment in HS2, with a station planned at Crewe, and one close to Manchester Airport.** The development itself will be important in creating a Superhub station linking Crewe to London, Birmingham and Manchester. A wider effort to place Crewe as the 'Northern Gateway' will see substantial investment in infrastructure, employment and residential land around Basford to the south of Crewe. The station close to Manchester Airport is very close to the Cheshire East/Manchester border, and so will serve Cheshire East as well as Manchester and the airport.
- **£12m through the Government's Growing Places Fund**, to support key infrastructure projects to unlock growth, create jobs, and encourage housebuilding. This funding has notably 'unlocked' the development of Omega North in Warrington.

Business and Enterprise development

- **Business and Innovation Growth Hub**, 'one stop shop' for SME support (£12m ESIF).
- **Confirmation of Enterprise Zone status** for Alderley Park, Birchwood, and Thornton/Ellesmere Port (the Cheshire Science Corridor Enterprise Zone).

Skills

- **A £36.4m investment in further education capital developments**, including the development of an Agri-tech Food and Life Science facility at Reaseheath College and the development of a Centre for Engineering Excellence in south Cheshire, which will help align local further education with significant growth areas, as well as other college estate improvements and the development of employer-business hubs.
- **A £12.1m investment from Government through the Skills Capital Fund** to improve local skills delivery and infrastructure, and support local growth priorities.

Current alignment and contribution to the North's capabilities

Summary assessment

C&W's local alignment with the North's capabilities is strongest in Advanced Manufacturing, Energy and Digital, and the area makes a significant contribution to the North's Financial and Professional Services capability..

	Alignment	Contribution
Advanced Manufacturing	✓ ✓ ✓	✓ ✓
Energy	✓ ✓ ✓	✓ ✓
Digital	✓ ✓ ✓	✓ ✓
Health Innovation	✓	✓
Logistics	✓ ✓	✓
Financial & Professional Services	✓ ✓ ✓	✓ ✓ ✓
Higher Education	✓	✓

Source: SQW

Cumbria

Story of Place

Cumbria is a large and sparsely populated County, transitioning from a dependence on declining industries, to a high-value, knowledge-based economy.

Cumbria is one of the largest counties in England by area and yet it has the second lowest population density. This brings advantages and challenges. On the one hand, the beautiful landscapes and wealth of natural assets means that Cumbria provides important cultural, economic, and energy resources for the North. On the other hand, Cumbria's dispersed settlement pattern and relatively poor connectivity, both physically and digitally, result in a lack of critical business mass making it difficult for the County to take advantage of growth opportunities afforded by the City Regions.

Economic production has a significant reliance on Manufacturing together with Services and Construction. Manufacturing is particularly prevalent in west Cumbria, Carlisle and the south of the County. Surrounding rural areas are characterised by a high density of small and micro businesses, and higher levels of self-employment.

Action is underway to increase the productivity in the Cumbrian economy with a focus on higher value and knowledge-based growth sectors. In particular the County can build on established clusters and forthcoming investments (worth in excess of £25bn) in Nuclear, Energy Technologies, Marine Engineering, Advanced Manufacturing, Agriculture/Food and Tourism and a world class landscape.

This is reflected in the Cumbria LEP's overarching vision for Cumbria to have one of the fastest growing economies in the UK, in an energised and healthy environment. Key to achieving this aspiration is enhancing Cumbria's connectivity, as well as improving other important infrastructure. This is recognised in the area's growth strategy, the "Four-Pronged Attack", which focuses on four priorities: Advanced Manufacturing growth, Nuclear and Energy excellence, a vibrant rural and visitor economy, and strategic connectivity of the M6 Corridor.

Cumbria suffers from a longstanding productivity deficit, largely due to location and the slow response to the decline in traditional sector strengths such as manufacturing.

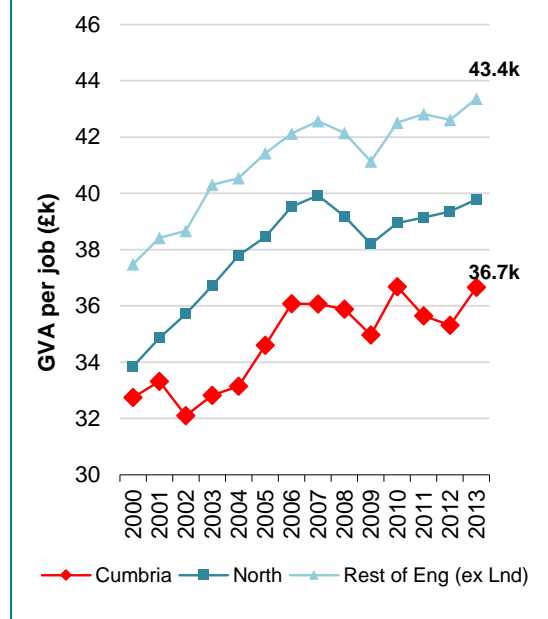
The Productivity Picture

Cumbria has the smallest population and economy in the North of England, with annual GVA of c.£10bn, 262k jobs, and just under 28k businesses. Economic growth over the past decade has been slow, meaning that the significant productivity gap has remained: GVA per job stood at £36.7k in Cumbria compared to £43.4k in the rest of England (minus London).

Key causes of the productivity gap include:

- **Poor infrastructure and connectivity**, with limited business access to reliable, high-speed broadband, congestion on major link roads and a low frequency of local rail services; in particular on the Cumbrian Coast Line which plays a critical role in supporting the delivery of major investments within west Cumbria.

Historic productivity trends



- **Pockets of deprivation**, in both urban and rural areas across Cumbria, largely as a result of the historical decline in the manufacturing sector. Unemployment and under-employment (particularly among young people) are key issues in parts of the County, as are continuing cycles of deprivation, exacerbated by a relative lack of suitable jobs, low business start-up rates, and the high cost and time implications of travelling.
- **Skills deficits**, notably in terms of higher level qualifications, with 29% of the working age population at NVQ 4+, compared with 35% in the rest of England minus London. There are also insufficient numbers of people achieving qualifications in STEM subjects to fill high value jobs in knowledge-intensive industries. The University of Cumbria is the only major provider of higher education in the County, although several other HEIs have a presence, including UCLan's Westlakes Campus providing vocational courses at undergraduate and postgraduate level, and the University of Manchester's Dalton Cumbrian Facility (DCF), also based at the Westlakes Science and Technology Park.

Sector strengths on which to build ...

Cumbria's sector strengths centre on Nuclear, Advanced Manufacturing and Tourism.

As noted above, the LEP has identified four priority sectors as agents for driving economic growth. Whilst these sectors already represent the key pillars of the Cumbrian economy, they have also been identified as sources of high potential growth in the future. Another area of potentially high growth which, in contrast to the more established sectors, is still emerging, is the Low Carbon sector, which will potentially benefit from a number of high profile investments in the near future.

Whilst the LEP does not have a specific Smart Specialisation strategy, it states that the four economic drivers are aligned with the EU2020 Priority Themes, one of which is: "*Smart Growth: concentrating growth on the knowledge-based sectors of our economy, ensuring high-value jobs in sectors which support the approach of smart specialisation.*"

Existing sector strengths

Nuclear

Sellafield's operation in West Cumbria, coupled with the development of new nuclear power generation capacity at Moorside, means that the Nuclear sector represents an international centre of excellence, with significant potential for further growth including exports. In this respect this is a major economic driver in the County. The sector:

- Employs over half the UK's nuclear workforce at Sellafield (10k+ workers), has specialisms in spent fuel management and reprocessing, and is a leader in the safe management and storage of nuclear waste. There are thousands more jobs in the supply chain in market-leading local companies such as James Fisher, React Engineering, TIS and Safety Critical.
- Will continue to be important in the future, with the estimated £70bn decommissioning programme around the site providing opportunities to support substantial job, business, and GVA growth.
- Will be boosted by the proposed Moorside Nuclear Power Station located next to Sellafield which, when completed, will account for 7% of the UK's future electricity requirement. It will provide 1k permanent jobs on top of over 6k temporary jobs engaged in construction.
- Is supported by an HE base, including facilities such as the Dalton Cumbria Facility and the National Nuclear Laboratory Central Laboratory (NNL), which undertake research in radiation science and nuclear engineering decommissioning, both central to the Government's Nuclear Industrial Strategy.

Advanced Manufacturing	<p>Advanced Manufacturing is an established and significant feature of Cumbria's economy and has strong links to the Energy sector, in particular Nuclear. The sector:</p> <ul style="list-style-type: none"> • Provides an estimated 20k jobs in the County (just under 10% of the total), and includes clusters of industrial expertise including sub-sectors in Design and Production of Submarines, Subsea Technologies, Oil and Gas, Production of New Forms of Currency, Tyres, Biopharmaceuticals, High Quality Food and Drink and Textiles. • Is important throughout the County, but is heavily concentrated in the Furness area in Barrow and Ulverston, home of a number of large, high-technology multinationals which dominate the sector in employment terms. Within the County, significant employers include BAE Systems Maritime (boosted by a £370m investment to deliver the Successor programme), Glaxo Smith Kline (GSK), Siemens, Tritech, and Pirelli Tyres. • Benefits from a local support and innovation infrastructure, largely shared with the Nuclear industry including institutions highlighted above, as well as GSK's £350m new biopharma plant at Ulverston.
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Rural and Visitor Economy	<p>Cumbria has a strong visitor economy and is one of the UK's most visited destinations. The County has some of the most sparsely populated areas in the country and is a place of magnificent land and seascapes, underpinning food and tourist industries that have the potential for further domestic and international growth. Key features include:</p> <ul style="list-style-type: none"> • A strong visitor economy with 41.5 million visitors in 2014 generating £2.4 billion of visitor expenditure and providing 33,920 FTE jobs for the local economy. • Several key assets including the Lake District National Park, the Yorkshire Dales National Park, the existing World Heritage Site of Hadrian's Wall, the Cumbria Coast Marine Conservation Zone and a number of historic market towns. • A range of activities beyond tourism, particularly in the Agri-food sector, including Agriculture, Forestry, Horticulture, Conservation and Environmental Management, as well as Outdoor Activity and Recreation.
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Potential growth sectors

Low Carbon	<p>In addition to the Nuclear industry, Cumbria is home to specialisms in Low-Carbon energy generation and technological innovation in Clean Technologies which have the potential for growth and export. The sector:</p> <ul style="list-style-type: none"> • Supports approximately 400 businesses, employing 8,100 people with £1.13bn of sales in 2011/12. • Capitalises on the County's natural assets, particularly its coastline, woodland and abundance of water, to develop offshore wind, hydro, marine, solar and biomass. • Will benefit from a £1.3bn investment by DONG Energy to extend the windfarm off Walney which, when complete, will be one of the largest off shore windfarms in the world and will support high-skill supply chains linked to the servicing and maintenance of facilities. Separately, there is potential for a new £5bn tidal lagoon.
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The LEP's fourth priority area – 'Strategic Connectivity of the M6 Corridor' – encompasses a range of infrastructure improvements, and highlights the potential benefits of developing connectivity-related opportunities in East Cumbria. In this context, **Logistics** is highlighted as a significant sector. Although it represents just over 4% of employment and GVA in the County, forecasts show potential for 6% growth in employment by 2024. Home to the Stobart Group, close to all UK nations and with ample land in key locations (to increase storage and warehousing facilities), there is a perceived potential to develop a strategically significant

logistics hub in Cumbria, especially if the investments are coordinated with complementary investments in Carlisle Airport.

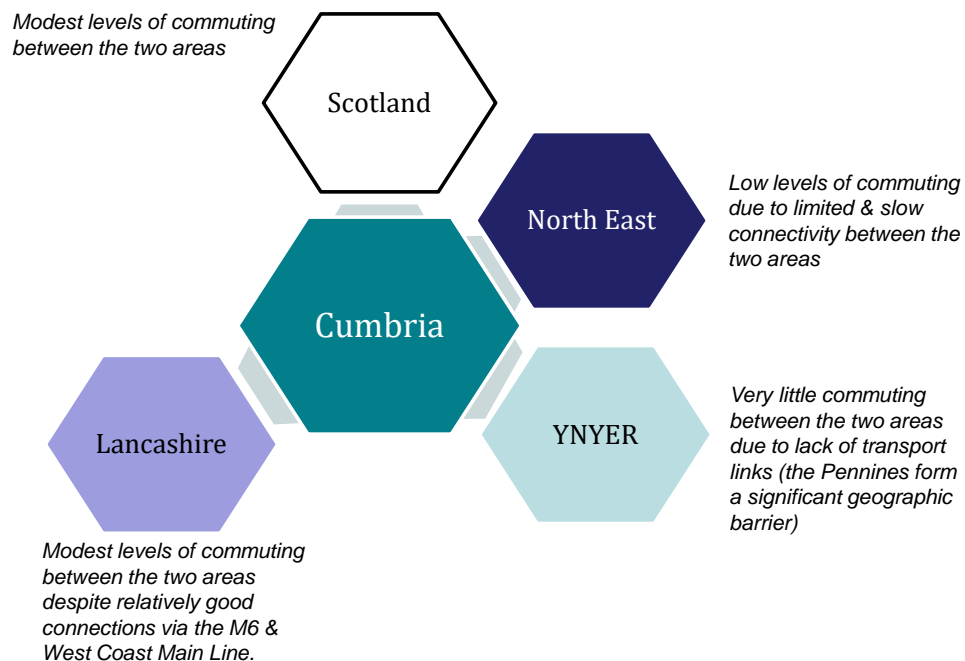
... and linkages across the North (and beyond)

Commuter flows between other regions in the North are low, in part due to poor transport links within Cumbria itself.

Due to Cumbria's location and spatial footprint, the County is a largely self-contained economy, with modest levels of inward and (particularly) outward commuting. 95% of employed residents work in the region, and these local employees account for 93% of all of the regions workers. Both metrics are among the highest of all of the regions in the North, and only the North East has a lower share of workers from outside its own area. Around 5,000 Cumbrian workers (c.2.5% of the total workforce) live in Lancashire, whilst around 2,000 (c.1%) live in the North East, and a further 3,000 live in Scotland; in all cases outward commuting is lower, reflecting the high level of within-area working by Cumbrian residents.

In the future, there is scope for greater inward flows, albeit temporary, from a mobile construction workforce to support large projects such as the Moorside Nuclear site.

Key relationships with other local areas across the North



Source: SQW

Whilst Cumbria benefits from relatively strong North-South links – e.g. the M6 Motorway and the West Coast Main Line – access to these links from within the County is poor, as are East-West links to other Northern regions:

- The local rail network and interchanges with the West Coast Mainline are critical to both the construction and operation of nationally significant infrastructure projects, in particular the new nuclear plant at Moorside. They also play a critical role in supporting travel-to-work and the operation of supply chains. However the infrastructure suffers from underinvestment, lack of capacity, poor station facilities, slow line speeds, aging rolling stock and infrequent services which constrain passenger and freight movement.
- Strategic road connections from the M6 to West Cumbria, Furness Peninsula and North East England are variable and often suffer from congestion and poor levels of resilience. Investment and improvements are needed to ensure ready access to

markets, support supply chain growth and diversification and to maximise travel-to-work (which is important, given Cumbria's size).

- A number of ports are situated around the County's coastline, including those at Workington and Barrow. Significant investment in local access to these transport hubs is required in order for them to effectively support key sectors such as Manufacturing, Marine/offshore Engineering and logistics while also providing additional port capacity for the North.

Improved international connections are argued for to support the continued growth of the visitor economy and export-orientated industry. In this context, the potential delivery of scheduled passenger services at Carlisle Airport in combination with improved sustainable transport facilities along key visitor corridors is an important development.

Critical investments

Investment is aligned with the "Four-Pronged Attack". Given Cumbria's connectivity problems, transport and infrastructure investments dominate.

Faced with the productivity and connectivity challenges, and to exploit the sector opportunities and linkages across the North, partners in Cumbria are progressing a range of critical investments. These projects are funded through the Growth Deal agreement with Government. An overview of these investments is set out below. Investment has been focused on the four broad areas consistent with the intent of the growth strategy, outlined in the Strategic Economic Plan, as highlighted above.

Critical investments

Knowledge & innovation

- Support for the creation of the **Nuclear Technology Innovation Gateway**, an innovation and support centre for the nuclear industry bringing together the National Nuclear Laboratory, research activities from the University of Manchester and other facilities.

Enterprise & business

- The remediation and improvement of the **Barrow Waterfront Enterprise Zone**, which will accommodate supply chain firms alongside a major new BAE logistics facility, enabling growth in this key centre of manufacturing.
- **Growing our Potential** – a programme to provide grant aid to help Cumbrian businesses deliver capital projects that can help them grow and create and/or safeguard sustainable private sector jobs.

Skills

- An **Advanced Manufacturing Technology Centre** at Furness and Kendal College to help equip Cumbrians with the skills to take up opportunities within major employers and their supply chain – delivering an employer-led curriculum at all levels to the Engineering, Manufacturing, and Processing sectors. This will be complemented by the delivery of the Advanced Manufacturing Centre at Carlisle College which will deliver an employer-led curriculum at all levels to the engineering, manufacturing, and processing sectors.
- **The Cumbria Skills & Capital Investment Programme** – the funding will be utilised to deliver state-of-the art facilities, bring together learning and workspace to stimulate enterprise, improve the local leadership & management offer, and increase specialist STEM R&D laboratory space, enabling training to be provided to at least 1,200 learners and delivering a range of qualifications from Level 2-4.

Transport & infrastructure

- **Junction improvements to increase capacity in South Ulverston** to support the expansion of key employers, wider housing developments and improved journey times on the A595. A further infrastructure programme in the area will invest in projects which will help to reduce flood risk, reducing the risk to existing homes and businesses as well as enabling future sustainable growth and investment.
- A **package of sustainable transport measures** to optimise connectivity within Cumbria, particularly around key visitor arrival points and visitor attractions around Windermere and Grasmere.

- Phase 2 of Connecting Cumbria will **extend availability of Superfast Broadband** to an additional 5k premises over and above the approximately 111k covered by Phase 1. Phase 2 will extend coverage to approximately 95%, meaning it will be dealing with more isolated rural areas and will have a more complex technical nature.
- **Access improvements to the Durrhill Industrial Estate** to enable business expansion and the revitalising of this enterprise asset.
- **Transport improvements in and around Kendal** facilitating housing development and business growth identified within the Local Plan.
- **Investment in the future of the Workington Access & Infrastructure Port**, in the first instance by delivering better road and rail links to the port and employment land to the north, and by progressing core Port infrastructure works. These will need to link with further critical investments in road and rail infrastructure within West Cumbria.
- **Cumbria Infrastructure Plan**. This strategic study will identify a range of short, medium and longer term infrastructure interventions required to unlock major investment and to address the strategic challenges facing the County. These are intended to offer a step change over and above the committed investments above.

Current alignment and contribution to the North’s capabilities

Cumbria’s alignment with the North’s capabilities are most pronounced in Advanced Manufacturing and Energy, with important shared expertise and assets across the two areas.

	Alignment	Contribution
Advanced Manufacturing	✓ ✓ ✓	✓
Energy	✓ ✓	✓
Digital	✓	✓
Health Innovation	✓	✓
Logistics	✓	✓
Financial & Professional Services	✓	✓
Higher Education	✓	✓

Source: SQW

Greater Manchester (GM)

Story of Place

GM has experienced significant economic change over the past two decades, moving successfully on from industrial restructuring to becoming a modern knowledge- and innovation-based economy.

GM – the ten districts of Greater Manchester forming a coherent functional geography – was the birthplace of the industrial revolution. With growth initially driven by the textiles industry – with production in the area’s towns, and Manchester itself functioning as a commercial and financial hub – the area developed into a large and successful diversified industrial economy. However, by the 1970s and 1980s, GM was being hit hard by industrial restructuring, economic decline, and population loss. By contrast, the past two decades have seen a major turnaround in the economy’s performance, with GM now recognised increasingly as a centre for new knowledge- and innovation-based service and manufacturing industries, underpinned with significant investments in the physical, transport, and cultural infrastructures. GM has also become the leading focus for devolution to English cities, with the devolution of billions of pounds of spending decisions to GM away from Whitehall. Crucially, GM is now home to four universities, a world-class business school, and the UK’s largest airport outside the South East of England. GM is also an internationally recognised sporting, cultural, and leisure location. However, there remains a legacy of high levels of deprivation, worklessness, and ill-health.

In this context, GM has adopted an integrated approach to growth and reform. GM’s strategic economic priorities are to deliver sustainable growth based on a more connected, talented and greener city region where all residents are able to contribute to, and benefit from, sustained prosperity and enjoy a good quality of life. The city region is also focused on making public services more efficient and helping residents become more self-reliant. Through this growth and reform approach the city region intends to become a net contributor to the national economy, closing the current £7bn tax gap (with annual public expenditure in the city region of £27bn, but a tax income of £20bn).

Enhancing internal and external connectivity is a third key priority, for example, through the on-going expansion of the Metrolink (GM’s tram system), the introduction of smart ticketing, the Northern Hub rail investment programme to improve connections across the North, and major investment in the motorway network across GM.

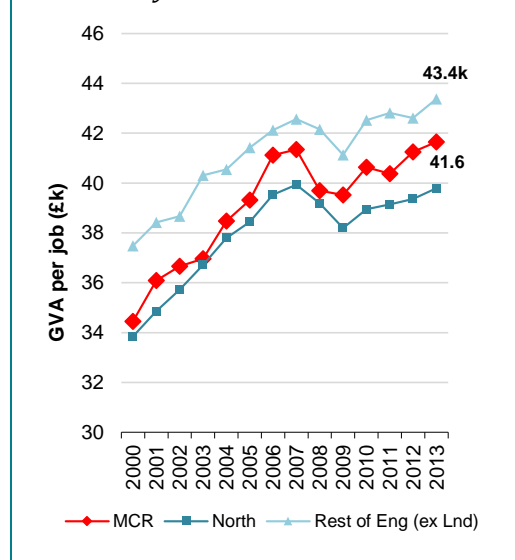
Despite positive growth, productivity levels in GM remain below comparator areas, with skills and business density deficits driving-down workforce productivity. In addition, the area is not yet utilised fully its innovation and research assets.

The Productivity Picture

GM is one of the most significant economic centres in the UK, with annual GVA of around £56bn (a fifth of the North), 1.3 m jobs, and over 105,000 businesses. However, despite strong growth over the past decade and a closing of the gap (as opposite), productivity in GM remains below the rest of England (excluding London).

Analysis undertaken by New Economy found that a productivity gap was evident even when the data were adjusted sectorally to take into account the mix of firms in the economy. With the sectoral mix allowed for, the causes of the productivity gap include:

Productivity over time



- **Deficits at both ends of the skills spectrum**, with a higher proportion of residents with no qualifications, and a lower proportion of residents with high-level qualifications; this issue is exacerbated by a persistent loss of talent to London/the South East, with GM losing a substantial proportion of its high-skilled and mobile young workers, often coming from the City Region’s higher and further education institutions.
- **Business density rates below comparators**, meaning there are fewer businesses operating in the economy than there should be. Data from Cambridge Econometrics indicate there were 385 local enterprise units in GM in 2013 per head of population, compared to 435 in the rest of England (excluding London).
- **Leverage of knowledge and innovation assets**, GM’s universities, college and research assets in business are major employers, and have played a key role in recent growth. However, GM has not yet exploited and leveraged the economic potential of these assets as successfully as other places across England (and internationally).

GM has key sector strengths in Health and Life Sciences, Financial and Professional Services, and Digital/ICT. Advanced Materials offers significant opportunities for growth in the future.

Sector strengths on which to build ...

GM has a highly diversified and evolving economy. This draws both on the area’s traditional strengths in manufacturing and the increasing focused on knowledge-based activities in the area’s education and research infrastructure (some 60,000+ people in GM are employed in science and technology industries). Key sector strengths, both existing and potential, identified in GM’s strategic documents are summarised below.

Existing Sector Strengths

Health and Life Sciences

The Health and Life Sciences sector in GM:

- Supports an estimated 163,000 jobs, and generates GVA of £4.7bn pa., covering both health and social care services across the area, and a significant base of knowledge-based firms engaged in high-value ‘health innovation’ activities.
- Has key sub-sector strengths and specialisms in Pharmaceuticals, Biotechnology, Health Analytics, Drug discovery and Diagnostics, Medical Devices, Clinical Trials, and Cancer research/treatment.
- Benefits from, and has largely developed as a result of, a significant concentration of research assets including the Universities of Manchester and Salford, the Central Manchester University Hospitals NHS Foundation Trust and Salford Royal NHS Foundation Trust, the Christie Hospital (Europe’s largest single site cancer centre, and hosting one of only two UK Proton Beam Therapy Facilities, which will open in Manchester in 2018), and the UK BioBank
- Includes a range of innovation and enterprise assets (e.g. Manchester Science Park, Citylabs, MedTECH Centre), as well as having close links to the wider Life Sciences cluster in Cheshire and Warrington; the sector will also be developed through the planned MediPark, a 200-acre business park for Life Sciences and Pharmaceutical companies in South Manchester. Sci Tech Daresbury is also a key important knowledge asset for GM.

Financial and Professional Services

Outside of London, GM is one of the UK’s main centres for Financial and Professional Services. The sector in the area:

- Supports employment of 240,000 people (approximately 20% of total employment in the city region), in over 17,000 firms; while definitions vary, data from Cambridge Econometrics indicates that Professional and Businesses Services generated GVA of £11.6bn in 2013⁴, around a quarter of the city’s regional total across all sectors.

⁴ Covering Financial & insurance, Business support services, Legal & accounting, Other professional services, Head offices & management consulting, and Real estate

<p>Financial Services</p>	<ul style="list-style-type: none"> • Has major sub-sectors in Legal and Accounting Services, Management Consultancy, Real Estate, and Financial Services where it is an important centre particularly for domestic UK and regional markets. • Is located particularly in Manchester city centre (including the major Spinningfields development) and south, Salford Quays and Trafford Park, with important finance services support functions in parts of Bolton, Wigan, and Stockport. • Contains national HQs for major firms' business, financial and professional services operations (e.g. The Peel Group, NBrown), all the Big 4⁵ accountancies, and leading SMEs particularly within insurance and pension funding. GM has also been successful in attracting global Financial and Professional sector firms (including Barclays, RBS, BNY Mellon, and international law firm Freshfields Bruckhaus Deringer).
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<p>Creative and Digital</p>	<p>GM is one of the leading centres for Digital and Creative industries in the UK outside London. The sector in the area:</p> <ul style="list-style-type: none"> • Supports around 105,000 jobs, and generated GVA of £4.7bn pa, although the sector is difficult to quantify in standard metrics because of how digital technology is disrupting traditional industries, creating new ways of working and thus becoming embedded across the economy. • Includes two broad sub-sectors and sets of specialisms (i) Creative and New Media including Digital Media and Broadcasting, Creative and Cultural Industries, Entertainment and Publishing, and (ii) ICT and Digital Communications including Computer Engineering, Hardware and Software Consultancy and Telecommunications. • Has been catalysed by a number of major developments including Media City at Salford Quays – home to the BBC and ITV, and around which is developing a cluster of new media and digital firms in The Landing – and the Sharp Project, home to over 60 digital entrepreneurs and production companies. • Draws on a substantial research and teaching base across the universities of the city region. New Economy estimates around 20,000 students are studying Digital and Creative Industries-related subjects in GM. • Contains several leading ICT companies including Fujitsu, Brother International Europe, EON Reality, and Siemens, and home to Hitachi's European Big Data Laboratory (EBDL).
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<p>Manufacturing</p>	<p>Manufacturing in GM is a large and diverse sector; whilst employment has fallen in recent years output has remained stable, reflecting a shift to more productive and advanced forms of manufacturing, which utilise more capital intensive techniques and increasingly focus on activities such as research, design and after-sales services. The sector:</p> <ul style="list-style-type: none"> • Contains around 8,000 businesses, employs 118,00 people, and is one of the most productive sectors in the GM economy; GVA per employee in the Advanced Manufacturing sub-sector was £60k in GM in 2013 compared to £54k in the UK.⁵ • Includes strengths in the 'foundation industries' which include chemicals and materials, food and drink and textiles, and firms that play an important role in key regional, national and global supply chains in sectors of national significance including Aerospace and Automotive. • Draws on the largest materials science research base in Europe, with a world-class track record in developing applications in major industrial clusters, including Aerospace, Automotive, Technical Textiles and the Nuclear Industries; in this context the University of Manchester has recently committed £300m for the development of a new Manchester Engineering Campus in the city, with a major focus on creating facilities to enhance collaboration with industry, other assets include the North West Composites Centre and the Aerospace Research Institute.
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⁵ Data from the Greater Manchester Forecasting Model (December 2013), reported [here](#)

- Is no longer dominated by large manufacturers at the head of supply chains (OEMs), rather the average manufacturing business in GM has 18 employees with more than two-thirds of the business base employing less than ten people; however, GM also contains leading global firms including Kellogg's, Procter & Gamble, Unilever, Hitachi, Thales, Siemens and Alstom.

Potential Growth Sectors

Advanced and 2D materials, including graphene

GM is at the centre of the UK's Advanced and 2D Materials research base. The area has particular strengths and opportunities in the commercial exploitation of Graphene and 2D materials drawing on the research strengths of the University of Manchester (where Graphene was discovered), with GM hosting the National Graphene Institute (NGI), and the Graphene Engineering Innovation Centre opening in 2017.

Wider Advanced and 2D Materials expertise at the University includes multi-scale 3D imaging, light alloys and corrosion, composites and materials for energy (nuclear, solar and wind and oil and gas). GM also hosts BP's International Centre for Advanced Materials. Expertise in Graphene and other advanced materials will be further developed with the £235m Henry Royce Institute for Materials Research and Innovation.

The business base in GM in advanced and 2D materials is small currently, but expected to increase significantly as R&D leads to routes for commercialisation of graphene and other advanced materials.

It is also worth noting that GM has particular strengths in the Low Carbon, Environmental Goods and Services, and Nuclear sectors specifically. There is a particular expertise in Low Carbon Electricity (wind power, as well as recycling and waste management, alternative fuels and alternative fuel technologies) and Nuclear, drawing on expertise at the University of Manchester's Dalton Nuclear Institute (which also includes a major R&D facility in Cumbria).

Manchester is one of the pilot areas taking forward a Science and Innovation Audit, centred on Health Innovation, Advanced Manufacturing, and Energy.

... and linkages across the North (and beyond)

GM is an integrated economy at the heart of the North. It offers strong links to local areas north and south, and to Liverpool in the West. But links to Leeds are not as significant as they could, and should, be.

GM is a highly integrated city region. Indeed, of all the city regions in the North it has the lowest levels of employment self-containment, at 85% (i.e. 85% of workers in GM also live in the city-region), highlighting its role as a location of employment for residents from other areas, including in high-quality professional services occupation.

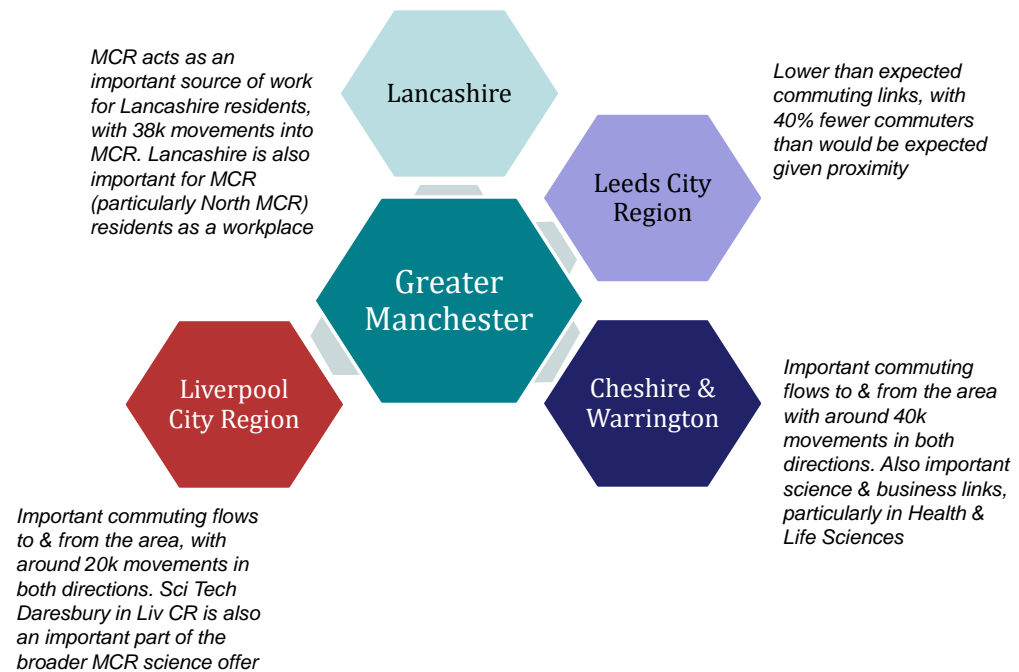
GM has particularly important linkages in terms of commuting and business relationships south to Cheshire and Warrington, and north to Lancashire, as well as on an east-west axis to Liverpool. The links to Cheshire and Warrington and Liverpool City Region are also important in framing GM's science and innovation offer, with the Life Sciences sector in Cheshire and Warrington forming part of a broader cluster offer, and Sci Tech Daresbury in the Liverpool City Region.

Eastward, linkages to the Leeds City Region are not as substantive, or effective, as they should be. Research indicates that commuting between the Manchester and Leeds city regions is 40% lower than would be expected, given the distance between these two cities. The overall costs of commuting between the two cities has been identified as the most important factor in explaining these relatively low commuting levels, with speed also a key factor.

It is also important to note GM's wider role:

- In providing international linkages for the North, with Manchester Airport the largest airport in the UK outside of the South East, offering connectivity to global markets. The airport offers direct flights to all of Europe’s major cities, and long-haul routes to the Far East (including Beijing and Hong Kong), Middle East (including Dubai and Abu Dhabi), and North America (including four direct flights a day to New York). The airport has played an important role in fostering international interest in Manchester as a business location, including from major international sovereign wealth funds e.g. China. GM also has important international links through its knowledge base and significant number of international students studying at its four universities.
- As a national transport node: GM is a central node in the UK’s existing rail network, including links to London and Scotland via the West Coast Main Line (and it will be one of the core hubs of HS2 with stations planned both in Manchester city centre and at Manchester Airport), and with orbital and linear motorways provides road access to other city regions across the North. Both rail and road linkages underpin a freight trade-axis running east-west from the Mersey and Manchester Ship Canal, including Trafford Park (which remains one of the largest industrial parks in Europe with over 9m sqm of business space) through the regional centre on to Leeds through Rochdale/Oldham and Sheffield through Tameside. This role will be further enhanced with the development of the Port Salford scheme.

Key relationships with other local areas across the North



Source: SQW

Critical investments

Faced with the productivity challenges discussed above, and to address or exploit the sector opportunities and linkages across the North, partners in GM are progressing a range of critical investments, including projects funded through the Growth Deal agreement with Government. An overview of the key committed critical investments in GM set out in current plans is set out below.

Critical investments

Knowledge & Innovation

Major investments in GM are underway and planned, with a focus on transport, access to finance, innovation, and business support in order to address the area’s on-going productivity deficit.

- £235m **Sir Henry Royce Institute Advanced Materials**, based at the University of Manchester to accelerate the commercial exploitation of Advanced Materials in the UK.
- £60m **Graphene Engineering Innovation Centre** to stimulate graphene development and application in the UK, complementing the existing National Graphene Institute.

Transport & Infrastructure

- **Metrolink and bus improvements** to provide better facilities for passengers (including 12 new Metrolink light rail vehicles), and a multi model ticketing and smart ticketing scheme.
- **New or improved transit interchanges in Stockport and Ashton** to improve public transport access and flows across the city region.
- The £300m **Greater Manchester Housing Investment Fund** designed to accelerate and unlock housing schemes across the city region; it will help build the new homes needed to support our growth ambitions.
- The **A6 to Manchester Airport Relief Road Scheme**, providing 10 km of new 2-lane dual carriageway on an east-west route from the A6 near Hazel Grove, via the existing A555 to Manchester Airport, and the link road to the M56.
- **Expansion of the Metrolink** across Manchester including the Second City Crossing and extension to Trafford Park.
- **Manchester Smart Motorways**, with over £200m investment to introduce hard shoulder running and variable speed limits on significant sections of the M60 and M62.

Enterprise & Business

- £45m **Life Sciences Investment Fund** across GM and the Cheshire and Warrington local area providing equity finance for firms operating in Health and Life Sciences (underway).
- **Manchester Business Growth Hub** providing an integrated bundle of specialist advice and support to businesses across the GM to help them grow, access markets and government support.
- **The Factory**, a multi-purposed arts and cultural venue, with £80m support committed by Government, as part of the wider 15 acre St John's Quarter development.
- The **Greater Manchester Investment Fund** that provides loans to encourage business growth and job creation in GM.

Skills

- **Skills Capital Programme**, focused specifically on Engineering, Manufacturing & High Speed Rail, Logistics and Estate Renewal & Hospitality.

Current contribution and alignment to the North's capabilities

GM contributes substantially to all of the North's capabilities. Alignment with the local economy is particularly strong for the Digital (prime), Financial and Professional Services and Higher Education (enabling) capabilities

	Alignment	Contribution
Advanced Manufacturing	✓	✓ ✓ ✓
Energy	✓	✓ ✓ ✓
Digital	✓ ✓ ✓	✓ ✓ ✓
Health Innovation	✓	✓ ✓ ✓
Logistics	✓ ✓	✓ ✓ ✓
Financial & Professional Services	✓ ✓ ✓	✓ ✓ ✓
Higher Education	✓ ✓ ✓	✓ ✓ ✓

Source: SQW

Hull and Humber City Region (H&HCR)

Story of Place

H&HCR makes a distinctive contribution to the economies of the North and the UK, with major Processing and Energy industries in, and around, its deep-water ports and specialist facilities on both banks of the estuary. Recently, there have been major private investments in Renewables, especially wind turbines. Hull is the largest urban centre, and the main focus for knowledge-based services.

H&HCR includes the city of Hull and the area covered by East Riding of Yorkshire Council on the north side of the Humber estuary, and the unitary authorities of North Lincolnshire and North East Lincolnshire on the south bank. The identity of H&HCR, and its economic roles, are defined by the estuary: there are major port facilities at Hull and the city is an important entry point for tourists; Immingham and Grimsby are the principal ports on the South Bank. Other main settlements are: Scunthorpe, a major steel producer; Goole, an inland port and logistics centre; Beverley, a market town north of Hull; also, Bridlington and Cleethorpes, where tourism is important. H&HCR also includes attractive coastal and rural environments.

Hull is the largest settlement, and has a built-up area with a population of over 310,000. Hull has a substantial and well-regarded university, and is the largest centre for Business and Personal Services, Administration and Retailing, and is pre-eminent in H&HCR for private sector knowledge-intensive business services (KIBS), although a recent report citing this also notes the under-representation of these activities in Hull city centre relative to other cities.⁶

The direction of external linkages and transport connections, and cultural identity, differ between the two banks; the North Bank looks mainly west, towards York and Leeds, and the South Bank more to the south and south-west, to Lincoln, Doncaster and Sheffield/Rotherham.

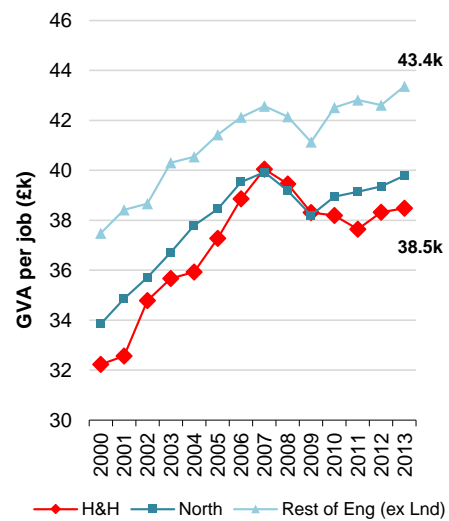
Large-scale investment has been attracted in recent years, particularly in Energy-related industries. The Strategic Ambition is to position H&HCR as *'The Energy Estuary'*; with the economic vision that: *'By 2020, the Humber will have a thriving renewables sector, with ambitious capital schemes well underway and a growing reputation for excellence and expertise.'*⁷ Priorities for Transport investment are geared to reinforcing the strengths and ambition – road improvements to facilitate the growth of new energy-related business, and rail improvements to enable the ports on the South Bank to operate more effectively.

The productivity picture

Despite some highly productive industries and processing activities, H&HCR's economy under-performs the rest of the North, and England more generally. It is under-represented in High Value Services, and over-represented in Public Services.

In 2013, the Humber economy generated £15.6bn in GVA, equating to £38.4k GVA per employee. This is 89% of the average for England excluding London, and 97% of the average across the North.⁸ Overall, between 2000 and 2013, H&HCR's GVA grew slightly faster on average than England excluding London; its population grew more slowly, and GVA/job around the Humber grew by 1.4% pa., compared with 1.1% for England excluding London. However, with the recession, the catch-up ceased, and reversed after 2009, with the performance on the North Bank better than on the South.

Productivity over time



⁶ 'The Geography of the Humber Economy', Centre for Cities, December 2015

⁷ Humber LEP 'Strategic Economic Plan, 2014-2020'

⁸ Cambridge Econometrics analysis, 2015

The sectoral shape of the economy is particularly important here: H&HCR has a highly distinctive shape with a high representation of Manufacturing and Process Industry employment and GVA (including, for example, in Cole and Petroleum products and Chemicals), and a large public sector (employing 28% of its workforce, but only accounting for 23% of output⁹), and Business Services, Banking and Other Professional sectors underrepresented in the economy.¹⁰

Skills deficits are also evident: the proportion of the working age population with NVQ4+ is 26.7%, compared to 30.3% across the North and 34.5% for England (excluding London). Despite specialist industry needs, and a history of local training interventions focused on these, the level of workplace-based training is also below the national average.

Sector strengths on which to build

H&HCR's four sector strengths relate to its geography and industrial history. They are: Ports and Logistics; Chemicals and Petrochemicals; Food Industries; and other Manufacturing/Engineering, including Healthcare Technologies. The Renewable Energy sector, closely related to these specialisms, is an area of major opportunity which is already being progressed.

The sectoral specialisation in H&HCR has been determined by the geography of the estuary, and its trading and industrial history. Deep-water port facilities favoured earlier specialisms in deep-sea fishing and the imports/exports of bulks, including coal, chemical feedstocks, foodstuffs, and more recently containers, cars, and biomass. The availability of flat sites adjacent to the ports, and the development of expertise in specialist handling and distribution, have led to investment in major production/processing plants and, most recently, to growth in the Renewable Energy sector. This potential has been recognised in the largest UK Enterprise Zone: it already totalled 484 hectares across 16 sites, and was more than doubled in November 2015 to 1238 ha across 30 sites.

The economy's four sectoral strengths, summarised below, are all well-established and developing in new directions: they continue to gain critical mass through synergies and linkages between them. The fifth sector, Energy Renewables, is the focus for large-scale recent investments, and there is evident potential for further substantial growth. Engineering capabilities have also facilitated growth of other Manufacturing industries, and IT/software skills have helped the development of a growing Creative and Digital sector.

Existing sector strengths

Ports and Logistics	<ul style="list-style-type: none"> • Total employment of 16,100, with £667m GVA, through five ports: Associated British Ports (ABP) is the major provider of port facilities. • Immingham is the largest port in the UK by tonnage, handling c.55m tonnes pa, including oil (20m t), gas (10m t); also coal, biomass, animal feed, other bulk goods; RoRo and LoLo (Lift-on, Lift-off) facilities. • Hull has strong trading links with Scandinavia and the Baltic States, particularly for timber and paper products; its wide range of services include the UK's first fully-enclosed cargo-handling facility, providing all-weather working for cargoes including steel and bagged products. Hull offers scheduled freight, car and passenger services to Rotterdam, Zeebrugge and Finland; cruise ships visit Hull, with passengers accessing nearby tourist areas. • Grimsby is a major car import and export gateway (500k vehicles pa); a major port development plan is being progressed, and both Hull and Grimsby are fully engaged with the fast-developing Renewable Energy sector. • Other assets include Goole, an inland port, specialising in short North Sea crossings – the main cargoes include vegetable oils and timber; Goole is also increasingly involved in Logistics, Able Humber Port
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⁹ 'The Capability of the Humber region' University of Hull, Hull University Business School, 2013

¹⁰ For further details see, for example, City Relationships: economic linkages in northern city regions - Hull and Humber ports, The Northern Way, 2010

	<p>(AHP) is under development by a Tees-based port operator, to provide a major handling and logistics gateway on the South Bank, and Humberside Airport has the UK's second largest heliport that provides services to the growing offshore energy market.</p>
<p>Chemicals/ Petrochemicals</p>	<ul style="list-style-type: none"> • H&HCR has the 2nd biggest concentration of Chemicals production in the UK, with 5k employees around the Humber, contributing £445m GVA pa, and including <ul style="list-style-type: none"> ➢ 16% of all UK fuel-refining (utilising imported feedstocks), based on large-scale investments by industry majors including Phillips 66, handling Bulk Oil and Ethylene. ➢ 4% of the UK's Chemicals and Pharmaceutical production. • Key areas of production and expertise are: Speciality Gases; Personal Care Products; Pharmaceuticals; Fibres; Paints and coatings; Glass; Biofuels/Biomass processing; and Consulting services (research, health and safety, audit). • The main companies include Croda, Air Products, BP Chemicals, Nippon Gohsei, BOC (LINDE), BASF, Cristal, Kemira, Knauf, Novartis, Syngenta, Total, Yule Catto, and Phillips 66. • Cluster activity is supported by well-established support services, including industry training through HCF CATCH (Humber Chemicals Focus - Centre for the Assessment of Technical Competence Humber); local FE colleges are also heavily involved.
<p>Food Processing/ Agri-tech</p>	<ul style="list-style-type: none"> • The key expertise is in Food and Fish processing. This draws on imports, the retention of a major fish market function (despite loss of deep sea fishing industry) and foodstuffs and other agricultural production from the Humber's rural area (and Lincolnshire and eastern England): H&HCR produces 11% of English-grown vegetables, and over a quarter of England's peas and beans. • 12.5k are employed in the sector, which has a GVA of £738m. • The shellfish catch is one of the largest in the UK. Grimsby has the highest number of cold storage facilities in the country, and is the UK's major centre for chilled/frozen seafood processing, supporting over 5k jobs and attracting significant investment in recent years. • Employers include AAK UK, Aunt Bessie's, Coldwater, Country Style, Cranswick plc, Findus, Golden Wonder, Greencore, Lincoln & York, Pipers Crisps, Tranfield, TSC Foods, Saxon Quality Food Scunthorpe, William Jackson Food Group and Young's Seafood. • The scale of the industry has led to the development of local skills and supply chains, specialist industry trade bodies and the co-location of academic expertise e.g. The British Agri-Food Consortium is based in Hull; the £5.6m Humber Seafood Institute at Europarc (Grimsby) has state-of-the-art facilities, and engages in collaborative research with industry leaders; supply chains include companies with expertise in advanced engineering, print and packaging, logistics and electronic tagging/barcoding; Bishop Burton College and Grimsby Institute offer supporting specialisms.
<p>Other Manufacturing, including Healthcare technologies¹¹</p>	<ul style="list-style-type: none"> • Engineering and Manufacturing employ 54k in H&HCR Humber, with GVA totalling £3.7bn. In the SEP, 25k of these jobs are classified as Advanced Manufacturing. • Specialist engineering institutions in the area, including Brumby Engineering College, North Lindsey College, Grimsby Institute, the Humberside Engineering Training Association (HETA) and Hull

¹¹ Healthcare Technologies is defined as a separate sector in the European (ESIF) Strategy, bringing together some Speciality Chemicals and expertise in Engineered Products for Medical Purposes. European Structural and Investment Fund Strategy for the Humber, 2014-2020

	<p>Training’s Engineering Centre, and Humber University Technical College.</p> <ul style="list-style-type: none"> • The biggest single firm is Tata Steel, which employs currently c4k people, although a quarter of those jobs are expected to be lost through recently-announced cuts. • H&HCR has the largest UK concentration of caravans and modular buildings production and fitting out; also, locally-focused supply chains. This grew out of earlier shipbuilding and engineering expertise • The sector also includes some health-related products; key firms with strong brands and local innovative capacity are Smith & Nephew, Novartis, and Reckitt Benckiser. • There is a strong industry grouping in Marine Engineering: Team Humber Marine Alliance (THMA), represents more than 160 companies, bringing strong capabilities in Renewable Energy, Commercial Shipping, Inland Waterways, Offshore Oil and Gas, Defence and Security, and Nuclear Energy. • These strengths and expertise link across to recent Energy/Low Carbon developments – see below.
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Potential growth sectors

<p>Energy Renewables</p>	<ul style="list-style-type: none"> • Major momentum is now underway in Off-Shore Renewables in the North Sea: H&HCR is uniquely positioned to exploit this, given the short distances to major off-shore windfarm sites, deep-water ports with necessary facilities/potential for to develop them, available/developable flat land, facilities for helicopters at Humberside Airport • The main focus for the Enterprise Zone is the Humber Renewable Energy Super Cluster (HRESC): a <i>“world class renewable energy hub, focused around large wind turbine manufacturers and their supply chain”</i>¹² • Key investments include Siemens/ABP collaboration in turbine rotor blade manufacture, assembly and servicing at Green Port Hull, and at Grimsby on the South Bank: a £13m skills programme will support these investments. Also development at Able Marine Energy Park, on the South Bank close to Immingham; other energy sector investments at Grimsby by DONG Energy, E-ON, Vestas and Vivergo (the UK’s largest bio ethanol producer) • Hull and Humber hosts 20% of the UK’s natural gas landings • The University of Hull provides expertise in renewables and logistics, and local colleges offer complementary strengths and expertise. Hull University’s Department of Geography, Environmental and Earth Sciences and the School of Biological, Biomedical and Environmental Sciences were ranked third for research impact across the UK (and joint first in England) in the most recent Research Excellence Framework. • Plans are being progressed by the University and partners for an industry-backed Centre for Marine Power Research & Development, which would focus on offshore wind engineering and operate on open innovation principles
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Other sectors, which complement and support these strengths include Creative and Digital (4.8k employees, £229m GVA, including drawing on the Computer Sciences Department at the University of Hull) and the Visitor Economy (25k employees, £350m GVA) – Hull will be UK City of Culture in 2017. Key companies include Sonoco-Trident (a leading provider of digital artwork), NFire Labs (which designed and build the world’s first modular 3D printer) and new enterprises at the Centre for Digital Innovation. Both sectors are highlighted in the Strategic Economic Plan.

¹² HM Government website ‘Looking for a place to grow your business? – Humber Enterprise Zone’

The Smart Specialisation approach advocates the systematic analysis of strengths and opportunities, and a coherent, focused, approach to maximising local economic potential and contributing to economic dynamism, nationally and across Europe. The ESIF Strategy,¹³ pointed to the need for more investment in physical infrastructure and to build industry-supporting expertise across the Humber.

... and linkages across the North (and beyond)

The Hull & Humber economy relies on infrastructure and transport facilities, to connect it to the markets in larger industrial and consumer centres – across the North, in the rest of England, and in northern Europe.

Hull, Grimsby and Scunthorpe have labour markets which are self-contained for the most part, with relatively weak linkages to the rest of H&HCR and with adjacent areas. However, key commuting, business and market linkages across the North of England (and beyond) include:

- Important commuting movements to the Leeds City Region and the York, North Yorkshire and East Riding area (excluding those parts of this area within H&HCR), and significant movements into H&HCR from outside of the North (including from the southern parts of Lincolnshire).
- Linkages to Leeds and to a lesser extent York and Sheffield, for Business, Education and Other Professional Services and networks; also through University of Hull.
- Transport links to London and other cities, direct rail link, East Coast Main Line and the motorway network; access to Manchester Airport; and Humberside Airport provides important services, for example to Schiphol and Aberdeen), and is an important helicopter base for the North Sea).
- The distribution of energy, and of intermediate and final industrial goods, including chemicals, food and other consumer products, to major population centres across the North; also to the Midlands and London/South East: 300 freight movements each week from Immingham alone; logistics links to Doncaster/Sheffield City Region.
- H&HCR serves an entry point for overseas visitors, providing access to tourist attractions in the immediate hinterland of York & the North Yorkshire coast, and more widely across the North of England.

¹³ European Structural and Investment Fund Strategy for the Humber, 2014-2020

Key relationships with other local areas across the North

c. 15k residents commute into LCR; c. 7k travel into H&H from LCR; there is apparent potential to build links into Leeds CR to gain critical mass in and across some sectors including food and engineering; also for more specialist professional & business services



c. 13k residents commute each day into North Yorkshire; there are links to York through Hull-York Medical School; potentially also on health products and biotechnology

Commuting to and from the rest of England, including South Yorkshire and Lincolnshire is c. 11-12k each way, potential to build links to Sheffield relating to advanced manufacturing, also to Doncaster for logistics

Source: SQW

Looking specifically at port and related infrastructure (core to H&HCR's economic role), the Humber ports have good handling facilities and RoRo links with major European ports. The main east-west road on the North Bank – A63 west to M62 – is part of the North European Trade Axis and the E20 route. The South Bank is also well-connected by road, to the east-west M180. Rail is important to businesses using the ports, and some constraints on industrial development and bulk handling are currently being addressed.

The Humber Bridge also provides a dual carriageway north-south link across the estuary which facilitates large-scale industrial operations on both banks. Labour and other markets are not fully integrated, although car and motorcycle crossings rose by c.20%, and HGVs by one-third, in the two years following the significant reduction in toll charges in 2012, pointing to potential for some product and labour market benefits, and a more integrated cross-estuary economy, but the scale and nature of these effects will not be transformational in the short term, and requires further analysis as more data becomes available.

Critical investments

Major planned and proposed investments in H&HCR include enabling investments for access to major development sites for renewable energy and others to alleviate key transport bottlenecks constraining bulk traffic in and out of the area; also support for skills development, enterprise start-

H&HCR partners are progressing a range of critical investments, including the projects funded through the Growth Deal agreement with Government in 2014 and the extension in January 2015. These aim to address productivity issues by maximising private investment and its impact, utilising financial and other resources effectively, anticipating and avoiding issues of capacity in the economy, and countering flood risk. An overview of key committed critical investments in current investment plans is set out below.

Critical Investments

Knowledge and innovation

- Plans currently being formulated for a **Centre for Marine Power Research & Development**.

- Development of the **Health Hub** for the Hull-York Medical School.

Transport & Infrastructure

- The £300m+ investment in **Green Port Hull** by Siemens and ABP, to be realised by 2017, delivering a planned 100 direct jobs (and a further 900 indirect jobs).
- **Rail electrification through Selby to ECML from Hull**. Also:
 - **Gauge enhancements** to improve freight capacity on both North and South Banks; link to Doncaster rail freight hub.
 - Improved rail connections/times to Leeds and Sheffield.
 - Reinstatement of the through trans-Pennine service to Manchester Airport.
- Other **transport schemes to resolve road constraints** which currently restrict industry operations and new development in Hull & Humber
 - A160/A180 and A18/A180 upgrades currently under construction.
 - Mitigation of road bottlenecks in and around Humber South Bank.
 - Improvement of the A63/Castle St, Hull with a new bridge crossing to be completed for the 2017 City of Culture, which will facilitate commercial and mixed use development around the Fruit Market.
- **Infrastructure and site development works:**
 - Investment to enable Grimsby town centre's regeneration.
 - Work to speed housing delivery and provide flood protection across H&HCR – e.g. at Lincolnshire Lakes, Hull, Bridlington (where there is also substantial harbour/marina investment).
 - South Humber Bank Industrial Infrastructure Programme – public investment including £15m from NE Lincolnshire Council; £20m private.
 - Continued delivery of **Superfast Broadband** across H&HCR.
- The **Energy Works Hull development** – an innovative renewable energy plant converting waste material into energy, a £150m project (including £20m from ERDF).

Enterprise & Business

- Key investments already underway include:
 - **Siemens £160m investment alongside ABP (£150m) at Green Port Hull** (reconfiguring Alexandra Dock to provide construction, assembly and servicing site; also in rotor blade manufacture nearby, at Paull).
 - **Able Marine Energy Park**, on the south bank close to Immingham, which will service the largest off-shore wind development in the North Sea, and offers a large site with Enterprise Zone status.
 - Redevelopment of the **Port of Grimsby**, where important investments have already been made by DONG Energy, Siemens, E-ON, Vestas.
 - The **Able Marine Energy Park**, together with the adjacent Able Logistics Park, a bespoke port facility for the Renewable Energy Sector, particularly Offshore Wind.
 - £4m extension to the existing £31m '**Growing the Humber**' **Regional Growth Fund** programme which offer flexible grants to help job-creating businesses, as part of refocused business support provision.

Skills

- Delivery of **key Growth Deal skills programmes**, including equipping young people:
 - £13m training programme, linked to Siemens' investments at Green Port, Hull, and in Grimsby.
 - £7m training infrastructure for constructing and servicing offshore wind turbines, at CATCH, NE Lincolnshire.
 - £7.8m logistics training centre at Grimsby Institute related to Offshore Industries, focused on STEM and environmental technology skills for Renewable Energy.
 - Extension of Engineering and Renewable Technology training at Goole College.

Current contribution and alignment to the North’s capabilities

H&HCR's alignment with the North's capabilities is strongest in terms of Advanced Manufacturing, Energy (prime) and Logistics (enabling).

	Alignment	Contribution
Advanced Manufacturing	✓ ✓ ✓	✓ ✓
Energy	✓ ✓ ✓	✓ ✓
Digital	✓	✓
Health Innovation	✓ ✓	✓
Logistics	✓ ✓ ✓	✓ ✓
Financial & Professional Services	✓	✓
Higher Education	✓ ✓	✓

Source: SQW

Lancashire

Story of Place

Lancashire is a diverse area, covering urban centres, rural and coastal settlements. The area aims to grow by rebuilding its historic strength in manufacturing.

Lancashire is a diverse area covering urban centres including Preston and Lancaster as well as inland rural countryside (including the Forest of Bowland Area of Outstanding Natural Beauty), and a western coast. The area includes twelve districts and two unitary authorities, and borders the city regions of Liverpool and Greater Manchester to the south, Cumbria to the north, and both Leeds City Region LEP and York and North Yorkshire LEP to the East.¹⁴ The key urban centres in Lancashire run east-west from Burnley to Blackpool, with Lancaster to the north, and Preston at the centre of key northern transport axes.

Lancashire has a rich industrial heritage. This continues with manufacturing providing the largest contribution to the area's economy. The area's ambition – as set out in the Strategic Economic Plan and ESIF – is to rebuild this historical core strength and “reclaim Lancashire's role as one of the nation's key centres for advanced manufacturing”.¹⁵ In doing so, the LEP has identified the potential to create 50k jobs and increase the value of the area's economy by an additional 10% by 2023.

The productivity picture

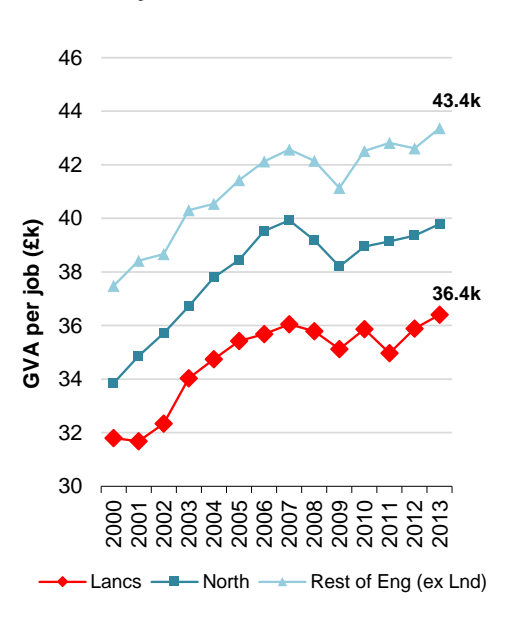
Productivity in Lancashire is low by both Northern and national standards. The decline of manufacturing coupled, with a low skills base and a lack of inward investment, has prevented Lancashire from closing this productivity gap.

The 685k jobs in Lancashire generated £25bn in Gross Value Added (GVA) in 2013, equivalent to 9% of the North's output. However, at £36,4k GVA per job, productivity is 84% of the rest of England excluding London average. The gap has widened since 2000.

Four key causes of the productivity gap in Lancashire are:

- A **structural shift away from manufacturing** and towards lower productivity jobs in the service sector (particularly in the public sector) with the absence of high value professional service sectors, underpinned by an unrealised regional centre.
- A **lower skills profile** which makes it harder for Lancashire to generate transformational growth itself, as despite some enterprising places, high levels of deprivation, ostensibly concentrated in Blackpool and East Lancashire, generate a low skills profile.

Productivity over time



¹⁴ The Districts of Lancashire are Burnley, Chorley, Fylde, Hyndburn, Lancaster, Pendle, Preston, Ribble Valley, Rossendale, South Ribble, West Lancashire and Wyre. The two unitary authorities of Blackburn with Darwen and Blackpool are also in Lancashire.

¹⁵ Lancashire European Structural and Investment Funds Strategy, Lancashire Enterprise Partnership, 2014, Page 6

- **A mixed track record on inward investment means that Lancashire has not been able** to attract new capital and skills of the scale required from elsewhere to diversify the local economic base.
- **Strategic connectivity:** the LEP identifies that capacity issues and increasing congestion on the strategic motorway network combined with poor rail connectivity, especially linking Lancashire and Yorkshire, are undermining Lancashire’s productivity.

Lancashire’s **working age population is also in decline**, partly due to out-migration among younger age groups, so there are fewer potential workers available. Lancashire also has a **lower economic activity rate** than the North and England excluding London averages, although rates vary considerably across the LEP area, with some areas experiencing high levels of unemployment and deprivation.

Sector strengths on which to build ...

Nationally significant strengths in Aerospace and a distinctive Nuclear Energy offer are key Lancashire strengths. The wider Energy sector, Health, Digital, and Business Process Outsourcing are seen as key opportunities for future growth.

Lancashire has retained and developed the necessary expertise in key sub-sectors to demonstrate real strength in Advanced Engineering and Manufacturing, particularly the Aerospace and Automotive sectors. The Energy sector, especially Nuclear, is the other major existing strength. These sectors have been prioritised as growth sectors by the LEP, supported by four Enterprise Zones. The LEP has also identified three developing sectors which, although small at present, have the potential to grow into significant employment and GVA generators in the future: Health, Digital, and Business Process Outsourcing.

Lancashire does not have a discrete Smart Specialisation strategy, but its ESIF states that *“Through a ‘Smart Specialisation’ approach Lancashire can build on its strengths, developing highly skilled, productive businesses that can compete in global markets and create real wealth within the local economy. Key target employment sectors have been identified that are, or have potential to be significant net contributors to the Lancashire and national economies.”* The ESIF then goes on to note that *“Lancashire has key competitive advantages that can be developed to become drivers of sustainable growth and we expect the area’s key sectors – Advanced Engineering and Manufacturing (Aerospace and Automotive) and Energy – to exceed national trends over the programme period”*.

Existing sector strengths

Aerospace and Aviation

- Lancashire has the largest concentration of aerospace production in the UK, employing over 20k people in 120 companies. Lancashire sites are contributing roughly £6bn of output to the F35 fighter jet programme, which is the UK’s single largest trade contract.¹⁶
- As an historical strength of the area, capabilities in the Aerospace sector in Lancashire span from R&D through to manufacturing and testing. With a mix of civil and defence related production, key areas of strength include: engine sub-systems, airframe, avionics, missiles and ground support equipment. Lancashire has the unique capability of being able to design and integrate a whole aircraft in the same sub-region.¹⁷
- Major employers in the sector include BAE Systems, Rolls-Royce and Safran-Aircelle. Supply chain companies include Kaman, Assytem and Spirit Aero Systems. In addition, the Enterprise Zone at BAE Systems’ sites at Warton and Samlesbury specialises in Aerospace and Advanced

¹⁶ The Lancashire Strategic Transport Prospectus, Lancashire Enterprise Partnership, 2015

¹⁷ Lancashire.....The UK’s Leading Aerospace Centre?, North West Aerospace Alliance, 2013

Engineering and Manufacturing. The LEP, working with The University of Sheffield and Lancaster University, is seeking to establish an Advanced Manufacturing Research Centre presence, located at the Advanced Engineering and Manufacturing Enterprise Zone at Samlesbury. Working with Sheffield University, Lancashire is one of the pilot areas taking forward a Science and Innovation Audit, centred on Aerospace manufacturing technologies.

- Within the overall sector, Lancashire has the **potential to become a centre of excellence for UAVs in the future**. The 'Taranis' semi-autonomous Unmanned Aerial Vehicle (UAV) was developed at Warton. Lancaster University has strengths in technology management, analysis of big data and is a partner in the Growing Autonomous Mission Management Applications (GAMMA) Programme.

Automotive

- Spatially concentrated in South Ribble, the Automotive sector accounts for almost 4k jobs across Lancashire. Key employers include PACCAR (Leyland Trucks), Sanko-Gosei, and Erlson supported by an extensive supply chain, particularly in Burnley.
- Key strengths include the design and manufacture of vehicles and component parts for the automotive industry, including high value parts for European Original Equipment Manufacturers (OEMs) Aston Martin, and Bentley. Other activities include improvements to transmissions and dual-fuel technology.
- Increases in innovation and entrepreneurship provide growth potential for the future, particularly around design and development companies such as Torotrack, Clean Air Power and Scorpion Automotive.

Energy

- The Energy sector covers power generation, nuclear, offshore gas (and associated logistics support at the Port of Heysham), shale gas, and wider renewable energy. The sector already employs 37k in Lancashire, with the potential for further growth in the future.
- Nuclear is a particularly important sub sector, with four Advanced Gas Cooled Reactors in Heysham and an advanced nuclear fuel manufacturing facility at Springfields, which manufactures nuclear fuel products for power stations worldwide. The National Nuclear Laboratory, also at Springfields, focuses on advanced reactors, fuel design and manufacture, and the opportunity to develop and assemble Small Modular Reactors for a global market.
- Key companies in the sector are Springfield Fuels, EDF, Sellafield Ltd, Ceres Power, National Nuclear Laboratory and AMEC. There is expertise in Renewable Energy technologies at Lancaster University, Energy Lancaster (research centre looking at solutions to meet future energy needs), and the University of Central Lancashire.
- Future opportunities in nuclear commissioning/decommissioning have been identified and there is also potential to service the growing number of wind turbines in the Irish Sea from the Port of Heysham. Lancashire potentially has one of the largest reserves of shale gas in Europe which provides a further opportunity (subject to planning permission).

Advanced Chemicals and Polymers

- The sector employs 4.3k people, equivalent to an employment density twice the UK average.
- Key strengths include: paint production, manufacture of high-performance plastics materials, production of fluorochemicals and materials, and the manufacture of organic chemicals, pharmaceutical and speciality polyurethane pre-polymers.
- Key companies are Asahi Glass Chemicals (one of only two production sites in the world for TEFLON derivatives used in industry), Vinnolit GMBH (a leader in PVC manufacture), Victrex (a manufacturer of high performance polyaryletherketones, used in oil drilling and automotive components) and AGC Chemicals.

- The sector is concentrated around the Hillhouse Business Park, a former ICI site with Enterprise Zone status and focussing on hi-tech chemicals and polymers. The re-establishment of the Chemistry Department at Lancaster University will increase research capacity.

Potential growth sectors

Health

- Health is already a major employer in Lancashire, accounting for 61k jobs across the research, medical product manufacturer and NHS domains. Particularly important sub-sectors for growth are Ageing and Digital Health.
- Building on Lancaster University's Centre for Ageing Research, the planned Lancaster Health Innovation Campus will develop solutions to problems caused by ageing populations and will include businesses, researchers and healthcare providers.

Digital

- Key emerging sub-sectors within the broader digital sector are Cyber Security, Big Data and sector specific software applications.
- Cyber security has been identified because of a growing global market and the recognition of Lancaster University as an EPSRC-GCHQ Centre of Academic Excellence in Cyber Security.
- The creative side of Lancashire's digital sector also has growth potential by building on existing capacity and skills in firms such as Realtime:UK.

Business Process Outsourcing

- Business Process Outsourcing (BPO) has been identified as a growth sector because of its potential to draw FDI into Lancashire. The market trend away from 'off-shoring' towards 'near-shoring' also bodes well for Lancashire as its towns act as relatively low cost locations with access to skilled workforces.
- Firms with significant bases in Lancashire already include Capita, HCL Technologies, CAP Gemini, Carphone Warehouse, and HGS.
- The wider Business, Financial and Professional Services sector in Lancashire is projected to grow by 15% from 2015-2025.

Three further sectors are major employers in Lancashire but do not offer such significant opportunities for GVA growth: Food Manufacturing supports 13k jobs with brands such as Dr Oetker and PepsiCo present in the area; the Visitor Economy supports 60k jobs and is particularly important in Blackpool which remains one of England's most important visitor destinations with over 10 million visitors per year; and with key companies such as the Co-operative Bank, Guardian Financial Group, and National Saving and Investments (NS&I), Business and Financial Services supports c.40k jobs in Lancashire.

... and linkages across the North (and beyond)

Relatively self-contained labour market with stronger north-south than east-west transport links. Plans to develop pan Northern links in the Energy sector, particularly Nuclear.

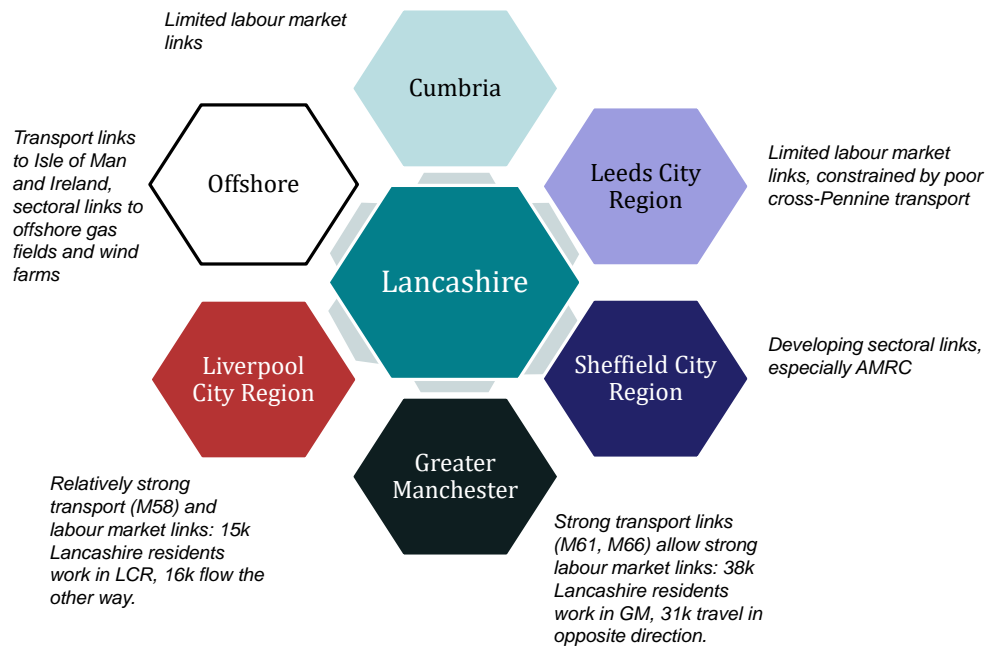
Lancashire is a relatively self-contained labour market, with the most significant cross-boundary flows occurring with neighbouring Manchester and, to a lesser extent, Liverpool to the south-west. Latest census data show that 86% of Lancashire residents work in the area and that 88% of Lancashire workers live in the area. Outside of this, 7% of Lancashire residents work in Greater Manchester, 3% in Liverpool City Region and just 1% travel over the Pennines to Leeds City Region, reflecting poor connectivity.¹⁸

¹⁸ The percentage of Lancashire workers in these city regions is similar at 6%, 3% and 1% respectively.

The M6, M61, M65, M58, M66 and the West Coast Mainline provide Lancashire with its main transport links to the rest of the North although capacity constraints and a consequent decrease in efficiency have been identified.¹⁹ Further, with issues around speed, frequency and rolling stock quality, rail links into Leeds City Region are “largely ineffective”, a factor explaining the low volume of commuters to and from this area.²⁰

Lancashire’s maritime links are provided by the Heysham Port, which has ferry services to the Isle of Man and Ireland. On a sectoral level, the Port is important for servicing offshore gas fields and wind farms in the Irish Sea.

Key relationships with other local areas across the North



Source: SQW

Critical investments

Critical investments are underway to unlock the growth potential of the key sectors in Lancashire as well as improve transport links with the rest of the North.

Faced with the productivity challenges and to address or exploit the sector opportunities and linkages across the North, partners in Lancashire are progressing a range of critical investments, including projects funded through the Growth Deal agreement with Government. An overview of the key critical investments in current investment plans is set out below.

¹⁹ The Lancashire Strategic Transport Prospectus, Lancashire Enterprise Partnership, 2015
²⁰ Strategic Economic Plan, Lancashire Enterprise Partnership, 2014, p17

Critical Investments

Knowledge & Innovation

- Creation of the **Health Innovation Park** as a test space for private sector R&D in collaboration with Lancaster University and healthcare bodies, particularly around issues caused by an ageing population.
- As part of a wider £200m city centre campus redevelopment, the new £30m **Engineering and Innovation Centre** will be developed at UCLan in Preston to enhance UCLan's capabilities in industrial collaboration, SME engagement, knowledge exchange, training and research.

Enterprise & Business

- Innovation Drive, an Aerospace and Advanced Manufacturing supply chain business park.
- **Lancashire's Enterprise Zone Programme** focused on sites at Samlesbury, Warton, Blackpool Airport and Hillhouse International to build upon existing strengths in high-value high-skilled Advanced Manufacturing, Aerospace, Energy and Chemical Sectors.
- **BOOST** – Lancashire's established business Growth Hub, which brings together £40m of business support programmes.
- **Creating Opportunities for Disadvantaged Communities/Groups** utilising £33m of EU funding.

Skills

- Deliver the **National Energy College HQ** to provide high quality training provision and skills support in the Onshore Oil and Gas sectors.
- £15.6m investment in **BAE's national apprentice training centre** at the Samlesbury EZ.
- **'Driving the Skills for Growth'** by utilising £50m of EU funding.
- Delivery of Lancashire's £30m **Skills Capital Growth Deal** allocation to establish centres of excellence for skills and training provision across Lancashire linked to key growth sectors.

Transport & Infrastructure

- Improvements to the **Blackburn to Bolton Rail Corridor** to enhance both rail lines and train frequency and therefore links to Manchester.
- **The £125m Heysham to M6 Link Road** to improve connectivity between the Port of Heysham, key development sites and the M6.
- Transport improvements in the **Burnley-Pendle Growth Corridor** to release additional employment land, and enable faster movement of goods and people.
- Deliver second wave commercial investments from Lancashire's recycled **Growing Places Investment Fund**.

Current contribution and alignment to the North’s capabilities

Lancashire’s alignment with and contribution to the North’s capabilities is consistent across all prime and enabling capabilities.

	Alignment	Contribution
Advanced Manufacturing	✓ ✓	✓ ✓
Energy	✓ ✓	✓ ✓
Digital	✓ ✓	✓ ✓
Health Innovation	✓ ✓	✓ ✓
Logistics	✓	✓ ✓
Financial & Professional Services	✓ ✓	✓ ✓
Higher Education	✓	✓ ✓

Source: SQW

Leeds City Region (LCR)

Story of Place

LCR accounts for one-fifth of the North's economy. Its Enterprise Partnership's ambition is for the LCR to become an economic powerhouse. It aims to do this by growing its businesses, developing its people's skills, using resources smartly, and improving its infrastructure.

LCR is a polycentric City Region comprised of the metropolitan districts of West Yorkshire (Bradford, Calderdale, Kirklees and Leeds), Barnsley in South Yorkshire, the City of York, and the districts of Craven, Harrogate and Selby in North Yorkshire. LCR has a population of just over three million and has one of the fastest growing working age populations in the UK; it accounts for around 20% of the North's economy, and the LCR as a whole is the largest economy in the North, as measured by work-based employment and GVA.

The strategic goal of the Leeds City Region Enterprise Partnership (LCREP) is to develop 'an economic powerhouse'. By 2021, the LCREP intends to generate 62,000 extra jobs and additional economic output of £5.2bn Gross Value Added (GVA), enabling the LCR to become a net contributor to the Exchequer.

This ambition is underpinned by four 'strategic pillars': Supporting Growing Businesses, Developing a Skilled and Flexible Workforce, Building a Resource-Smart City Region, and Delivering the Infrastructure Necessary to Enable Economic Growth.

The Productivity Picture

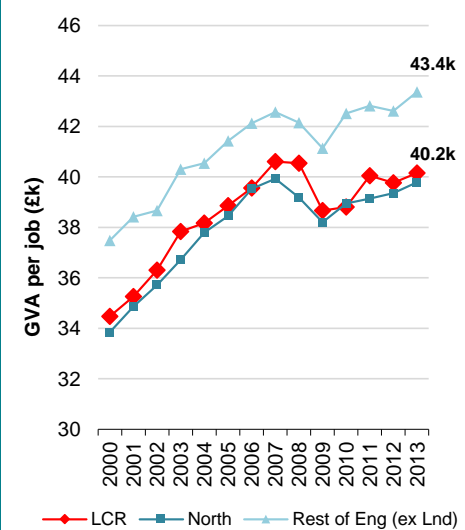
LCR's economy is large and significant: it generates c. £60bn GVA a year; it has c. 120,000 businesses and 1.45m jobs.

Productivity in the LCR averages c. £40k per job pa.; this is a little above the average for the North, but below the average achieved by the rest of England (excluding London). Furthermore, in line with the North in general, the productivity gap between the LCR and the rest of England has not closed over the last decade (see opposite).

The causes of the productivity gap include:

- Lower proportions of high level occupations and people with higher level skills and qualifications: in 2014, 30.6% of the LCR workforce had achieved NVQ4+ qualifications, compared to 34.5% in the rest of England (excluding London); furthermore, skill shortages are reported in Manufacturing, Financial & Business Services, and Transport & Logistics.
- A below average business start-up rate, leading to lower business density although, after London and Cambridge, Leeds has the highest number of firms which have achieved 20%+ annual staff or turnover growth in three consecutive years.
- Relatively low levels of business innovation and exporting.
- Sub-optimal communications infrastructure which does not meet current and, without significant investment, will not meet future business needs – research indicates that limitations in LCR's transport infrastructure could result in 22,000 fewer jobs and £1.5bn of GVA forgone by 2036.

Productivity over time



Productivity in LCR is well below the national comparator, and the gap has not closed over the last decade. The skills and occupation mix, enterprise rates, innovation, and infrastructure underpin this productivity deficit

Sector strengths on which to build

LCR has identified six priority sectors: Advanced Manufacturing (including Innovative Manufacturing), Financial & Professional Services, Health & Life Sciences, Digital & Creative Industries, Food & Drink, and Low Carbon & Environmental Industries.

LCR has a diversified economy with significant educational and research assets, e.g. the universities of Leeds and York, which contribute significantly to the City Region's economy through innovation and business spin-outs as well as education – the University of Leeds alone has produced around 100 spin-out companies with market capitalisation of c.£500m.

The LCR's economic breadth and its city-centre engine provide strength and resilience in challenging economic times. In terms of future economic growth, partners have identified six sectors which are currently strong and have growth potential: Advanced Manufacturing, Financial & Professional Services, Health & Life Sciences, Digital & Creative Industries, and Food & Drink.²¹ For the future, Low Carbon & Environmental Industries have been identified as offering growth opportunities.

Existing Sector Strengths

<p>Advanced Manufacturing (including Innovative Manufacturing)</p>	<p>LCR has a significant Advanced Manufacturing Sector, which:</p> <ul style="list-style-type: none"> • Supports around 49,500 employees, includes some 1,985 businesses, and generates GVA of £2.6bn pa. – the sector is an important driver of productivity, with GVA per FTE of £56k pa. • Has particular specialisms in: Preparing, spinning, weaving and finishing textiles (c.4,500 jobs); Bearings, gears, gearing and taps and valves (c.3,000 jobs); Electric motors, generators & transformers (c.2,000 jobs); Medical & dental instruments and supplies (c.2,300 jobs); and Metal forming machinery (c.1,300 jobs). • Contains firms including Mitsubishi Power Systems and Fujitsu, turbo technology companies (e.g. Cummins Turbo Technologies), and gearing, pumps and valves manufacturers (e.g. David Brown Gear Systems Ltd); as well as assets such as Science City York, FabLab Airedale, the University of Bradford's Automotive Research Centre, Leeds University's National Facility for Innovative Robotic Systems, and York University's Robotic Laboratory.
<p>Financial & Professional Services</p>	<p>Outside of London, LCR is one of the UK's main centres for Financial and Professional Services. The sector:</p> <ul style="list-style-type: none"> • Supports over 250,000 employees, contains over 21,000 businesses, and generates GVA of approximately £15bn pa., with GVA per FTE approaching £67k pa. • Has particular specialisms in: Other monetary intermediation (c.29,000 jobs), Legal activities (c.15,000 jobs); Head office activities (c.14,000 jobs); and Other activities auxiliary to insurance and pension funding (c.6,500 jobs). • Includes: headquartered mutuals (e.g. Skipton Building Society, Leeds Building Society and Yorkshire Building Society); over 30 national and international banks (e.g. First Direct); large insurance providers (e.g. Aviva and Hiscox); the Bank of England's only office outside London; plus the Credit Management Research Centre and the Institute of Banking and Investment at Leeds University Business School.
<p>Health & Life Sciences</p>	<p>LCR has a concentration of knowledge-based innovative Health and Life Sciences businesses, alongside broader healthcare industries and recognised strengths in digital health innovation. The sector as a whole:</p> <ul style="list-style-type: none"> • Supports 36,000 employees, and contains c.925 businesses.

²¹ The profiles are based on information provided in the study Key Sectors Policy for Leeds City Region, Ekosgen, March 2014.

Healthcare	<ul style="list-style-type: none"> • Has particular specialisms in: the Manufacture of medical and dental instruments and supplies (c.2,300 jobs) and Other human health activities (c.19,500 jobs). • Includes: Leeds Teaching Hospital NHS Trust, the largest in the UK and largest teaching hospital in Europe; four of the most important UK National Health Service bodies; NHS England, the Health & Social Care Information Centre, the NHS Leadership Academy and Health Education England; medical equipment manufacturers (e.g. Brandon Medical, Smith and Nephew, and DePuy International Ltd); leading pharmaceutical companies (e.g. Thornton & Ross, and Galpharm (International) Ltd); research-driven analytical service companies (e.g. Covance, Unilabs, Emis and TPP, with the latter two having played a major role in developing Leed’s shared Single Patient Care Record model); tissue repair companies (e.g. Tissue Regenix Group plc and Neotherix); NHS England (which oversees NHS commissioning); the Medical Technologies Innovation and Knowledge Centre at Leeds University; plus Medipex Healthcare Innovation Hub and Medilink connecting the NHS with industry and academia.
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Digital & Creative Industries	<p>Digital and creative industries is a broad sector covering a wide range of activities, from gaming through to data analytics and ‘Big Data’. The sector:</p> <ul style="list-style-type: none"> • Supports 64,000 employees, contains c.8,000 businesses, and generates GVA c.£3bn pa., with GVA per FTE of c.£65k pa. • Has particular specialisms in: Satellite telecommunications activities (c.600 jobs); Publishing and printing (c.7,500 jobs); and Advertising and PR (c.9,000 jobs). • Includes one of the UK’s three standalone internet exchanges (the only one outside London); world-class games companies (e.g. Team 17 and Rockstar), communications (e.g. Radio Design and Echostar Europe); media production (e.g. True North); and software development and product design companies (e.g. Isotoma); the sector also benefits from supporting assets, including the Advanced Digital Institute in Saltaire and the Media Centre a digital cluster in Huddersfield, Leeds Institute for Data Analytics, Advanced Digital Institute (Leeds University).
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Food & Drink	<p>The Food and Drink sector in the LCR:</p> <ul style="list-style-type: none"> • Supports 37,000 employees, contains c.1,100 businesses, and generates GVA of c.£1.1bn pa, with GVA per FTE of c.£55k pa. • Has particular specialisms in the Manufacture of hollow glass (c.1,700 jobs), Manufacture of cocoa, chocolate and sugar confectionery (c.2,600 jobs), Manufacture of soft drinks, mineral waters and other bottled waters (c.1,300 jobs) and Manufacture of beer (c.1,400 jobs), Processing and production of meat and poultry products (c.4,300 jobs). • Includes key assets such as the Food & Environment Research Agency (with specialisms in Detection & Surveillance Technologies, including Bioinformatics, and Sustainable Agriculture and Environment), Leeds University’s School of Food Science & Nutrition, and leading companies including Coca Cola, Nestle, Haribo, McVities, Warburton’s, Yorkshire Tea, Betty’s & Taylor’s, Seabrook Crisps, Dr Oetker and Harrogate Spring Water. LCR also hosts the headquarters of two of the UK’s major retailers - Asda and Morrisons.
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Potential Growth Sectors

Low Carbon & Environmental Industries	<p>Low Carbon and Environmental Industries have been identified as a potential source of economic growth for the LCR, based on the City Region’s research assets. The sector:</p> <ul style="list-style-type: none"> • Supports 39,300 employees, contains c.2,200 businesses, and generates GVA of c.£5.4bn pa.
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- Has particular specialisms in Energy management and efficiency, Environmental consultancy, and Water supply/waste water treatment. Decarbonisation is seen as a growth area, with Leeds city looking to progress the 'hydrogen economy' as a key part of its Smart Cities agenda.
- benefits from the presence of eight internationally recognised centres of low carbon expertise: the Centre for Climate Change Economics and Policy, the Stockholm Environment Institute, Science City York, the Centre for Low Carbon Futures, the Centre for Integrated Energy Research, Green Chemistry Centre for Excellence, the Sustainability Research Institute, and the Centre for Sustainability Accounting.

In addition to these priority sectors, LCR has a significant Visitor & Cultural Economy, which generates GVA of c. £2bn a year through significant levels of business and leisure tourism based on major assets (e.g. Yorkshire Sculpture Park, Hepworth Wakefield, Saltaire World Heritage Site, Leeds First Direct Arena, National Media Museum in Bradford, National Railway Museum, York's historic centre, major conference facilities in Harrogate and Leeds, and the Yorkshire Dales National Park); a major Transport & Logistics sector with concentrations of activity in Wakefield, York and Selby; and a significant Construction sector with concentrations of activity in Barnsley, Selby, Wakefield, Kirklees and Craven.

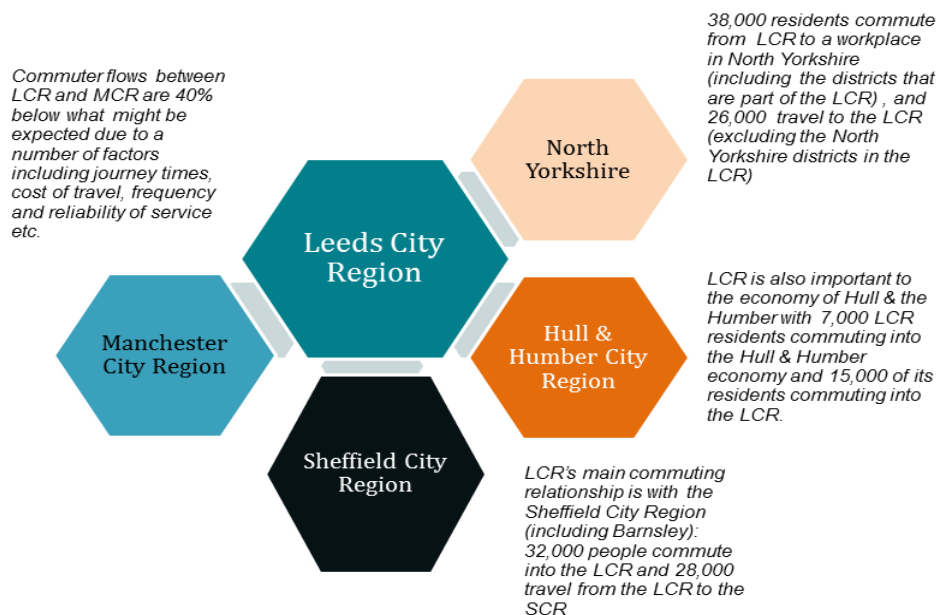
... and linkages across the North (and beyond)

LCR is relatively self-contained – 92% of its jobs are filled by its residents. LCR's main commuting relationship is with the Sheffield City Region. Commuter flows between the LCR and the Manchester City Region are around 40% lower than might be expected, in significant part due to poor transport links.

Like many other LEP areas in the North, the LCR is a relatively self-contained economy – 92% of jobs in the LCR are taken by LCR residents. LCR's main commuting relationship is with the Sheffield City Region (SCR). Commuting data show that the LCR is also important to the economies of North Yorkshire and Hull & the Humber; while research indicates that commuter flows between Leeds and Manchester are 40% lower than might be expected, given their proximity to each other and the structure of their economies; due in part to poor transport links.

Located between ports in Liverpool and Hull & Humber City Regions, LCR has important freight links; the M62/M1 corridor in Wakefield is one of the North's main distribution hubs and is home to Argos, DHL, and Royal Mail.

Key relationships with other local areas across the North



Source: SQW

In relation to LCR's links outside of the North, Leeds Bradford International Airport (LBA) provides important business connectivity with Heathrow and Amsterdam (Schiphol), and improved road and rail transport links to LBA are required if its economic potential is to be realised. However, Manchester Airport is the only airport in the North with an extensive network of inter-continental scheduled services; good rail access to Manchester Airport is therefore vital for LCR, and improved frequency and reliability of train services are required if the LCR is to make the most of Manchester Airport's offer. In this context, new direct services for Bradford are being delivered as part of the new Northern rail franchise announced in December 2015.

In the long term, HS2 should boost the LCR economy; however, the polycentric nature of West Yorkshire's economy means that connectivity between Leeds, Bradford, Wakefield and employment clusters, such as the Aire Valley Enterprise Zone, will have to be improved if the LCR is to realise the full economic potential of HS2. In the short term, deficiencies in local transport (e.g. Leeds is the largest city in Europe without a rapid transit network) have to be addressed if economic growth is not to be constrained.

The LCR Strategic Economic Plan states that the transformation of Leeds City Region's local, national and international transport connectivity is central to achieving the partners' vision for the LCR.

Critical Investments

Partners in LCR have a range of investments, including projects funded through the Growth Deal with Government, which they are pursuing under four over-arching priorities: *Priority 1: Supporting growing businesses* with proposed investment of almost £810m; *Priority 2: Developing a skilled and flexible workforce* with proposed investments over £1bn; *Priority 3: Building a resource-smart city region* with over £100m of proposed investments; and *Priority 4: Delivering the infrastructure for growth* with almost £3.2bn to be invested by 2020-21 (and almost £3.8bn by 2026). An overview of the key committed critical investments in current plans is set out below.

Critical investments

Knowledge & Innovation

- **Innovation Capital Investment** to support the development of LCR's innovation assets, including BioVale (York), Innovation Health Hub (Leeds), University Enterprise & Innovation Centres, e.g. the Bradford University-BT Health Zone, plus initiatives on Big Open Data, Regenerative Medicine, Bioinformatics and Cancer Therapeutics in Leeds.
- **BioVale, an innovation cluster for biotechnology firms**, providing flexible laboratory and pilot-scale business incubation space, a Bio-renewables Development Centre – Industrial Scale-up Facility, and a Bioeconomy Support Centre.

Transport & Infrastructure

- **West Yorkshire Plus Transport Fund**, with a planned £830m invested by 2021 and £1.4bn invested in 32 transport schemes by 2026
- **Accelerating Housing Growth, Development and Connectivity** targeting investment in infrastructure (including green infrastructure), transport and digital connectivity in four Strategic Housing Growth Areas (in Bradford, Leeds, Wakefield and York), Aire Valley-Leeds Enterprise Zone, and other Strategic Employment and Mixed Use Sites and growth areas.
- **Asset Re-use and Affordable Housing** to tackle the inefficient use of existing housing and other buildings and the undersupply of affordable homes (in Leeds, Barnsley, Bradford, Halifax, York and Craven).
- **Department for Transport Major Schemes Legacy Schemes**, i.e. those existing major schemes that require spending after April 2015, e.g. New Generation Transport for Leeds, Leeds Inner Ring Road, and a Rail Growth Package (for station developments).
- **Green Deal** and domestic retrofitting.

Enterprise & Business

- **Leeds City Region Business Growth Hub** to provide business support services to assist business start-ups, business growth, innovation, manufacturing, export activity, and leadership development.
- **Visitor Economy & Culture** to enhance the LCR’s tourism and cultural assets and develop and promote its tourism offer, in order to achieve maximum economic benefit.
- **Energy Hub** a specialist vehicle responsible for the development of new energy infrastructure (including energy efficiency, energy generation, supply chain and distribution and storage) across the LCR.
- **Resource-smart operations programme** providing tailored business support to SMEs looking to reduce their resource costs and increase productivity.

Skills

- **Skills Capital Investment Programme**, including investment in facilities to address skills shortages in the LCR’s growth sectors and investment to develop Excellent Learning Facilities in Further Education.
- **A Skills Fund and Skills Hub** to take forward the priorities and actions of the Leeds City Region Skills Plan; addressing skills shortages in priority sectors and facilitating links between business, schools, colleges and universities.
- **Promoting Enterprise & Innovation in Young People** via joint work between businesses and schools.
- **Extending Apprenticeship Hub Plus** to help create a NEET-free City Region with better advice and support to SMEs.
- **Local flexibility for reducing unemployment** and creating better jobs to reduce benefit-dependency, particularly targeted at interventions to support those aged 18-24.

Current alignment and contribution to the North’s capabilities

LCR contributes substantively to all of the North’s capabilities, with local alignment particularly strong in financial and professional services.

	Alignment	Contribution
Advanced Manufacturing	✓	✓ ✓ ✓
Energy	✓ ✓	✓ ✓ ✓
Digital	✓ ✓	✓ ✓ ✓
Health Innovation	✓ ✓	✓ ✓ ✓
Logistics	✓ ✓	✓ ✓ ✓
Financial & Professional Services	✓ ✓ ✓	✓ ✓ ✓
Higher Education	✓	✓ ✓ ✓

Source: SQW

Liverpool City Region (LPCR)

Story of Place

LPCR is a major economy with a population of more than 1.5m. Its economy generates an annual GVA of about £29 billion. The City Region combines a rich industrial and trading heritage alongside a significant concentration of nationally significant innovation and knowledge assets.

The Liverpool City Region (LPCR) as defined for this Review covers the six Local Authority Districts of Liverpool, Halton, Knowsley, Sefton, St. Helens, and Wirral. The wider functional economic area (not covered in this profile) expands into parts of West Lancashire, Warrington, Cheshire West & Chester, and North East Wales. LPCR is a coastal city region, geographically dominated by the River Mersey, which provides access to the Irish Sea and Atlantic Ocean. More than 1.5m people live within the core LPCR.

Historically, the growth and development of the City Region was shaped by the Port of Liverpool, however, as trade routes and business models changed, the economic fortunes of the City Region suffered over the second half of the 20th Century. The LPCR economy has strengthened considerably since 2000, benefiting from major investment by its four universities (with around 50,000 students), local science parks and expanding business base, as well as a renewed emphasis strategically on exploiting the economic opportunities associated with the River Mersey and global trading opportunities through the Port.

LPCR's Growth Deal sets out an ambitious agenda to re-position Liverpool as a 'first tier global city', building on four specific priority areas identified in the Strategic Economic Plan. These are to create a **freight and logistics hub** which will put the City Region in the best place to respond to changes in the UK and wider global logistics market; the revival of **Liverpool City Centre** as a successful business, science and leisure destination; driving the transfer of the City Region's energy supply to **low carbon** and renewable sources; and **skills and business support** to enable economic growth. More specifically, LPCR has identified three growth objectives: an uplift in GVA and jobs; drive further productivity gains; and to deliver a rebalanced economy, with a reduced emphasis on public sector employment.

The Productivity Picture

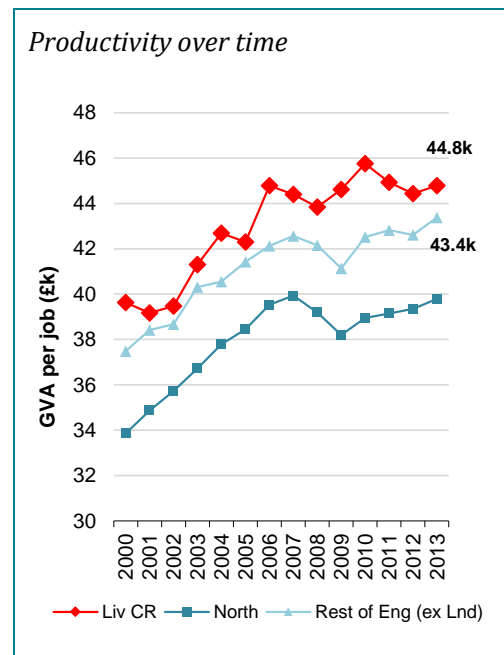
Productivity per job at almost £45k is higher in the LPCR than in competitor areas elsewhere in the North and the rest of England (excluding London).

The core LPCR economy generated £28.8bn of GVA in 2013, which represented growth of 1.3% pa. between 2000 and 2013. By comparison, the rest of England (excluding London), increased its total GVA figure by 1.7% pa. over the same period.

Productivity defined in terms of GVA per job for the LPCR, at c.£44.8k is higher than all other local areas in the North, and higher than the rest of England (excluding London).

This is in part, likely to be explained by the presence of some very high value added sectors within the local economy such as Pharmaceuticals, Automotive, Water and Air Transport, IT Services, Other Professional Services, Wood and Paper, Printing and Recording, Coke and Petroleum, and Chemicals.

A second important factor underpinning the City Region's strong productivity performance is the *relatively* small number of jobs in the City Region (643k in 2013) when set against the total



GVA output (and indeed the size of its working age population at 969k). The impressive productivity figures mask a sizeable GVA output per capita deficit, which LPCR partners are seeking to address through the Growth Deal and SEP package of interventions.

Sector strengths on which to build...

LPCR is focusing on four specific areas of Smart Specialisation: Health and Life Sciences; Advanced Manufacturing; the Blue/Green economy (Superport and Low Carbon); and Digital & Creative.

The LPCR Innovation Plan defines four priority areas where, by heritage, scope, scale, and/or excellence, LPCR's sectoral offer is differentiated. The areas, covering a broad mix of sectors, scientific research capabilities and disruptive technologies are Health and Life Sciences; Advanced Manufacturing; Superport Liverpool and Low Carbon (known as the Blue/Green in LPCR); and Digital and Creative.²² Other important sectoral strengths in LPCR are Financial and Professional Services (especially Wealth Management and Insurance), Retail and Wholesale, Construction, Education and Public Administration and the Visitor Economy.

The Visitor Economy (both business and leisure travellers) in particular has played an important role in supporting private sector job creation (accounting for almost 50,000 jobs in total) and attracting substantial capital investment into the LPCR e.g. the new Exhibition Centre Liverpool, which opened in September 2015. Liverpool is the sixth most visited city in the UK by people from overseas, representing a destination of national importance, and Liverpool John Lennon Airport is one of the fastest growing airports in the UK.

Health and Life Sciences	<ul style="list-style-type: none"> • The Health and Pharmaceutical sectors in the LPCR generated £2.9bn of GVA in 2014, employing some 70,000 people. • Key sub-sectors and areas of specialisms include: Infectious Disease, Stratified Medicine, E-health & Assisted Living, Biologics Manufacturing, Paediatrics, Pancreatic Disease, Cancer (Pancreatic, Lung, Ovarian, and Head & Neck), Clinical Pharmacology, and Nutraceuticals. • The LPCR benefits from strong research capabilities (four universities, including the rapidly expanding Liverpool School of Tropical Medicine) and complementary assets such as: the Pancreas Biomedical Research Unit; two NIHR Health Protection Research Units - gastrointestinal research and emerging and zoonotic diseases; nationally significant NHS assets (including Alder Hey, one of Europe's largest children's hospitals); the presence of major health charities; a growing number of life science firms including one of Europe's largest bio-manufacturing clusters; and a local patient population that suffers from poor health outcomes, making it of interest to firms running clinical trials. It is also home to the Medicines for Children Research Network hub for the UK, and one of the UK's leading centres for Drug Safety Science, with interest in drug bio-analysis, cell systems, genetic screening capabilities (through the Wolfson Centre) and immunoassay development. • The area is home to some major corporates in the health and life sciences sector including Eli Lilly/Elanco, Actavis, AstraZeneca and Novartis (recently acquired by CSL).
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Advanced Manufacturing	<ul style="list-style-type: none"> • Advanced Manufacturing is one of the key growth sectors identified by the LPCR LEP, employing just under 50,000 people and contributing £3.2bn to the local economy. • Key sub-sectors and areas of specialisms include: Biologics Manufacturing (primarily vaccines); Automotive; Chemicals; Glass; Food & Drink; and Ship Building. Research conducted by the LPCR's 'Making It' board also identified six short-term growth opportunities around Advanced Manufacturing for the LPCR: light-weighting; smart, non-invasive monitoring; process scale-up solutions centre; sustainable energy solutions; shale gas exploration platform; and marine ballast water treatment.
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²² The Innovation Plan document is available here: <https://www.liverpoollep.org/wp-content/uploads/2015/06/wpid-lcr-innovation-plan-draft2014.pdf>

<p>Manufacturing</p>	<ul style="list-style-type: none"> LPCR is home to more than 3,000 manufacturing companies including Jaguar Land Rover, Johnson Controls, ABB, NGF Europe Ltd, United Automation, Getrag Ford, Sigmalex, Unilever, United Biscuits and Cammell Laird. Firms in the sector in LPCR also benefit from proximity to assets in C&W (automotive with GM and Bentley, Pharma manufacturing at Hurdsfield), North Wales (nuclear at Anglesey, automotive with Toyota at Deeside and aerospace, through Airbus at Broughton), Lancashire (automotive with Leyland Trucks etc. and aerospace at BAE systems) and Greater Manchester (advanced materials research). LPCR's research expertise in Materials Chemistry, notably at the University of Liverpool is highly complementary to the local advanced manufacturing clusters with existing assets (e.g. Unilever's Joint Centre for Material Discovery with the University of Liverpool and its Throughput Formulation Centre at Liverpool Science Park), and a number of major developments underway in the area (see the Critical Investments section). Partners have committed to explore options for developing a Manufacturing Technology Centre North to be based in Liverpool, and LPCR is seeking to create a new 'LCR 4.0 Infrastructure' to assist SMEs to integrate IoT, digital engineering, advanced testing and validation capabilities.
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<p>Superport Liverpool and Low Carbon</p>	<p><i>Superport Liverpool</i></p> <ul style="list-style-type: none"> The Superport concept is seeking to exploit the global connectivity offered by the Atlantic-facing Port of Liverpool, and encompassing other logistics sites across the North. Superport aims to deliver faster, greener, and more cost effective global market access for businesses to and from the northern UK and Ireland via an enlarged post-Panamax container port. Superport is not a sector and it is challenging to quantify. However, the maritime and logistics sector in the LPCR directly supports around 34,000 jobs and generates £1.4bn per annum. <p><i>Low Carbon</i></p> <ul style="list-style-type: none"> The Low Carbon sector currently contributes over £2bn per annum to the LPCR economy, employing over 22,000 people in 1,400 companies. The sector includes major port operators such as Peel Ports and Associated British Ports, some of the world's largest shipping lines such as Maersk, ACL and CMA CGM and freight/logistics firms e.g. Bibby and Stobart Groups. LPCR has been designated as a Centre for Offshore Renewable Engineering (CORE) by the UK Government in recognition of its existing strengths (including research capabilities with specialist facilities such as the Stephenson Institute for Renewable Energy, and the National Oceanography Centre at the University of Liverpool) and its future growth potential. Other emerging areas include the development of the City Region's Hydrogen economy – scaling-up the early stage H2-cluster at Runcorn, creation of a Liverpool Advanced Grid-Scale Electrochemical Energy Storage R&D facility and development of the LPCR Marine & Maritime Knowledge Hub. The sector benefits from links to key energy clusters at Capenhurst and Warrington (nuclear), Lancashire (fracking) and the emerging energy focused developments at Thornton.
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<p>Digital and Creative</p>	<ul style="list-style-type: none"> The Digital and Creative sector in the LPCR generated GVA of £878m in 2013, with 19,000 jobs in the sector (excluding the freelance economy), with Tech City mapping work²³ indicating that the cluster in Liverpool accounts for around half of these jobs. Looking forward to 2030, the sector is projected to more than double in size in GVA terms, reaching £1.68bn. Strengths include: Games development and publishing; Software development; Advertising and marketing; Multi-platform content providers. There are also growing clusters focused on the Internet of Things (links to
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²³ TechNation – Powering the Digital Economy (2015) report available at: <http://www.techcityuk.com/wp-content/uploads/2015/02/Tech%20Nation%202015.pdf>

LCR 4.0 in Advanced Manufacturing) and HealthTech/Assisted Living, as well as a strong ecosystem of mobile app development and creative agencies.

- LPCR's main research capabilities in this space include data analytics, simulation, data processing, visualisation and sensors.
- Key assets include the Hartree Centre in high performance computing (a nationally significant joint investment with IBM), and the Virtual Engineering Centre providing a strong connection between the Hartree Centre and the University of Liverpool. Spatially, the Baltic Triangle and Ropewalks areas of central Liverpool have acted as key hubs for the sector, with Elevator Studios (c9k sq.m) and Baltic Creative (c4,500 sq.m) providing commercial space for early stage firms ; Liverpool DoES provides a co-working space, workshop and events hub for digital entrepreneurs and makers. Over recent years, a number of digital companies have formed within the Baltic Triangle area including Red Ninja, Umbrella studio, Starship and games company Firesprite.

Potential growth sectors

Further to the priority sector areas identified above, the Liverpool Innovation Plan reports that the forward signs (2013-2030) for the LPCR are positive across other parts of the economy. The Service Sector economy looks like it will continue to grow, and importantly for innovation, Professional, Scientific and Technical activities are expected to see the highest growth in both GVA and employment. Other growth sectors identified in the Innovation Plan include Information and Communication, and Real Estate services.

... and linkages across the North (and beyond)

There are significant commuter flows between the LPCR and C&W, North Wales, Lancashire and GM. There are also large freight movements.

Capacity constraints, long journey times and journey quality issues on the strategic road and rail networks act as key barriers to growth.

Within the North, the LPCR has important and substantial economic linkages through commuting to Greater Manchester and Cheshire and Warrington, and Lancashire: almost 40k people who live within LPCR commute daily to Cheshire and Warrington for work, around 22k commute to Greater Manchester and 16k to Lancashire. Similarly, these daily flows are bi-directional, with almost 30k residents from Cheshire and Warrington, 20k from Greater Manchester and 15k from Lancashire commuting into the core LPCR for work daily. There are also important commuting link with North Wales.

Wider economic linkages include substantial freight movements between LPCR and the rest of the North, with the Manchester Ship Canal playing an important enabling role: it currently accounts for around eight million tonnes of cargo a year and its owners Peel is planning to increase the volume of freight transported on the canal from 3,000 containers to 100,000 by 2030.

Freight links to other areas of the North via the national motorway and rail networks are also significant e.g. trains take around three million tonnes of wood pellets per year from the Port of Liverpool biomass terminal to Selby for use at the Drax power station. Through the Liverpool Superport programme of investments (within the core LPCR, but also across Cheshire & Warrington and Greater Manchester) the ambition is to strengthen these links considerably over the coming years. Work is also underway to explore the potential of developing stronger links between the Port of Liverpool and the Humber Ports.

Liverpool John Lennon Airport, the Liverpool cruise liner terminal and various passenger ferry terminals also generate significant flows into the City Region, and Liverpool is one of the main UK ports for access to Ireland.

Key relationships with other local areas across the North



Source: SQW

Strategic rail links between Liverpool and the other Core Cities across the North remain problematic in terms of capacity constraints, journey times and journey quality. Furthermore, a key strategic priority for the LPCR is to have a direct link to the HS2 network. This would enable better north/south connectivity and free-up much needed capacity on the West Coast Main Line north of Crewe for growing freight demands. Several rail investment schemes²⁴ are being planned by the LPCR including improvements to capacity and redevelopment of Liverpool Lime Street station, enhanced rail connectivity to Liverpool John Lennon Airport, as well as improved road access to strategic employment sites, with a specific priority being the Port of Liverpool.

Critical investments

LPCR partners have identified a programme of critically important investments focused on transformational knowledge & innovation, transport & infrastructure, enterprise & business, and skills agendas.

In response to the GVA output, jobs, business density and high level skills challenges, and the emerging strategically significant growth opportunities identified through the smart specialisation agenda, LPCR partners have identified a programme of critically important investments. An overview of the key investments presented in current investment plans is set out below.

Critical investments

Knowledge & Innovation

- **Materials Innovation Factory**, an open innovation collaboration between Unilever and the University of Liverpool within the city's Knowledge Quarter (£68m investment) focused on computer-aided materials science and discovery including a research hotel and lab space for SMEs.
- **Unilever Advanced Manufacturing Centre** with pilot plant capabilities (£24m investment).

²⁴ As set out in the Liverpool City Region Long Term Rail Strategy (Summer 2014)

- **Liverpool Health Campus** including the Royal Liverpool hospital (£335m), specialist Clatterbridge Cancer hospital (£118m), 70kft² Life Sciences accelerator (Phase 1 of a larger development) and expansion of the Liverpool School of Tropical Medicine.
- c.£113m government investment to establish The Hartree Centre at Sci Tech Daresbury as the **UK's Centre of Excellence in Cognitive Systems and Big Data** (alongside intellectual property from IBM valued at £200m)
- Delivery of the **long-term master plan at Sci Tech Daresbury** (>£100m).
- £15m investment for the **Liverpool Maritime Knowledge Hub** at Wirral Waters comprising: Offshore Survival Training Centre; Maritime Industries Centre with incubation facilities and support; a **new branch of the existing Manufacturing Technology Centre (MTC)** Catapult with a specific maritime focus.
- **Sensor City tech incubator** (£15m) to drive innovation/commercialisation of sensor systems technologies.

Transport & Infrastructure

- **Superport Liverpool programme** of investments including the £340m Liverpool2 new deep water terminal and associated freight/logistics facilities.
- **£450m Mersey Gateway bridge** across the River Mersey, which is scheduled to open in 2017.
- **The Northern Hub** will help to improve rail connectivity with Manchester and help to address some of the capacity constraints experienced in the LPCR.
- **Package of strategic transport investments (£43m)** e.g. Knowsley Industrial Park Connectivity Improvements, A5300 Knowsley Expressway, Newton-le-Willows Interchange, Halton Curve rail link with North Wales and M58 Junction Improvements.
- **Parkside Strategic Rail Freight Interchange** scheme in St Helens, projected to create c.8,000 jobs.
- **3MG Mersey Multi-Modal Gateway** development in Halton.
- Merseyside Connected programme, which seeks to support the roll-out of **superfast broadband services** across the Merseyside sub-region.

Enterprise & Business

- Further investment in the **Liverpool City Enterprise Zone**, including expansion of the Commercial Quarter to deliver additional Grade A commercial office space.
- **International Festival for Business 2016** and associated programme of events.
- **Mersey Waters transformational dock-side regeneration schemes (£10bn over 30 years).**
- **Capital Investment Fund** (£15.6m)
- **Business Growth Support programme** (£15.6m)

Skills

- £41.1m **package of improvements for six FE colleges** to ensure that young people are properly trained for the jobs of tomorrow.
- £1.55m **Liverpool Skills for Growth** to support employers who are willing to invest in training to source high quality training provision.
- A suite of **Skills for Growth Agreements** (covering all of the LPCR's key growth sectors) to enable businesses, and employment/skills providers to better match supply and demand for skills.

Current alignment and contribution to the North's capabilities

LPCR's alignment and contribution to the North's capabilities is most pronounced in Digital and Health Innovation (both prime) and Logistics and Financial and Professional Services (both enabling)

	Alignment	Contribution
Advanced Manufacturing	✓ ✓	✓ ✓
Energy	✓	✓
Digital	✓ ✓ ✓	✓ ✓ ✓
Health Innovation	✓ ✓ ✓	✓ ✓
Logistics	✓ ✓ ✓	✓ ✓ ✓
Financial & Professional Services	✓ ✓ ✓	✓ ✓ ✓
Higher Education	✓ ✓	✓ ✓

Source: SQW

North East (NE)

Story of place

The NE is a large and diverse city region, containing a major core city, and a network of large towns, coastal and rural communities. The headline economic priority is to generate more, and better, jobs in the City Region, and so address the on-going legacy of industrial change.

The NE is a large and diverse area, comprising Newcastle, County Durham, Gateshead, North Tyneside, Northumberland, South Tyneside and Sunderland. It has a total population of approaching 2 million. Newcastle City and the urban areas of Sunderland and Durham are key business and employment locations, and are complemented by a strong network of settlements along strategic transport corridors, and in rural and coastal locations.

The economy of the NE has made progress in its transition from an earlier focus on Extractive Industries and Manufacturing. Whilst it still faces significant economic and employment challenges (with employment levels well below the national average) and needs to continue to restructure, it has seen the development of new economic strengths in Digital and Advanced Manufacturing sectors, and has strong manufacturing and innovation assets in Pharmaceuticals and Automotive industries. It has also built a strong cultural reputation, with complementary rural and coastal assets. It includes a strong higher education offer, with two research-led universities and two strong teaching institutions.

In this context, the overall strategic objectives – as set out in the area’s Strategic Economic Plan – is to **create more and better jobs**, with a vision to have over 1 million people in employment in the area economy by 2024, an increase on the present number of around 100k, with a focus on increasing productivity and exports through a focus on innovation. Within this context, the key priorities identified in the SEP are: Innovation; Business Support and Access to Finance; Skills; Economic Assets and Infrastructure; Employability and Inclusion; and Transport and Connectivity.

The Productivity Picture

Productivity in the NE improved strongly in the last decade, but remains well below comparators. A range of factors are responsible for sub-optimal productivity performance, with skills, the scale and nature of the private sector, and innovation/enterprise deficits all evident.

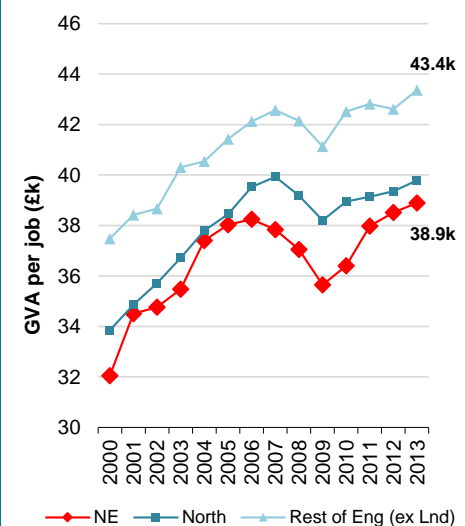
The NE economy generated annual GVA of over £30bn in 2013, and supports approximately 850k jobs. However, the NE continues to face ongoing issues associated with its legacy of industrial change.

Indeed, while productivity growth in the NE has been strong over the past decade (as opposite, GVA per job increased from 85% of the rest of England minus London in 2000, to 90% by 2013, helped by an improving the skill base, the development of innovation assets, and improved transport connectivity), a significant productivity gap remains.

Detailed analysis of the causes of the productivity gap has been undertaken in the recent NE Independent Economic Review. The review found that there are areas where companies and sectors are competitive nationally and internationally. However, issues underlying the productivity deficit included:

- Low skills, despite progress, recent data on qualifications (as a proxy for skills) showing that just 28.5% of the working age population had NVQ 4+ qualifications, compared to 34.5% in the rest of England minus London.

Productivity over time



- The nature and type of work mainly on offer, including a high proportion of lower value added, Service Functions, and too few jobs in key parts of the Service Sector economy, notably Business and Financial Services.
- A small (in relative terms) private sector economy, with low business and job densities in the private sector. Analysis indicates that relative to its peer group, and allowing for its size, the number of private sector jobs in the economy is around 70k/80k lower than it should be.
- Low enterprise rates, in part owing to the low levels of investment capital in the NE which is key to enabling business start-up and growth.
- Low innovation intensity across the business base, despite major research strengths including four universities, NET Park, and the National Renewable Energy Centre.

Sector strengths on which to build ...

Key sector strengths, and opportunities for Smart Specialisation, have been identified by local partners. Building on the area's industrial legacy, and leveraging its knowledge and research base.

The NE's economy has been traditionally characterised by Manufacturing and associated Heavy Industries (including Mining). However, recent years have seen major changes in the industrial structure, and while traditional Manufacturing strengths remain, notably in Automotive and Pharmaceuticals, new Manufacturing and Service Sector strengths have emerged, drawing particularly on the knowledge, and research base across the City Region, including in Digital Technologies.

The key existing sector strengths, and potential growth sectors, are summarised below. These four areas have been identified by local partners as potential foci for Smart Specialisation, based on their status as industry-led clusters with innovation and growth characteristics.

Existing sector strengths

Passenger Vehicle Manufacturing	<p>Passenger Vehicle Manufacturing (PVM) is an area where the NE has a demonstrable competitive advantage and substantial business base. The sector:</p> <ul style="list-style-type: none"> • Supports over 12k jobs in Motor vehicle manufacturing alone, anchored principally by Japanese inward investment and its supply chain. For example, Nissan's Sunderland plant employs directly around 6.5k people (making it the largest UK car plant and a major exporter), with a similar number employed in the supply chain. • Includes commercial 'Yellow' Vehicle Production, with Caterpillar and Komatsu present in the area; and niche low carbon vehicles, with the area home to Nissan's European Centre of Excellence for battery manufacture and Leaf Electric Vehicle Production Facility, Smith's Electric Vehicles (a manufacturer of electric commercial vehicles), and Sevcon (a global manufacturer of electric vehicle motor controllers headquartered in Team Valley). These primes are supported by a developing cluster of high-growth SMEs working in Low Carbon vehicle technologies. • Is diversifying, with Hitachi's plant in Newton Aycliffe employing over 700 workers assembling high-speed Intercity trains, with its supply-chain including Glass, Security and Safety Systems, and On-Board Servers. • Includes innovation and research assets, including the Institute of Automotive and Manufacturing Advanced Practice (AMAP) at the University of Sunderland, and the future technology centre (also in Sunderland) focused on innovation in the Low Carbon vehicle sector. The Low Carbon Vehicle Zone at Sunderland is part of the NE Enterprise Zone, adjacent to the Nissan Motor manufacturing plant.
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Life Sciences and Healthcare	<p>The strength of the sector in the NE lies in its diversity of its business base across the innovation and supply chain. It includes:</p> <ul style="list-style-type: none"> • An estimated 260 Life Science and Healthcare companies, employs over 38k people, and generates a combined turnover of £10.5bn to the regional economy. • A significant Pharmaceuticals component, focused principally on formulation, manufacturing, packaging and distribution activities. Leading global firms located in the area including GSK, MSD; Piramal Pharma Solutions; and Aesica Pharmaceuticals. • A broader base of small innovative firms engaged in Biopharmaceuticals, Custom Syntheses and supply firms in Medical Technology, Bioprocessing, Drug Discovery, and Medical Devices. • A strong research and clinical base with an international reputation for ageing-science. Assets include Newcastle University, with the Faculty of Medical Sciences ranked 8th in England and the university home to the National Centre for Ageing Science and Innovation (NASI), and Durham University's Biophysical Sciences Institute and Wolfson Research Institute for Health and Wellbeing (located in Stockton-on-Tees in the Tees Valley). Newcastle is also home to the International Centre for Life science 'village'.
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Subsea & Offshore Technology	<p>The NE has a substantial business base (second to Aberdeen in the UK) in the area of Subsea and Offshore technologies. The sector:</p> <ul style="list-style-type: none"> • Includes around 50 companies in the NE and wider area (including Tees Valley), with over 15k employees and total turnover of £1.5bn. • Involves businesses in products and components to operate subsea and offshore; vehicles and machinery using subsea; equipment for vessels used to install products and deploy and recover vehicles/machinery; subsea and offshore installation, inspection, maintenance, and decommissioning activities; and engineering design and business services. • Will be developed further through the Neptune National Centre for Sub-Sea and Offshore Engineering, led by Newcastle University and located at the Neptune Energy Park. The site is already home to a cluster of established manufacturing firms such as GE Oil and Gas, Fraser Hydraulic Power and Bridon International. The NE also hosts the National Renewable Energy Centre in Blyth, part of the Offshore Renewable Energy Catapult, and NE Enterprise Zone locations at the North Bank of the Tyne and the Port of Blyth.
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Potential growth sectors

Digital and Creative Industries	<p>Digital and Creative industries have been identified as an area of major opportunity for the NE, combining creative talent with enabling digital technology, and spanning both large established firms and innovative new start-ups. The sector:</p> <ul style="list-style-type: none"> • Includes the global HQ of FTSE100 software company Sage plc, the European base of 5th Generation Technologies, and technical/ICT support functions for firms including Procter & Gamble, Hewlett Packard, and BT. • Has emerged as one of the leading centres for digital games development and start-ups, with firms including Eutechnyx, Ubisoft, and CCP Games. • Draws heavily on the research base in the NE e.g. Newcastle University's research excellence in Computing Science, and Sunderland University role as the UK's largest ICT training facility. • Benefits from a well-developed support and innovation infrastructure, including Sunderland Software City (which provides a variety of services aimed at developing and growing the Software Industry and part of the Digital Catapult), Culture Lab (a focal point for research in Digital, Creative and Film practice at Newcastle University), Northern Film and Media, Campus North (a digital technologies accelerator with a 15kft² facility and home to over 100 technology start-ups), and the Northern Design Centre.
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- Has expertise in satellite technologies, forming part of the national Satellite Applications Catapult through the North East Satellite Applications Centre of Excellence.

Four further points are noted. First, the Rural Economy, focused around the greater part of County Durham and Northumberland with a rural hinterland in parts of Tyne and Wear, makes a significant contribution to the NE in terms of businesses employment and GVA. Second, cutting across sectors, a distinctive feature of the NE is the number and proportion of foreign owned companies, with significant levels of inward investment over the previous decade. Nissan is the most prominent case, but for example, a further 40 Japanese companies have operations in the NE. Third, the NE has a substantial Higher Education sector, with four universities, including two research intensive Russell Group universities (one of only two areas in the North with two such assets, the other being Leeds City Region). Fourth, the region has a significant Professional Services sector - including Virgin Money and Tesco Bank – and a growing reputation for back-office functions across a range of professional services.

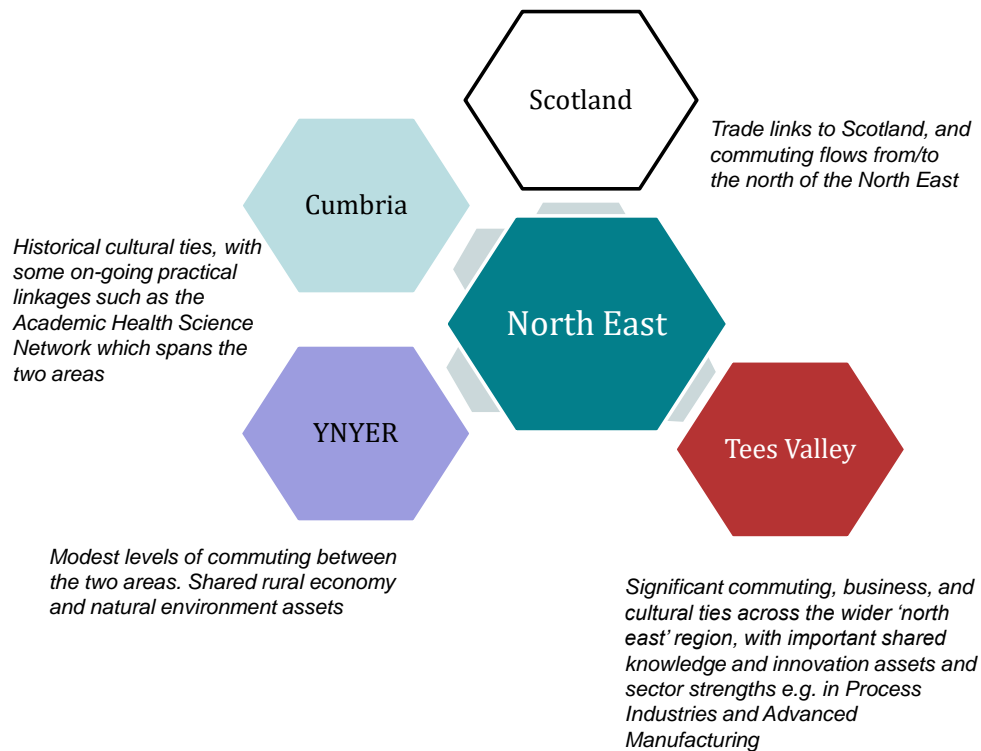
... and linkages across the North (and beyond)

The NE's connectivity is determined by its spatial location, with limited linkages to other areas of the North, with the exception of Tees Valley where there are strong economic, and cultural ties.

In terms of commuting, the NE is a largely self-contained economy: 93% of employed residents of the NE work in the area, and these local employees account for 96% of all of the NE's workers; both metrics are the highest of all of the regions in the North, and only Cumbria has a higher level of residents working within its local area. The NE is a large region, and there are also major commuting flows within the region, particularly between the major urban centres.

Strong linkages are evident with Tees Valley to the south, with 23k the NE residents working in that area, and 17k residents of Tees Valley travelling in the reverse direction. These commuting linkages are accompanied by important shared sectoral ties between the two areas, notably in the Chemicals, Advanced Manufacturing, and Digital Industries. Further, many of the innovation and knowledge assets in the 'North East Region' as a whole are 'shared' essentially between the two, both economically, and practically e.g. the Centre for Process Innovation (CPI) has sites in both city regions, as does Durham University. Although not prominent in the commuting data, there are also ties to North Yorkshire and across the North to Cumbria, reflecting past administrative affiliations. Outside the North there are also important trade links to Scotland, and the NE has extensive international linkages with a high level of export activity.

Key relationships with other local areas across the North



Source: SQW

More widely, the rail network, provides connections to most Midlands and Southern rail hubs including to London via the East Coast Mainline. Indeed, whilst there remains scope to enhance the service, rail transport connectivity from the North East to London is arguably stronger (relative to the distance) than from the North East to other city regions in the North such as Sheffield, Greater Manchester, and Liverpool – delivering faster rail journey times to other cities (including in the North) has been identified as a transport priority for the North East, given poor existing connectivity is poor, with slow and often congested trains.

The road network provides limited linkages to external areas with limited dual carriageway access on both north-south and east-west axes, and there are high levels of congestion in parts of the road network in the NE, and there is and poor connectivity to Cumbria and Scotland despite extensive trade links.

The primary international gateways are through the Port of Tyne and Newcastle International Airport which offer passenger and freight connections to global markets and is the second largest airport in the North. The ports of Berwick, Blyth, Sunderland, and Seaham also provide freight maritime links. Further international connectivity is provided by Teesport and Durham Tees Valley Airport, again highlighting the linkages to the Tees Valley City Region.

Critical investments

Major investments are planned, focused on Knowledge and Innovation assets, Transport, and Business Support. These are argued to address the on-going productivity deficit in the area and generate additional employment.

Faced with the productivity challenges set out above and to address or exploit the sector opportunities and linkages across the North, partners in the NE are progressing a wide range of investments, including projects funded through the Growth Deal agreement with Government. An overview of the key critical investment set out in current plans is set out below.

Critical investments

Knowledge and innovation

- Creation of the **National Centre for Healthcare Photonics** to develop and commercialise photonics based therapies.
- **North East Innovation programme**, including: Newcastle Life Sciences Incubation Hub; NETPark Infrastructure Phase 3; Low Carbon Energy Centre at Newcastle Science Central; Sunderland Enterprise and Innovation Hub; the Centre for Innovation in Formulation; and the Northern Design Centre.
- **Sunderland Central Business District**, the creation of central business district/urban quarter to link city centre to River Wear.
- The **National Centre for Ageing Science and Innovation** at Newcastle University, a £40m investment to develop, test and bring to market products which promote healthy ageing
- Development of Newcastle City Centre, including the **Science Central development** in Newcastle (24 acres of mixed-use prime city-centre development, including a £10m grant from the Government to establish a new state-of-the-art urban water infrastructure facility as part of Newcastle University's Urban Sciences Building), together with development of the station, Stephenson Quarter and East Pilgrim Street.
- Investment in a range of **digital sector innovation assets** including the Digital Catapult North East & Tees Valley (based in Sunderland), Centre for Cloud Computing, digital incubation at Campus North, Dynamo Business network and private sector investment – led by Sage Plc.
- Significant private, university and public sector investment in **assets associated with the offshore sector**, particularly high-tech and deep-ocean technologies.

Transport and infrastructure

- **Local Transport Improvement Programme**, with investment in a range of projects including the Newcastle Central Metro Station Refurbishment, the A19 Employment Corridor (Silverlink North), the Newcastle Central Station to Stephenson Quarter direct link, and the Northern Access Corridor: A189/A191 Haddricks.
- **Swans' Wet Berth Infill**, to create development land with quay frontage within the Swans' site of the NE Enterprise Zone, so increasing availability of commercial land available for priority sectors.

Business and Enterprise development

- **Merchant Park 2**, to support inward investment and supply chain development adjacent to the forthcoming home of Hitachi Rail Europe.
- **Rural Growth Network infrastructure** to plug infrastructure gaps in rural areas, promote tourism and to grow the local-led network of rural enterprise hubs.
- Development of an **International Advanced Manufacturing Park** to promote economic growth within South Tyneside and Sunderland.
- The £160m '**JEREMIE 2**' venture capital fund to provide finance for businesses across the NE and the Tees Valley areas.
- **Sunderland Enterprise and Innovation Hub**. Comprising the first 'Fab Lab' in the North East, incubation spaces and workshop, office and laboratory space for manufacturing, creative and science-based businesses.

Skills

- **Key sector skills** investment including focused on Engineering and Manufacturing industries at Tyne Met College, Marine and Offshore sectors at South Tyneside College, and Land-Based Skills training (including STEM) at East Durham College.
- **Northumberland College: Advanced Manufacturing Centre**, involving the upgrade of Northumberland College to improve skills levels and support economic growth in key sectors such as Advanced Manufacturing, Renewables, and ICT.

Current alignment and contribution to the North’s capabilities

The NE is aligned and contributes to many of the North’s capabilities. Contributions are most pronounced in Advanced Manufacturing, Energy, Health Innovation (all prime capabilities) and Higher Education (an enabling capability).

	Alignment	Contribution
Advanced Manufacturing	✓ ✓	✓ ✓ ✓
Energy	✓ ✓ ✓	✓ ✓ ✓
Digital	✓ ✓	✓ ✓
Health Innovation	✓ ✓ ✓	✓ ✓ ✓
Logistics	✓ ✓ ✓	✓ ✓
Financial & Professional Services	✓ ✓	✓ ✓
Higher Education	✓ ✓ ✓	✓ ✓ ✓

Source: SQW

Sheffield City Region (SCR)

Story of Place

An economy with longstanding strengths in Advanced Manufacturing and Materials. Ambitions to grow higher skills jobs and the business base.

SCR is centred on Sheffield, with Doncaster as a distinct centre in its own right and the surrounding towns of Barnsley, Chesterfield and Rotherham also making important contributions to the economy. The City Region covers nine districts, including those of South Yorkshire and south into Derbyshire and Nottinghamshire²⁵. There is some overlap between LEPs: Barnsley is also in the Leeds city region LEP, and five other districts in the D2N2 LEP area. The economy is rooted in a longstanding tradition of Steel and Manufacturing. The sector has evolved over recent decades and, while job numbers have fallen, SCR maintains some highly specialised and Advanced Manufacturing activity. At the same time, the Service sector has grown significantly, although the majority of growth has been in the public sector.

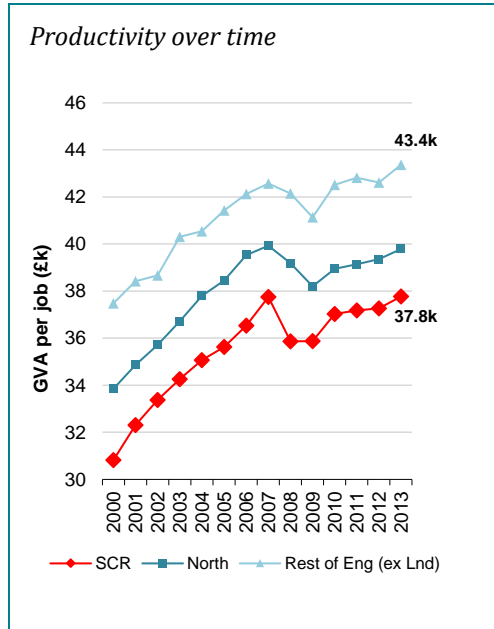
SCR's economic vision for SCR is to narrow the economic gap through the creation of 70k net jobs (of which 30k are at higher skills level²⁶, increase GVA by 10% (approximately £3bn), and create 6k new businesses over the next 10 years beyond baseline growth rates. Transport is an important aspect of SCR's priorities, particularly in terms of external connectivity. Strategic documentation emphasises the importance of bringing forward HS2, improving east-west connectivity (via an enhanced TransPennine rail route, and eastward connections to the Humber Ports for freight), and enhanced connectivity to Leeds via improved Midland and East Coast Mainlines. Internally, the focus is on improving connectivity between key centres and employment growth areas including access to Robin Hood Airport and developing the adjacent multimodal inland iPort, alongside other locally important schemes.

The productivity picture

SCR's productivity gap is narrowing, but still some way to go. Improving skills, enterprise, boosting R&D and inward investment key to closing the productivity gap.

The SCR economy generated £30bn in Gross Value Added (GVA) in 2013, accounting for 11% of the Northern total. However, GVA per head – at £16,200 – was only 88% of the northern average and 76% of the rest of England excluding London. A key factor explaining SCR's 'GVA gap' with the rest of England excluding London is productivity, measured by GVA per job. In 2013, SCR's productivity was £37,775²⁷, 87% of the rest of England excluding London.

Historically, SCR's productivity has grown at a rate of 1.6% pa. (2000/13), which was 0.5p.p. above the rest of England excluding London, suggesting the productivity growth rate gap has closed over recent years.²⁸



²⁵ The city region geography is the same as the LEP footprint. North East Derbyshire, Chesterfield, Bassetlaw, Bolsover, and Derbyshire Dales are also in the D2N2 LEP. Please note, the SCR LEP geography is different to the constituent membership of the Sheffield City Region Combined Authority, which only includes Barnsley, Doncaster, Rotherham and Sheffield.

²⁶ Level 4+

²⁷ 95% of northern average

²⁸

There are three key factors explaining SCR's productivity gap:

- First, there has been a substantial **structural shift** away from jobs in Manufacturing as a result of new technologies and cheaper labour costs abroad, **towards lower value added (largely public sector²⁹) jobs** in lower level occupations. Higher productivity sectors represent a relatively small number of jobs overall and, looking forward, strongest employment growth is forecast in lower productivity sectors.
- Second, **skills**. Across SCR, there is a legacy of educational underperformance up to 19 years, and only 27.9% of the working age population are qualified to NVQ 4+, compared to the rest of England excluding London average of 34.5%³⁰. The proportion of SCR firms reporting skills gaps is among the highest in the country, yet employer investment in workforce training remains insufficient.
- Third, adding to these issues, SCR has **struggled to attract inward investment**. Existing (re) investors are the main source of growth, and domestic investment is not compensating for the lack of FDI in SCR. Whilst there is evidence of home-grown entrepreneurs in new and dynamic sectors, widespread entrepreneurial behaviour is limited – private sector business creation is weak, and the enterprise rate is two-thirds of the national average. Moreover, R&D is lower than expected – for example, R&D spend in Sheffield's Manufacturing sector is significantly below the national average.

Sector strengths on which to build . . .

Niche specialisms in Advanced Manufacturing/Engineering/Materials, Healthcare Technologies and Digital, which are integrated and distinctive. Grounded in strong, sector-specific and globally significant assets, businesses, and expertise.

Informed by its own Independent Economic Review and further detailed research on sectors, the SCR LEP has identified a number of key sectors that operate (and are observing increased trade) in national and international markets, and build upon distinctive strengths in the local business base, expertise, facilities and assets.

Specifically, SCR's strongest potential for growth is where three of SCR's priority sectors build on the area's legacy of skills, and intersect to form a distinctive, market-led and internationally competitive offer in high productivity areas: Advanced Manufacturing/Engineering/Materials, Healthcare Technologies and Digital. This will be supported by SCR's **Higher Education sector**, which plays a critical role in terms of the research base and assets for these industries (alongside being an important exporter of Educational Services in its own right) and the Logistics sector. Bringing these sectors together, SCR sees its comparative advantage in its cross cutting ability to "design, develop and distribute"³¹ innovative product solution. In addition, SCR prioritises Low Carbon (with particular specialisms relating to Nuclear), alongside Financial, Professional and Business Services³² (with clusters of high value manufacturing services and advanced technical services to complement the 'makers' across SCR, and Data Processing more generally). SCR's own sectors research suggests that most of the sector specialisms are 'agglomeration sensitive', that is they 'derive above average benefits from being located in or near a big city'.

But the growth in SCR's jobs (0.4% pa) has lagged behind the benchmark (by -0.2pp), so the overall GVA growth rate, at 2% pa over this period, is only 0.2pp above the rest of England excluding London.

²⁹ Employment growth between 1998-2008 entirely attributable to public sector (there was a net decrease in private sector employment)

³⁰ The northern average is 30.3%

³¹ Sheffield City Region Local Enterprise Partnership (2014) Strategic Economic Plan, p. 26

³² For the general financial, professional and business services sector, evidence on nationally/internationally significant activity was limited – so we have not included a separate box on this sector here. High value manufacturing services and advanced technical services is covered under Advanced Manufacturing, Engineering and Materials, and data processing is covered under digital.

SCR does not have presently its own Smart Specialisation Strategy, but commits to adopting a Smart Specialisation approach where appropriate by investing in areas where SCR has a comparative advantage. Accordingly, it gives the following example in the ESIF³³:

‘SCR is a world lead in advanced materials and manufacturing by harnessing our creativity in advanced engineering in support of the development of the emerging Healthcare Technologies Sector, and to use our strengths in software testing, data analytics and simulation to underpin the development of healthcare industries, and the growing digital sector in the region’.

Existing sector strengths

Advanced Manufacturing, Engineering and Materials (AMEM)

- The Advanced Manufacturing, Engineering and Materials sector contributes 59k jobs to the economy, with average GVA per employee at £54k pa.
- SCR is home to particular specialisms in high precision engineering, metals, alloy projection, high quality design and manufacturing, industrial machinery, rail automotive and aeronautical engineering, and hydraulics. Many of these specialisms provide inputs for other parts of the Advanced Manufacturing sector across the UK.
- The area has a historical legacy in relevant skills, and is home to two large universities focused on STEM subjects (for example, the University of Sheffield is graded excellent and internationally recognised with leading research centres for mechanical and aeronautical engineering).
- SCR contains many relevant specialist facilities and research institutes, many of which are clustered in the ‘Advanced Manufacturing Innovation District’ including: Advanced Manufacturing Park (AMP), Advanced Manufacturing Research Centre (AMRC, a collaboration between Boeing and University of Sheffield which is part of the High Value Manufacturing Catapult); the AMRC Composites and Design Prototyping & Testing Centres; National Metals Technology Centre (NAMTEC); the Advanced Manufacturing Institute (AMI) at Sheffield University; The Mercury Centre (powder-based manufacturing); Materials and Engineering Research Institute (MERI) at Sheffield Hallam; and The Proving Factory for the Automotive Industry (low carbon prototypes for vehicle manufacturers); and the forthcoming National College for High Speed Rail in Doncaster. World-leading manufacturing and engineering companies based in SCR include Tata, Outokumpu, Sheffield Forgemasters, Rolls Royce, Castings Technology International (CTi), and The Welding Institute (TWI) Technology Centre.
- It is a market demand-led sector, operating in national and international markets, and is already plugged into growing export markets.

Health Technologies

- The Health Technologies sector is relatively small (estimates range from 1,900 jobs³⁴ to around 3,000) but is well established in SCR and is highly productive (with a GVA per employee of £47k pa.).
- SCR has niche specialisms in Medical (and Dental) Devices, Advanced Wound Care, Orthopaedics, and Clinical Research –many of these specialisms build on the specialisms above in Materials and Advanced Manufacture. In addition, SCR has emerging specialism in Telehealth and Additive Manufacture/3D-printing – these are currently nascent sectors but offer high productivity opportunities for the future.
- SCR hosts the Medical Advanced Manufacturing Research Centre (part of the wider AMRC), linking manufacturing technologies to medical research and clinicians. This will be complemented by the development of the Advanced Wellbeing Research Centre (AWRC, detailed below).
- Again, it is a market demand-led sector, operating in national and international markets, and is plugged into growing export markets.

³³ Sheffield City Region Local Enterprise Partnership (2014) Sheffield City Region EU Investment Strategy 2014-20, pages 27-28

³⁴ These jobs are part of the wider AMEM sector jobs in the first box

	<p>Further, there is considerable projected global growth in relevant markets (Medical Devices, Telehealth, Additive Manufacture, Games).</p>
<p>Creative and Digital – especially Computing</p>	<ul style="list-style-type: none"> • The wider Creative and Digital Industries sector provides 27k jobs across SCR, and is highly productive (with a GVA per employee of £49,700). • SCR has niche specialisms in computer programming, with direct applications for Engineering and Healthcare sectors where digital skills are increasingly important (e.g. in terms of design and programing engineers, analytics, and simulation in Healthcare). Wider strengths are in data processing, interactive media, IT/software testing, e-learning, games, software, and satellite telecommunications. • SCR has some high performing ‘home grown’ businesses and international market leaders. The Advanced Computing Research Centre at University of Sheffield specialises in data and text analytics, and complex simulation. • The Digital sector is a market demand-led sector which has seen significant growth over the last decade, and is operating in national and international markets.
<p>Low Carbon – especially Nuclear</p>	<ul style="list-style-type: none"> • The Low Carbon sector employs 11,300 people across SCR, although numbers have been falling over recent years. • Low Carbon (in general) is a priority for SCR, but is seen in the literature as more of an ‘enabler’ than a sector. That said, SCR has some specialisms in Nuclear in particular, with the Nuclear Research Centre (NAMRC) at the Advanced Manufacturing Park (one of the UK’s Catapult Centres). Research focuses on Civil Nuclear and other innovative energy sectors. • Looking forward, opportunities for R&D input are linked to nuclear new build (and decommissioning), and increased investment recently announced into nuclear research (and small modular reactors in particular).
<p>Logistics</p>	<ul style="list-style-type: none"> • Logistics is a relatively high employer (28k jobs) but the sector traditionally has low productivity. • SCR is seen to have a strong strategic location, with multimodal access (rail, road, air and links to ports). The literature points to the sector being a demand-led ‘enabler’, with considerable growth potential. • SCR is home to international firms such as Amazon, ASOS and TNT, and has A1/M1 connections, East Coast and Midland Mainlines, the international Robin Hood airport.

Potential growth sectors

<p>Advanced Manufacturing, Engineering & Materials, and ‘manu-services’</p>	<ul style="list-style-type: none"> • SCR will continue to specialise and grow niche strengths in Advanced Manufacturing, Engineering and Materials, as above, building on existing sectoral specialisms. Clear international growth opportunities, especially in materials. • SCR has a small but growing cluster of high value Manufacturing Services/Advanced Technical Services sector to complement and support the ‘makers’.
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... and linkages across the North (and beyond)

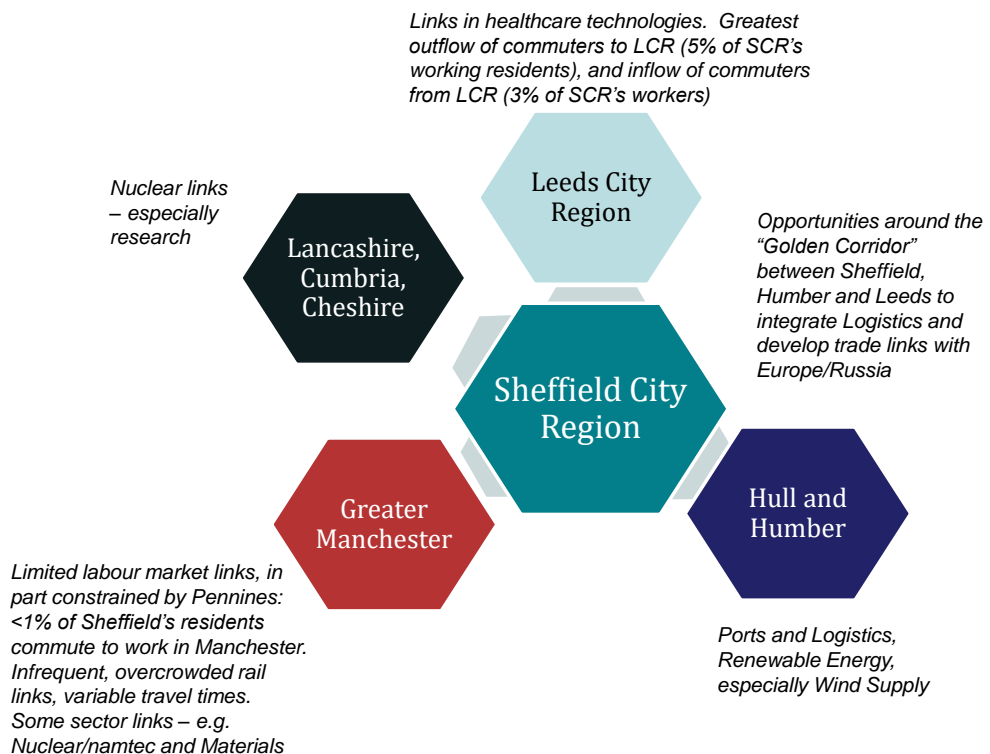
Relatively self-contained, with commuter links to Leeds but relatively weak to other city regions in the North. Some (developing) sector-specific linkages in Logistics, Energy, and Healthcare evident from literature.

According to the literature, SCR is a ‘weakly monocentric’ city region, and Sheffield is relatively self-contained city (partly reflecting Sheffield being well-bounded). Latest Census data show that 85% of employed residents work in SCR, and 89% of workers in SCR also live in SCR. Commuting links outside of SCR are strongest with Leeds: 32k of SCR’s residents regularly commute to Leeds (5% of SCR’s working residents) and 18k of those working in SCR commute in from Leeds (3% of SCR’s workers).

Labour market links to Manchester are limited – less than 1% of Sheffield’s working residents commute to Greater Manchester. In part, this is attributed to the Pennines and poor road/rail links between the two cities (and from SCR to Manchester Airport).

In terms of sectors, there are some links across the north, particularly in terms of (i) logistics and the ‘Golden Corridor’ between Sheffield, Leeds and the Humber (and plans to improve east-west connectivity between ports, detailed further below), and (ii) Nuclear research links (with plans to develop this further to improve the nuclear advanced manufacturing supply chain). The ESIF also identifies opportunities for collaboration on the ‘Power Corridor’, with Hull and Humber City Region in relation to Renewable Energy and Leeds City Region on Healthcare Technologies.

Key relationships with other local areas across the North



Source: SQW

Critical investments

Critical investments committed for skills and sector-specific facilities. Focus of 'outward' facing transport investments on access to Robin Hood airport, Midland Mainline connections, east-west (especially TransPennine) connectivity.

Faced with the productivity challenges and to address or exploit the sector opportunities and linkages across the North, partners in SCR are progressing a range of critical investments, including projects funded through the Growth Deal agreement with Government. The City Region has also secured an additional £900m to invest in economic growth over the next 30 years through its proposed Devolution Deal. An overview of the key committed critical investments in current investment plans is set out below.

Critical investments

Knowledge & Innovation

- **Factory 2050**, a spin-off from the AMRC, is being built on the Sheffield Business Park, and will be a centre of research into how the 'factory of the future' will operate.
- **Advanced Wellbeing Research Centre (AWRC)** on Olympic Legacy Park.

Transport & Infrastructure

- £210m Government investment in the SCR Infrastructure Fund, comprising a programme of 15 infrastructure schemes that will unlock the most growth in the City Region. This includes the '**Gateway to SCR**' to complete the **link road from the M18 to Robin Hood Airport**, investments in key schemes in the centres of Sheffield and Doncaster and schemes focused on delivering employment and housing growth in the City Region.
- Also, calls for investment to improve east-west (especially TransPennine) connectivity. Outside of SCR, but with implications for connectivity, are the **Midland Mainline/Market Harborough Improvements** which will improve journey time for non-stop passenger and freight train services.
- **Doncaster iPort**, which will create the UK's largest intermodal port and logistics complex (linking Superport Liverpool and Humber Ports), surrounded by very large, rail-linked sites for logistics and distribution.

Enterprise & Business

- **Regional Growth Fund** – £52m of Central Government funding from 2015/16 to expand provision.
- **Growth Hub investment** – £32.6m from ESIF funding for business support.

Skills

- **SCR Skills Bank**, where employers draw on single repository of skills funding to meet needs, and which will create 42k qualifications over 6 years (£30.6m from ESIF, £21.7m from Central Government's Adult Skills Funding, plus £51m in employer contributions).
- **Rail Engineering Campus** at Doncaster, including a £50m Centre of Excellence for Rail Engineering and the HS2 National College.
- **Progress to Work**: £22.3m from ESF plus £29.3m from Local Authorities and £69.6m in private spend for employment support and training.
- **Learn to Work**: £6.3m from ESF and £21.4m public and private match.

Current alignment and contribution to the North’s capabilities

SCR’s contribution and alignment to the North’s capabilities is particularly significant in terms of the Digital and Health Innovation prime capabilities, and the Logistics and Higher Education enabling capabilities.

	Alignment	Contribution
Advanced Manufacturing	✓ ✓	✓ ✓
Energy	✓ ✓	✓ ✓ ✓
Digital	✓ ✓ ✓	✓ ✓ ✓
Health Innovation	✓ ✓ ✓	✓ ✓ ✓
Logistics	✓ ✓ ✓	✓ ✓ ✓
Financial & Professional Services	✓ ✓	✓ ✓
Higher Education	✓ ✓ ✓	✓ ✓ ✓

Source: SQW

Tees Valley City Region (TVCR)

Story of Place

TVCR's ambition is to become a high value, low carbon economy, and become an increasingly diversified economy, with major employment growth and enhanced internal and external connectivity.

TVCR is a polycentric City Region, with major employment and economic centres in Darlington, Stockton-On-Tees, Middlesbrough, Hartlepool, and Redcar/Cleveland. The area has long been home to 'traditional' heavy and energy-intensive industries – formerly, Mining, Steel-Making and Ship-Building and, now, Process/Chemical Industries, and increasingly high productivity Advanced Manufacturing, drawing on the area's established skills and industrial infrastructures.

Reflecting its sectoral legacy, TVCR has relied traditionally on a small number of large employers, which has tended to damp-down individual levels of enterprise. Accordingly, the area has been hit hard by long-term industrial restructuring, in terms of both employment and productivity. The narrowness of TVCR's sectoral base is also a major risk, given growing global competition and the cost pressures on what are often energy-intensive industries.

In this context, the area's overarching strategic economic growth ambition is to become a high value, low carbon economy, building on its traditional strengths in (export-rich) Process Industries and Manufacturing, by applying these skills and knowledge, and to create a more diversified and inclusive economy. This includes an aim to create some 25,000 'net new' private sector jobs over the next decade.

Transport is recognised as a key driver of this growth intent. Priorities include ensuring that routes to international markets – through Durham TVCR Airport and Teesport – are maximised. Enhancing national/cross-north linkages particularly via rail (including line electrification of the Northallerton to Teesport line and upgrades to Darlington Station – the 'gateway' to the TVCR), and road (particularly on the A19, and the A66 link from Teesport to the A1(M)), and an additional crossing of the River Tees to provide enhanced access to the area's Enterprise Zones, are also seen as vital if the area's potential is to be realised.

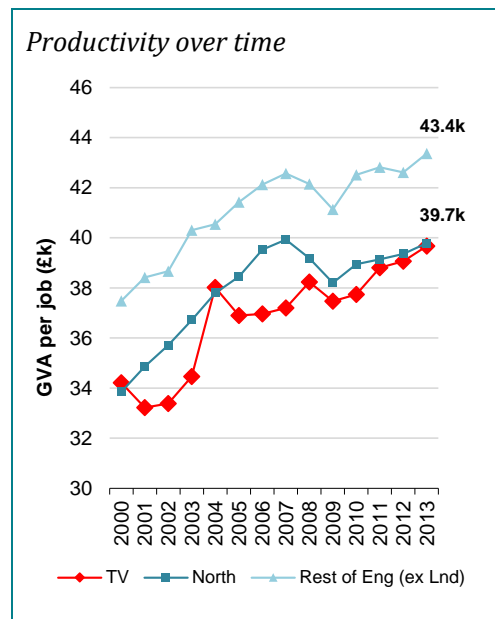
The Productivity Picture

Productivity in TVCR remains well below the national comparator, with enterprise, skills and innovation key issues in holding productivity back. The area has also recently been hit hard by closures of important local employers.

The TVCR is a significant economy, with annual GVA of £11.2bn, 282,000 jobs, and over 21,300 business. However economic growth over the past decade has been relatively modest, meaning that the significant productivity gap has remained: GVA per job stood at £39.7k in TVCR compared to £43.4k in the rest of England excluding London.

Key causes of the productivity gap include:

- **Low rates of enterprise** which, combined with the traditional reliance on large employers/public sector employment, has led to relatively lower levels of private sector employment.
- **Skills deficits**, notably in terms of higher level qualifications with 28% of the working age population with NVQ level 4+ against 35% in the comparator area; although progress is being made here with



recent growth of NVQ 4+ qualifications above the national average over the past three years

- **Levels of commercialisation** across the business base as a whole, the area has major innovation assets focused on specific industries/sectors, and recent evidence indicates that Tees Valley is the best performing of the Northern local economic areas in terms of innovation based on analysis of the UK Innovation Survey from 2013.³⁵ However, according to its Strategic Economic Plan, TVCR has the ‘lowest rates of commercialisation in the UK’, with particular issues around access to finance acting as a barrier to growth.

In recent months TVCR’s economy has also been hit hard, particularly by the closure of major employers in the steel industry (with significant implications for local supply-chains and supporting industries). This issue has yet to flow through into the economic data, but the impact on overall economic performance and productivity in TVCR is expected to be significant over the longer-term.

Sector strengths on which to build ...

TVCR has significant expertise, and competitive advantages, in Process Industries and Advanced Manufacturing. The low-carbon economy, and Digital Industries are also regarded by local partners as key potential growth sectors; reflecting this, these sectors are the focus of the TVCR Enterprise Zone.

As trailed above, TVCR has significant expertise, and competitive advantages, in Process Industries and Advanced Manufacturing. The low-carbon economy, and Digital Industries are also regarded by local partners as key potential growth sectors; reflecting this, these sectors are the focus of the TVCR Enterprise Zone.

Existing Sector Strengths

<p>Process Industries</p>	<p>According to the TVCR’s SEP, the Process Sector ‘<i>defines our economy</i>’. Focused on three major industrial complexes at Wilton International, North Tees, and Billingham, the sector in the area:</p> <ul style="list-style-type: none"> • Contains over 1,400 local firms, generating sales of over £26bn pa and £12bn pa of exports. • Has specialisms including Petrochemicals, Polymers, Pharma and Industrial Biotech, Nuclear (including owing to the presence of a nuclear power station at Hartlepool), and (despite some recent challenges) Steel Primary Production and Secondary processing. • Benefits from a strong local support and innovation infrastructure including the Centre for Process Innovation (which takes in the new National Biologics Manufacturing Centre in Darlington), the Materials Processing Institute, The Welding Institute Technology Centre in Middlesbrough, and key companies such as Huntsman, Mitsubishi and INEOS (Petrochemicals), Tata Steel, Fine Industries, Johnson Matthey, SABIC, SembCorp (Chemicals and Processing), and Fujifilm Diosynth Biotechnologies (Pharma and Industrial Biotech).
<p>Advanced Manufacturing</p>	<p>Linked closely to the Process Industry, TVCR is also home to a significant Advanced Manufacturing sector, spanning a range of subsectors and technologies. The sector in the area:</p> <ul style="list-style-type: none"> • Contains an estimated 750 businesses, many of which operate in global markets. Inclusive of all Energy, Oil and Gas, Defence, Aerospace and Automotive Businesses, the sector is estimated to provide over 25k jobs in the area. • Includes key sub-sectors in primary production and secondary processing, Offshore/Subsea Engineering, and a growing sub-sector focused on Automotive and Rail. • Benefits from a strong local support and innovation infrastructure, shared largely with the process industries including the CPI, Teesside Manufacturing Centre, C-STATE (the Centre for Subsea Technology Awareness, Training and Education), and emerging developments

³⁵ Benchmarking Local Innovation: The innovation geography of the UK, Enterprise Research Centre

such as the Teesside Advanced Manufacturing Park in Middlesbrough. Major firms in the sector include including AMEC, Jacobs Engineering, Cummins, Mitsubishi Chemical Corporation, Nifco, Elring Klinger, DeepOcean and Samsung.

Potential Growth Sectors

Digital Technologies

Digital Technologies has been identified as a growing and priority sector in the City Region. The sector in the area:

- Contains over 200 Digital firms, supplying services to international digital and technology companies in the rapidly evolving digital market, and a significant employment and business base in related Engineering Design and Technical Services.
- Has specialisms in Animation, Gaming, Big Data, Film and Photography, and Engineering Design and Technical Services (linked to the wider Process and Advanced Manufacturing base).
- Benefits from a strong local support and innovation infrastructure. This takes in The Institute of Digital Innovation at Teesside University (with particular strengths in animation and 3D animation), and DigitalCity, a partnership initiative focused on creating a cluster based on digital technologies in the area. The sector contains both a diverse network of innovation start-ups, SMEs and established firms in Digital Technologies (e.g. Double Eleven, Onyx Group, Turtle Beach and Visualsoft) as well as large and high-profile Engineering Design and Technical Services firms (such as Amec, Samsung GTL, Phusion and Siemens VAI).

Low Carbon

Drawing on the opportunity to de-carbonise the energy-intensive industries based in the City Region, TVCR has become a centre for Low Carbon Industries and Technologies. Although formal definitions are challenging given the nature of the sector – and the exact number of firms involved in Low Carbon activity is not known – the sector in area:

- Includes key sub-sectors focused on Waste Processing (waste-to-energy), Renewable Energy (particularly off-shore wind) and Hydrogen Production, with employment of around 10,000.
- Is being developed through TVCR's City Deal focus on the area becoming a '*global pioneer*' in Industrial Carbon Capture-and-Storage, and leading the way on innovative district heating schemes.
- Takes in firms including Air Products (developing one of the world's largest energy-from-waste plants using advanced gasification), SembCorp and SITA (in waste processing), and Heerema, TAG Energy Solutions and JDR Cables (in renewable energy).

Consistent with these related sector strengths – particularly across Process Industries, Advanced Manufacturing, and Low Carbon – TVCR has a genuine integrated cluster in the Process and Manufacturing Industries. This cluster is underpinned by a strong network of key innovation and knowledge assets – for example, the CPI, local universities (notably Teesside), and The Welding Institute's Technology Centre in Middlesbrough. An important opportunity for the area is to further integrate the Process and Advanced Manufacturing cluster and create and harness 'the circular economy' in the supply chain.

Two further points are made:

- TVCR is home to a significant Graphene facility, developed by a spin-out from Durham University (Applied Graphene Materials). With Graphene also a 'cross-cutting' business unit at the CPI, there are significant opportunities for pan-north collaboration on Graphene R&D and commercialisation (notably with Greater Manchester); the area's materials research and expertise also provides opportunities

for pan-north collaboration with the Sir Henry Royce Institute with its ‘hub’ in Manchester and ‘spokes’ in Sheffield, Leeds, and Liverpool.

- TVCR has an important logistics sector building on assets including Teesport, Durham Tees Valley Airport, and the road and rail network; the area is home to some of the largest logistics operations in the UK serving the Process and Advanced Manufacturing industries e.g. Vopak, Simon Storage, and PD Ports.

... and linkages across the North (and beyond)

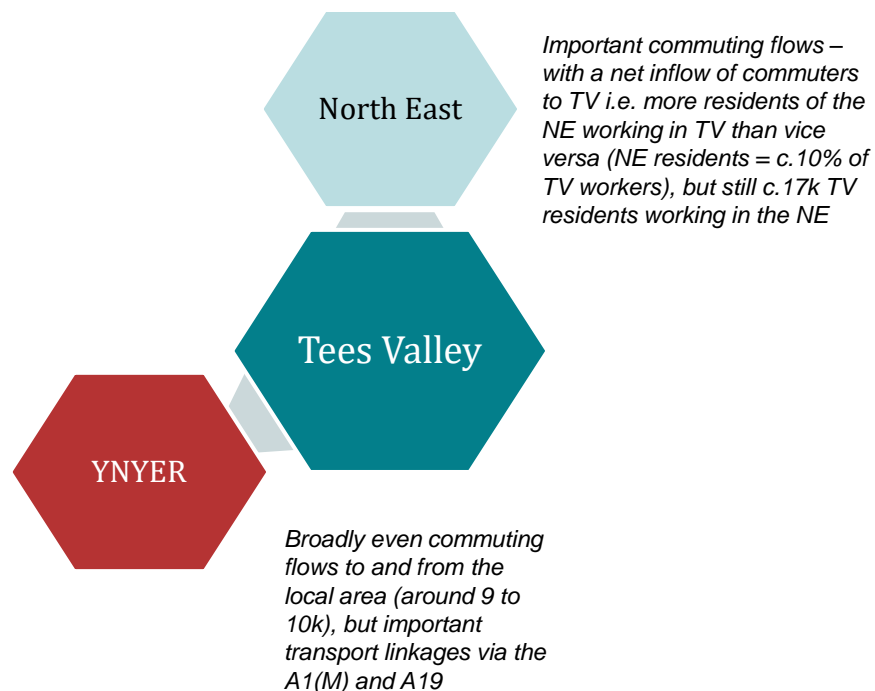
TVCR has important commuting, sector and business linkages with the North East city region, and to a lesser extent North Yorkshire.

TVCR has important functional linkages – of commuters and through transport networks – particularly to the North East City Region, and to North Yorkshire.

The relationship to the North East is particularly important, with commuting data indicating approximately 23,000 people commute daily into the TVCR from the North East. This accounts for approaching 10% of all workers in the TVCR, with TVCR a net importer of labour from the North East. TVCR also shares important sector linkages with the North East city region (particularly in Advanced Manufacturing including Automotive, and Process industries); a number of major innovation and knowledge assets such as the CPI and Durham University are also ‘shared’ between the two area. Key relationships between TVCR and the North’s other city regions/local areas are summarised in the figure below.

Linkages to other parts of the North are more limited (driven in large part by geography with the area neighbouring only the North East and the York North Yorkshire and East Riding areas). However, enhancing public transport connectivity to other key employment locations and assets across the North, particularly through the direct TransPennine service to Manchester Airport (also linking the area to Leeds and Manchester city-centres) via Darlington, with electrification to Middlesbrough, and onwards to Teesport, is a key ambition. Enhancing links to Newcastle Airport (and flights, for example, to Heathrow, Schiphol, and Dubai) is also a significant issue for business connectivity.

Key relationships with other local areas across the North



Source: SQW

Critical investments

Critical investment in TVCR include significant projects to enhance the knowledge and innovation offer of the area, and the business-related infrastructure.

Faced with the productivity challenges, and to address (or exploit) the sector opportunities and linkages across the North, partners in TVCR are progressing a range of critical investments, including projects funded through the Growth Deal agreement with Government. An overview of the key committed critical investment set out in current plans is set out below.

Critical investments

Knowledge & Innovation

- **Materials Processing Institute**, a £13.5m project to create an open access centre at the former Tata Technology Transfer and Research site, providing flexible laboratory, pilot and demonstration spaces, and support for Process Engineering Design.
- Development of the **National Horizons Centre in Darlington**, focused on advanced, integrated design, production and production support processes and on the innovation and management skills needed to embed these.
- **Teesside Advanced Manufacturing Park (TAMP) Offshore Wind Validation Centre**, which will research and validation services for offshore wind tower manufacturers, as well as for the Oil/Gas and Sub-Sea sectors.
- **Biologics Factory of the Future** at the CPI located at Central Park, Darlington, adjacent to National Biologics Manufacturing Centre.
- Further development of **Digital City** as a key asset for the generation and support of digital businesses and digital enablement across the area's key sectors.

Transport & Infrastructure

- **Strategic transport and infrastructure package** for the TVCR including transport and infrastructure works at Central Park Enterprise Zone and a study to investigate options for improvements to Darlington Bank Top station.
- **Road improvements at Durham Tees Valley Airport**, opening up access to the south side of the airport for aviation-related activities.
- **Upgrade of the A19**, linking Tees Valley, North Yorkshire and the North East.

Enterprise & Business

- **Teesside Advanced Manufacturing Park (Phase 2) Technology and Research Centre**, intended to create flexible research and development space for SMEs.
- **TVCR Business Compass** (Business Growth Hub) providing business support for firms across the TVCR.
- **Billingham Bio Pharmaceutical Campus**, involving site clearance, road works and site remediation to enable the expansion of a major Biotechnology facility.
- **Development of Kirkleatham Business Park**, to provide business accommodation for firms in the Advanced Manufacturing and Engineering, Chemicals, and Renewable Energy sectors.

Skills

- Creating an **Oil and Gas Academy** at Redcar/Cleveland College, as part of the Government's new National College for Onshore Oil and Gas.
- **TVCR Skills programme** to support the development of skills in key growth sectors in Advanced Manufacturing, Low Carbon, Oil and Gas, Digital Technologies, and Logistics.
- **Hartlepool Innovation Skills Quarter, focused on developing** workspaces and incubation facilities and providing business support for Creative Industries firms.

Current contribution and alignment to the North’s capabilities

TVCR’s alignment to the North’s capabilities is most significant in terms of the Advanced Manufacturing, Energy and Health Innovation prime capabilities, reflecting the area’s strength in process industries.

	Alignment	Contribution
Advanced Manufacturing	✓ ✓ ✓	✓
Energy	✓ ✓ ✓	✓
Digital	✓	✓
Health Innovation	✓ ✓ ✓	✓ ✓
Logistics	✓ ✓	✓
Financial & Professional Services	✓ ✓	✓
Higher Education	✓ ✓	✓

Source: SQW

York, North Yorkshire, and East Riding (YNYER)

Story of Place

YNYER includes one city, York, and many other distinctive and attractive places; parts of YNYER look west to Leeds, south east to Hull and Humber, and north to Tees Valley. Its economic strengths are in Food, Agri-tech and, increasingly, Bio-renewables.

YNYER is the largest local area spatially across the North, and has a population of 1.1m. York, with approximately 200k residents, is the only city, and Harrogate (with Knaresborough) and Scarborough are the other main urban areas. Medium-sized and smaller towns include Northallerton, Skipton, Selby, Whitby, Ripon, Malton/Norton, Thirsk, Richmond/Catterick Garrison, Driffield and Beverley. Most of the Yorkshire Dales, and almost all of the North York Moors National Park, are in the LEP area, as is the Nidderdale AONB, and the Yorkshire Wolds.

YNYER's economy, and its prospects, are defined by this dispersed urban geography, and by the interactions between parts of YNYER and the larger city regions to the west and south (Leeds), south east (Hull/Humber), and north (Tees Valley), with high levels of interaction – commuting and for business and services – with neighbouring city regions, particularly with Leeds and Hull/Humber.

Key features of YNYER include large Food Manufacturing and Energy sectors (Bio-renewables has a significant role in the latter), an economy dominated by many small enterprises operating across a wide range of sectors (with in relative terms, few larger firms), and many distinctive and attractive places, urban, rural and coastal, which are highly rated by residents, and provide the basis for a strong Visitor Economy.

The ambitions set out in the area's Strategic Economic Plan (SEP)³⁶ focus on economic growth; new jobs; a more enterprising economy (in which all students are connected with business), and doubling the recent rate of house-building. Investments critical to the future of the area are being taken forward in plans for a major new potash mine near Whitby, in Bio-renewable energy at Drax (near Selby), and in the Agri-food sector, primarily around York.

The productivity picture

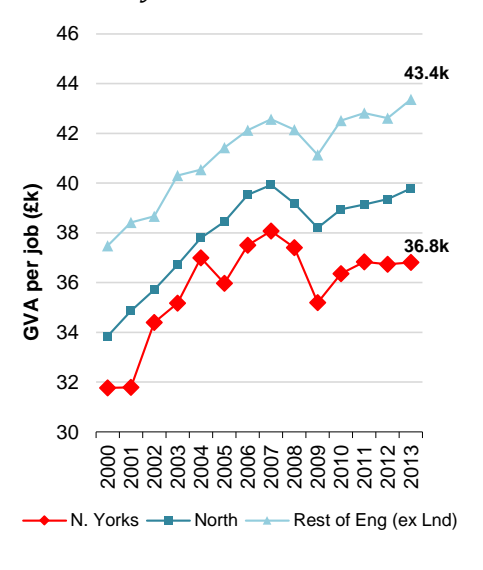
Productivity is low, relative to the surrounding city regions. This reflects YNYER's economic structure, which is dominated by Primary Processing and Service Industries. The productivity gap is narrowing only slightly over time.

GVA for YNYER totalled £20.7bn in 2013.³⁷ At £36.8k GVA/job, productivity was 93% of the average across the North, and 85% of the level for Rest of England (excluding London).

Between 2000 and 2013, GVA/job grew overall at the same rate as in the Rest of England (excluding London); slightly faster than for the North as a whole, but not sufficiently fast to close the gap appreciably over time.

The reasons for the shortfall are related to YNYER's areas of specialism, and its **limited presence in high output sectors**. The area covered by the LEP 'exports' many of its higher skilled residents to work in surrounding city regions, while its own work-based economy contains substantial numbers of jobs in sectors

Productivity over time



³⁶ York, North Yorkshire and East Riding Enterprise Partnership Strategic Economic Plan 31st March 2014

³⁷ GVA estimated by Cambridge Econometrics from ONS, 2013 statistics; CE forecasts used for the period to 2025.

with relatively low GVA – Health, Residential and Social, Food and Beverage Services, Public Administration and Defence, and Business Support Services.

There is also a relatively high level of reliance on Primary Industries and Processing. YNYER accounts for close to a third of the North’s GVA in Agriculture, Forestry and Fishing Production, with a GVA location quotient of 3.6 (but only 21% of employment in the sector, and an employment location quotient of 2.2, suggesting that it is relatively efficient in a low value-added sector). GVA/head in Mining and Quarrying, for which YNYER also accounts for 21% of the North’s employment, is double that in Agriculture, but the sector is much smaller in size. Food and Drink and Electricity and Gas are also significant production sectors in YNYER, with an LQ greater than 2: nationally, these sectors grew relatively slowly between 2000 and 2013.

However, residents’ average qualification level is high: 36.9% of those of working age have attained graduate level or above, compared to 29.9% across the North, and 34.5% for England excluding London.³⁸ This skills base is an important asset for the neighbouring city-regions (and the North as a whole).

Sector strengths on which to build ...

The sectors in which YNYER has distinctive strengths, and the capacity and potential to grow further, are Agri-tech, Food Manufacturing and Bio-renewables/ Low Carbon.

The local economy has a distinctive focus, which has developed around a set of activities in Food Manufacturing, Agri-Tech and more recently Energy/Bio-renewables. These sectors, collectively called ‘the Bio-Economy’, are already inter-related: the SEP and ESIF³⁹ seek to promote and develop these relationships to form a critical mass, linking in to industrial clusters and research expertise in adjacent city-regions and across the North.

These sectoral activities are spread across the LEP’s geography, with some particularly close links to adjacent city-regions. This dispersed pattern also characterises other specialist services in the area, including the diverse and in many cases high quality visitor economy, the activities of which also serve local people. York is the largest service centre, and provides many graduate-level jobs.

Existing sector strengths and potential growth sectors

Agri-tech

- The key YNYER asset is the Fera site at Sand Hutton, outside York: this accommodates Fera Science Ltd and other activities including some functions of the Animal and Plant Health Agency (APHA).
 - Plans for the National Agri-Food Innovation Campus (AFICY) at Sand Hutton will, if realised in full, more than double the scale of science-based employment on this site to 1,500+, attracting other agencies and firms specialising in developing and exploiting opportunities in Agri-tech.
- Plans for Sirius Minerals’ £2bn investment in potash mining in North Yorkshire are now at an advanced stage:
 - Planning permission for the mine/surface works has been granted by the North York Moors National Park Authority, and transportation and materials handling approved by Redcar and Cleveland Council: the six week judicial review period has also passed; the Definitive Feasibility Study (DFS) for the Project is expected early in the New Year.
 - Large volumes of polyhalite will be produced – a multi-nutrient fertiliser that will help meet the global food security challenge.
- There are actual and potential links between AFICY and potash with other strengths in Bio-renewables and Food Manufacturing – see below.

³⁸ Population figures from ONS Mid-Year Estimates, 2014; qualification statistics from Annual Population Survey, also 2014

³⁹ York North Yorkshire East Riding LEP: European Union Strategic Investment Fund Implementation Plan January 2014

**Food
 Manufacturing**

- Food Manufacturing is the largest Manufacturing and Processing sector in YNYER, accounting for 12% of the North’s output, and with an LQ of just over 2.
- It draws on the large and productive Agriculture sector in YNYER, proximity to major UK consumer markets and the Humber ports, and a wide range of processing, handling and marketing capabilities.
 - Agricultural production and land-based training is provided at Askham Bryan College near York, the fastest-growing college in the UK (YNYER SEP), and Bishop Burton College, at Beverley.
- There are a wide range of scale and types of Food businesses, from small-medium scale speciality producers such as Wensleydale Cheese, to multi-national operations, including McCain, and Nestlé, which has its product innovation centre in York.
- There is an evident relation with Agri-tech, and the potential to strengthen this further. In particular the links with the National Agrifood Innovation Campus, and the ambition to strength businesses in this sector, including technology and skills, are important.
- The SEP’s ambition is to focus on this strength, aiming at a £12bn industry by 2025, with 4k net new jobs to add to the current 15k.

**Bio-Renewables
 And Low Carbon**

- YNYER has significant Bio-economy assets (relating to high value Chemicals, natural products, next generation biofuels, and biowastes) located at the University of York:
 - The Bio-Renewables Development Centre, which works closely with industry.
 - Internationally recognised research groups include the Centre for Novel Agricultural Products (CNAP), and the Green Chemistry Centre of Excellence.
- These assets, which have links with Fera Science and the emerging National Agrifood Innovation Campus at Sand Hutton, will be leveraged further through the University-led BioVale initiative.
- Drax Power station, near Selby, the supplier of 7-8% of the UK’s electricity and direct employer of 830 people, is undertaking the largest decarbonisation project in Europe, transforming itself into a predominantly Biomass-fuelled generator through burning sustainable biomass in place of coal.
 - £700m invested to date in converting 2 of the 6 boilers to burn wood: the conversion of a third boiler is almost complete.

**Visitor / Leisure
 Economy**

- YNYER has significant and distinctive natural and built assets which support a large and diverse visitor economy: this well-established sector generates c.£2bn of expenditure annually; there is potential for further growth and specialisation.
- Key assets include two national parks, the Yorkshire Wolds, the historic cities of Harrogate and York and the Yorkshire coast:
 - High levels of business travel and conference activity are centred on York and Harrogate; also the coastal centres of Scarborough and Bridlington.
 - 4 of Yorkshire’s 5 Michelin Starred restaurants are found in YNYER; world class accommodation and attractions include Feversham Arms at Helmsley and Jorvik Viking Centre at York.
- The visitor economy is closely interwoven with the YNYER quality of life offer, which has proved attractive to a wide range of people choosing to live in the area, and is evident in the high levels of educational attainment and self-employment.
 - Infrastructure investments are designed to accommodate continued in-migration, a pre-condition for meeting YNYER’s growth aspiration, and making a distinctive contribution to the North of England offer.

These strengths are reinforced by smaller scale activities, notably in: Advanced Manufacturing – engineering, vehicles, components; Digital – in particular, marketing, design and communications in York (benefiting from ‘ultrafast’ broadband connectivity) and Harrogate; Creative Industries, in York (designated as the UK’s first UNESCO City of Media Arts) but also spread more widely also across North and East Yorkshire; Freight Distribution and Logistics, linked to proximity to the Humber ports and the intersection of key northern corridors, north-south (A1/A19) and east-west (M62); Financial and Professional services in York, Skipton and Harrogate, with links to high-level functions in larger cities close to YNYER; York also has a cluster of firms providing rail engineering consultancy and software development.

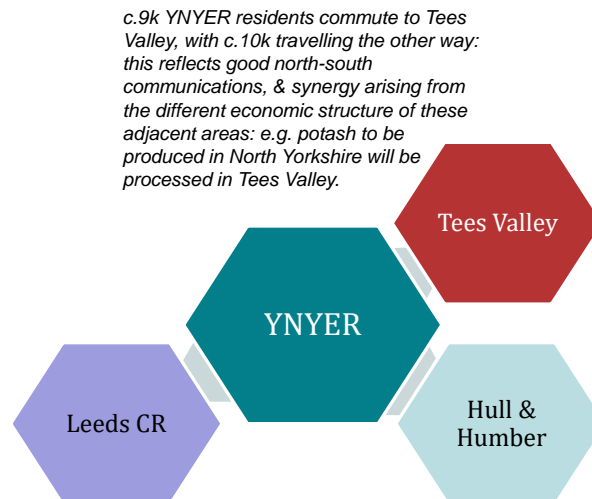
YNYER shares Yorkshire and Humber’s weakness in innovation, as evidenced by indicators on public and private R&D spend and levels of innovation. However, its ESIF Implementation Plan points to the potential to make more of the evident synergy between YNYER’s R&D capabilities and sector strengths in Food, Agri-tech and Biorenewables, in line with Smart Specialisation thinking. The scope for potential increased value in the visitor economy sits alongside these sectoral priorities.

... and linkages across the North (and beyond)

Across the North, only Cheshire and Warrington has a higher employment interaction with other areas: only 77% of YNYER’s working population is employed in the area, while 19% of its workforce commutes in from outside. The YNYER geography overlaps substantially with the Leeds City Region (York and the North Yorkshire districts of Craven, Harrogate and Selby) and with Hull/Humber (East Riding of Yorkshire). There are also strong commuting and business links with Tees Valley to the north, and to a lesser extent with the Lancashire and Cumbria LEP areas to the west/north-west and into the East Midlands (Greater Lincolnshire – Lincoln and the rest of Lincolnshire, south of North and North East Lincolnshire).⁴⁰

Key relationships with other local areas across the North

YNYER is closely inter-connected with surrounding city regions, in particular, Leeds, and Hull/Humber. Its main transport (and growth) corridor runs north-south, but its contribution also depends on east-west links.



c.38k residents commute into the rest of LCR; c.26k travel into YNYER from LCR. These flows are particularly significant to & from York & other overlapping areas; they relate in part to current synergies & future scope for critical mass in agri-tech, biorenewables & other key sectors. Investment priorities to improve east-west transport, include the A64 & rail links

36k residents commute into Hull & Humber, with c.21k moving the other way: Hull is the key destination/origin. The movements reflect H&HCR’s distinctive strengths in ports, logistics & bulk processing. Sectoral links which are expected to strengthen include energy renewables & healthcare. Investment in transport infrastructure could facilitate the operation of wider labour markets.

Source: SQW

⁴⁰ Cambridge Econometrics analysis, based on 2011 Census of Population

The main transport corridor through YNYER runs north-south, including the A1/A19 and the East Coast Main Line (ECML). On-going and planned investment in communications, including high speed broadband, will reinforce this. However, key routes for the YNYER economy are also east-west, to Leeds City Region and into Hull/Humber. Better east-west connectivity, aiding movements and the relief of traffic congestion in York and Harrogate and better connecting coastal and rural areas, could reinforce the sector specialisms set out above.

Critical investments

Critical investments in YNYER are about enabling growth by supporting investment in knowledge and innovation support for the Agri-tech, Food and Bio-renewable sectors; and providing roads and infrastructure to expedite the supply of new housing.

Over time, current and planned investments should help reposition the YNYER economy, and contribute towards wider structural changes across the North. Critical investments in YNYER include strategic transport projects, underway and planned, and projects funded through the initial Growth Deal (July 2014 and extended in January 2015⁴¹). The focus is on enabling growth potential – of residential populations and of high value employment, in line with the sector strengths and potentials, as above. The total package is valued at £122m, which includes previous Local Growth Deal commitments. It is expected to deliver 5k new jobs, 5k additional houses, and up to £150m in additional public and private investment.

Critical Investments

Knowledge and innovation

- Growth Deal commitment to delivering **the first stage of the National AgriFood Innovation Campus York (NAFICY)** – potential investment up to £8.3m.
- Growth Deal commitment (also with Leeds CR) to **York BioHub** (up to £5m), which will be a key driver for the Bio-economy, building on the Bio-renewables Development Centre, in facilitating innovation and accommodating growing businesses across a wide range of activities, scale and geography.
- **York Digital Hub** to be developed at York University Campus, £18m.

Transport & Infrastructure to enable housing and employment growth

- The recently announced **York Central Enterprise Zone** – with new housing and employment which will complement improvements to rail services and facilities at York Station.
- **Improvements to the A1079 York-Hull road**, including some improved junctions and dualling, which will facilitate housing and employment growth.
- Junction improvements to **increase capacity of A1/A59 (Junction 47)** to enable future housing and employment growth in Harrogate and York.
- Projects in **Harrogate Town Centre** Master Plan.
- Investment in local roads and junctions to **enable the creation of leading Agri-business facilities in Malton**, through private investment in a new business and technology park, a separate Agri-business park, and a new purpose-built livestock market facility.
- On-going investment in rural broadband and mobile communications.
- Major mixed-tenure housing development in Middle-Deepdale in **Scarborough**; housing development at **South Beverley**.
- Flood alleviation works at **Skipton**.
- The commitment to housing growth will also be delivered through other enabling **infrastructure and site development works along the A1/A19 corridor**: projects include;
 - Town centre and housing growth at **Catterick Garrison**
 - Housing and employment growth in **Northallerton**
 - Housing growth at Olympia Park, **Selby**
 - Housing growth at Sowerby Gateway, **Thirsk**.

⁴¹ York, North Yorkshire & East Riding BIS Growth Deal, July 2014; York, North Yorkshire & East Riding BIS Growth Deal Add-on, January 2015

Enterprise & Business

- New **Enterprise Zone at York Central** announced in Autumn Statement, November 2015.
- **Support for the York, North Yorkshire and East Riding Growth Hub**, providing specialist advice to businesses on how they can grow and access the markets and the government support needed.

Skills

- **Improving vocational skills**
 - Developing world-class training in agriculture and land-based engineering at **Askham Bryan College**.
 - Upgrading facilities at **Harrogate College** to provide hands-on training for learners.

Current contribution and alignment to the North’s capabilities

YNYER’s alignment to the North’s capabilities is most significant in Logistics (enabling capability), but also evident across a range of other prime and enabling capabilities.

	Alignment	Contribution
Advanced Manufacturing	✓	✓
Energy	✓ ✓	✓ ✓
Digital	✓ ✓	✓ ✓
Health Innovation	✓ ✓	✓ ✓
Logistics	✓ ✓ ✓	✓ ✓
Financial & Professional Services	✓ ✓	✓ ✓
Higher Education	✓ ✓	✓ ✓

Source: SQW

Annex A: Review Definitions

Spatial Definitions

A.1 The spatial definitions used for the local area profiles, as agreed with the Study Steering Group, are the Local Enterprise Partnership boundaries. The definitions are summarised below.

Local areas/city regions	Local Authority Districts included (* in multiple LEPs)	Notes
Cheshire and Warrington	<ul style="list-style-type: none"> Cheshire West and Chester Warrington Cheshire East 	LEP area
Cumbria	<ul style="list-style-type: none"> Carlisle Allerdale Copeland South Lakeland Eden Barrow-in-Furness 	LEP area
Greater Manchester	<ul style="list-style-type: none"> Bolton Bury Manchester Oldham Rochdale Salford Stockport Tameside Trafford Wigan 	CR geography same as LEP footprint and Combined Authority
Hull and Humber City Region	<ul style="list-style-type: none"> East Riding of Yorkshire* Kingston upon Hull, city of North Lincolnshire* North East Lincolnshire* 	CR geography same as LEP footprint
Lancashire	<ul style="list-style-type: none"> Blackpool Burnley Chorley Fylde Hyndburn Lancaster Pendle Preston Ribble Valley Rosendale South Ribble West Lancashire Wyre Blackburn with Darwen 	LEP area

Local areas/city regions	Local Authority Districts included (* in multiple LEPs)	Notes
Leeds City Region	<ul style="list-style-type: none"> • Barnsley* • Bradford • Calderdale • Craven* • Harrogate* • Kirklees • Leeds • Selby* • Wakefield • York* 	CR geography same as LEP footprint NB Different to West Yorkshire Combined Authority: Bradford, Calderdale, Kirklees, Leeds, Wakefield.
Liverpool City Region	<ul style="list-style-type: none"> • Halton • Knowsley • Liverpool • Sefton • St. Helens • Wirral 	CR geography same as LEP footprint and full members of the Combined Authority
North East City Region	<ul style="list-style-type: none"> • County Durham • Gateshead • Newcastle upon Tyne • North Tyneside • Northumberland • South Tyneside • Sunderland 	CR geography same as LEP footprint and Combined Authority
North Yorkshire	<ul style="list-style-type: none"> • York • Craven • Hambleton • Harrogate • Richmondshire • Ryedale • Scarborough • East Riding of Yorkshire • Selby 	LEP area (York and North Yorkshire)
Sheffield City Region	<ul style="list-style-type: none"> • Rotherham • Sheffield • North East Derbyshire* • Chesterfield* • Bassetlaw* • Barnsley* • Bolsover* • Derbyshire Dales* • Doncaster 	CR geography same as LEP footprint NB Different to Sheffield City Region Combined Authority: Barnsley, Doncaster, Rotherham, Sheffield
Tees Valley City Region	<ul style="list-style-type: none"> • Darlington • Hartlepool • Middlesbrough • Redcar and Cleveland • Stockton-on-Tees 	LEP area (Tees Valley)

Data Definitions and Sources

A.2 The definitions and sources of the data used in the area profiles is set out below.

Indicator	Source	Year	Comments
Population	ONS Mid Year Population Estimates	2014	Total population.
Working Age Population	ONS Mid Year Population Estimates	2014	Working age population is defined as any persons aged between 16-64. The midyear (30 June) estimates of population are based on results from the latest Census of Population with allowance for under-enumeration.
Jobs	CE	2013	Workplace based jobs, which include full-time, part-time and self-employed.
GVA	CE	2013	GVA in constant prices (reference year 2011).
GVA per Employee	CE	2013	Calculated by dividing GVA (constant prices) by the number of jobs.
Local Enterprise Units	UK Business Count (Nomis)	2015	An extract compiled from the Inter Departmental Business Register (IDBR) recording the number of Local Units that were live at a reference date in March. Local Units are individual sites that belong to an Enterprise.
Qualified to NVQ Level 4+	Annual Population Survey (Nomis)	2014	The percentage of total working age population with an NVQ4 qualification.
Economic activity rate	Annual Population Survey (Nomis)	2014	The percentage of the working aged population who are employment or unemployment.
Historic growth rates (2000-13)	CE	2000-13/14	Compound annual growth rate between 2000-2013 (2000-2014 for population figures) using historical data. Calculated by: $((\text{End date}/\text{Start date})^{1/\text{period of focus}} - 1) * 100$.
Commuting	Census 2011	2011	Location of usual residence and place of work for outward and inward commuting flows (2011)

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