LEEDS CITY REGION ENTERPRISE PARTNERSHIP INNOVATION STRATEGY
A SMART SPECIALISATION APPROACH 2014
OUR VISION IS TO HAVE THE STRONGEST INNOVATION SYSTEM IN THE UK.

THIS IS OUR PLAN:

TO CREATE THE BUILDING BLOCKS FOR A THRIVING INNOVATION SYSTEM, ENABLING THE LEEDS CITY REGION TO COMPETE GLOBALLY TO ATTRACT TALENT AND INVESTMENT AND MAINTAIN OUR COMPETITIVE ADVANTAGE. TOGETHER WITH OUR PARTNERS, WE WILL TAKE ACTION TO TURN INNOVATION POTENTIAL INTO AN INNOVATION POWERHOUSE.

#INNOVATELCR
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Innovation: a term that’s become a buzzword in 21st Century business, yet one that’s often difficult to define in practice. It’s a concept that applies clearly to the businesses and entrepreneurs who are breaking new boundaries to develop tomorrow’s inventions, today. Yet it is one with which some firms in our region struggle to identify.

Innovation is a word with many meanings and many different practical applications but, put simply, it is about having impact by putting ideas into practice. For businesses this could mean new products, processes or technologies that improve productivity or create new market opportunities. For our economy, it means new sources of growth, jobs and competitive advantage on the national and international stage.

In Leeds City Region we have the raw ingredients to be an engine of innovation that can drive forward, not just our region’s economy, but the nation’s. We have one of the largest concentrations of universities in Europe producing world-leading skills and research, and a large, fast-growing workforce providing the talent for ideas to flourish.

Our proud history of manufacturing and engineering innovation has led to the largest concentration of manufacturing businesses in the UK. Our financial services innovation has made us the largest regional financial centre in the country. And our capabilities in cutting-edge industries including the digital, health and low carbon sectors are providing solutions to global problems, as well as new markets for jobs and growth.

But how can we work with businesses, universities and the public sector to turn this innovation potential into an innovation powerhouse?

We know that successful regions are those that create a culture of innovation that enables SMEs, larger firms, entrepreneurs and institutions to create, accelerate, champion and retain innovation. We want Leeds City Region to have the strongest innovation system in the UK; one that enables businesses to compete successfully on the global stage, and attracts talent and investment.

This strategy is our roadmap to achieving that goal. It sets out how we and our partners will work together to support all 106,000 businesses in the Leeds City Region to innovate and grow. It moves forward from our previous Innovation Capital Programme to ensure that this support is relevant to what businesses need as our City Region returns to growth, with a strong focus on partnerships between the public, private and education sectors. Critically it has been developed in close collaboration with those partners, and road-tested with the businesses that are the real driving forces of innovation.

Innovation is integral to our vision for sustained, above-trend economic growth in Leeds City Region. This is the City Region that led the Industrial Revolution, and the factories that once billowed smoke across our skylines are now home to a new generation of wealth creators, whose enterprising zeal is driving the City Region forward at home and abroad. We need to go further and faster however to fulfil our innovation potential.

Our Innovation Strategy is a critical first step on this journey. Now we must work together to turn innovation into action.

**Prof. Bob Cryan**
Vice-Chancellor of Huddersfield University, and Chair of LEP Business Innovation and Growth Panel

**Ian Sharp**
Director, Khemeia Consulting, and LEP innovation lead
OUR INNOVATION VISION
The Leeds City Region Enterprise Partnership’s (LEP) vision is ‘to unlock the potential of the City Region, developing an economic powerhouse that will create jobs and prosperity. Innovation has a critical role to play in helping the City Region economy achieve these objectives and must be embedded in everything we do.

Innovation occurs when new or technologically improved products and processes are introduced to the market by businesses, or used within a production process. Or put another way, innovation is having impact by implementing new ideas. Successful cities must provide an environment for small and medium-sized enterprises (SMEs), larger firms, entrepreneurs and institutions that facilitates, accelerates, champions and retains innovation. Partners across Leeds City Region must work together to ensure we are doing everything we can to compete for the capital, people and ideas needed to drive innovation and economic growth.

Driving up innovation performance requires a wide ranging approach based around a set of hallmarks:

- focus on maintaining and enhancing the physical, intellectual and communication connections within the City Region and on international sources of knowledge and insight
- reinvigorate our entrepreneurial culture by animating businesses, communities and investors with a compelling sense of purpose, which challenges perceptions and charts a clear course for where we are heading
- drive up the appetite for innovation across the board while focussing close attention on those businesses, organisations and communities with the greatest prospects for innovation-led growth and where we have a distinct advantage over our competitors
- build on the people assets we already have among our students, academics and entrepreneurs, and continue to harness the scale and diversity of our workforce
- adopt a balanced approach which secures the infrastructure and assets we need to stay competitive over the next 20 years, while also shaping the attitudes and behaviours needed to drive change in our businesses and communities

Strive to develop liveable smart cities and working environments which attract and retain talented people

Get much better at telling our story and shouting about our innovation successes.

Leeds City Region aims to have the strongest innovation system in the UK outside the South East, and to be successfully competing globally to attract talent and investment into our priority sector businesses and institutions.

- strive to develop liveable smart cities and working environments which attract and retain talented people
- get much better at telling our story and shouting about our innovation successes.
THE BUILDING BLOCKS FOR A THRIVING INNOVATION SYSTEM

To drive up innovation we need to blend the traditional building blocks of economic growth with a commitment to mould the culture and attitudes around us.

Learning and research facilities, access to investment, attractive property and good quality skills will be more fully exploited where the underlying culture holds entrepreneurial role models in high regard, where failure is seen as a natural precursor of future success, and where strong links exist between firms and to other cities².

Perhaps, the single most important factor for fostering innovation is the connections and relationships between people³. Leeds City Region has set its sights on securing more of the essential building blocks for a thriving innovation system:

- **Global institutions**: to generate intellectual property, knowledge, and insight and animate how people can play their part
- **High level skills**: among researchers, entrepreneurs, business leaders, learners and workers to generate and exploit innovation opportunities
- **21st century connectivity**: which can efficiently bring people and ideas together, sustain collaboration among innovators, either digitally or in person, and generate value
- **Agile investment**: to provide the resources needed to generate new ideas and commercially exploit their potential, with a long term and clear focus that brings economic growth and wider community benefit
- **Better networking**: which bring together collaborators and sustain the innovation process through shared problem solving and joint learning
- **Creative culture**: an economic and social back drop which champions innovation, promotes change and encourages greater levels of ambition amongst employers, learners, employees, communities and leaders.

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²Innovative City Regions, Tim Latham, 2012  
³MIT news, June 2013

“INNOVATION THRIVES IN CITIES DUE TO THE NUMBER OF PEOPLE A RESIDENT WILL INTERACT WITH IN PERSON... IT’S ALL ABOUT FACE TO FACE.”

SO WEI PAN, MIT HUMAN DYNAMICS LAB
To develop the Leeds City Region Innovation Strategy, we have consulted extensively with partners and businesses and engaged in substantial analysis of conditions and trends. We have made clear choices about the crucial short and long term opportunities and challenges facing the City Region’s institutions, businesses and communities. We have identified areas where the City Region has marked strengths on which to build and endeavoured to better prepare the economy for the rapid waves of innovation and technological change which will shape our growth opportunities over the coming years and decades.

To achieve our vision, we must concentrate our innovation efforts on three core priorities. Our choice of priorities has been influenced by an extensive evidence base and developed through consultation and statistical analysis (Chapter 2).

**OUR THREE PRIORITIES FOR INNOVATION ACTION IN LEEDS CITY REGION**

**PRIORITY 1: DRIVING UP INNOVATION APPETITE ACROSS THE CITY REGION**

We must create an environment which encourages and supports innovation across all the City Region’s businesses and institutions. Innovation needs to be broadly embraced and vigorously pursued throughout Leeds City Region if we are to maintain and enhance our competitiveness.

Many of our partners have underscored the need to significantly drive up the level of ambition among our organisations, businesses and civic bodies.  

**PRIORITY 2: STRONGER INNOVATION PERFORMANCE**

Targeted attention is needed among our priority sectors to ensure businesses are better able to exploit the knowledge in the City Region’s institutions and to build on our economy’s distinctive strengths. Specific actions targeting the SME community must ensure they have access to the necessary knowledge networks and finance needed to successfully innovate. We want our City Region to be the natural place where high-growth, high-risk ventures take root, particularly those that are able to take advantage of the innovation assets we are committed to further developing around bio, health, and big data.

**PRIORITY 3: NEW SOURCES OF INNOVATION**

We know that the City Region cannot rest on its laurels. Our ambitions require us to look forward to the longer term and ensure we are growing and retaining the institutions, people and businesses needed to capitalise on the new economic opportunities around the corner. At the same time as we address our immediate challenges, we must also develop the digital and physical infrastructure platform for economic competitiveness, enterprise and growth into the longer term.

Each of our priorities has a set of objectives which supports a series of actions to direct investment and resources in order to achieve our long term innovation goal.

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4 Halycon Innovation consultation study with 15 non-academic innovation delivery bodies
THE CASE FOR ACTION: LEEDS CITY REGION’S INNOVATION SYSTEM
Understanding the performance, trends and opportunities facing the Leeds City Region economy requires a comprehensive evaluation of the area’s current innovation system. The Leeds City Region Innovation Strategy has drawn upon a wide range of analysis and consultation including:

- **The City Region’s economic and innovation performance**: using publicly available data as well as the UK Innovation Survey and Leeds City Region Quarterly Economic Survey (Quarter 2 2013)
- **Knowledge and innovation institutions**: assessing the City Region’s innovation and knowledge base assets and their role in supporting future growth and innovation in our priority sectors
- **The voice of our citizens**: dialogue with innovation-engaged citizens via the ‘Roadmap to a more innovative Leeds City Region’ event (26 November 2013) and a ‘whisper study’ interacting with citizens via Twitter (November 2013)
- **Lessons from international innovation-supportive cities**: in-depth case studies of lessons to be learned from other innovative City Regions.

**LEEDS CITY REGION ECONOMIC AND INNOVATION PERFORMANCE**

We have selected a set of comparator UK City Regions\(^1\) to benchmark ourselves against and which we are committed to out-performing. Our ambition ultimately is global. The diagram over the page sets out nine categories of indicator which together are used to assess the strength of an area’s innovation environment, innovation inputs, and innovation outputs. It illustrates the City Region’s relative position compared to the selected benchmark locations. The comparator geographies are dependent upon the data available and thus vary between City Region level and full regional comparisons.

This summary is followed by a more detailed analysis of the data and our performance against these important UK cities.

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\(^1\) The City Regions (LEP areas) are referred to as the main cities which lie within the City Region throughout the following section, i.e. Bristol represents West of England LEP area, etc.
### Leeds City Region’s Comparative Innovation Performance in Overview

<table>
<thead>
<tr>
<th>Rank</th>
<th>Innovation Environment</th>
<th>Innovation Inputs</th>
<th>Innovation Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Human Capital</td>
<td>Employment</td>
<td>Business Base</td>
</tr>
<tr>
<td>1</td>
<td>London</td>
<td>Bristol</td>
<td>Bristol</td>
</tr>
<tr>
<td>2</td>
<td>Bristol</td>
<td>Leeds</td>
<td>London</td>
</tr>
<tr>
<td>3</td>
<td>Newcastle</td>
<td>London</td>
<td>Manchester</td>
</tr>
<tr>
<td>4</td>
<td>Nottingham</td>
<td>Manchester</td>
<td>Leeds</td>
</tr>
<tr>
<td>5</td>
<td>Leeds</td>
<td>Nottingham</td>
<td>Nottingham</td>
</tr>
<tr>
<td>6</td>
<td>Manchester</td>
<td>Birmingham</td>
<td>Liverpool</td>
</tr>
<tr>
<td>7</td>
<td>Liverpool</td>
<td>Newcastle</td>
<td>Newcastle</td>
</tr>
<tr>
<td>8</td>
<td>Sheffield</td>
<td>Liverpool</td>
<td>Birmingham</td>
</tr>
<tr>
<td>9</td>
<td>Birmingham</td>
<td>Sheffield</td>
<td>Sheffield</td>
</tr>
</tbody>
</table>
THE CASE FOR ACTION: LEEDS CITY REGION’S INNOVATION SYSTEM

INNOVATION ENVIRONMENT

HUMAN CAPITAL

Encouraging and celebrating entrepreneurial success (and acknowledging failure) is an essential ingredient of the innovation environment. Leeds City Region benefits from having a large population on its door-step (2.95m people, Census 2011), more than all our comparator LEP areas with the exception of London. Our working age population has grown by 8.9% between 2001 and 2011. This is slightly lower than the English average, but the City Region ranks 4th out of core city LEPs, and significantly higher than other northern core cities (with the exception of Manchester.)

The City Region also has a well-educated workforce. At the time of the 2011 Census, a quarter of the City Region’s working age population was qualified to degree or above (Level 4+), higher than most comparator cities with the exception of Bristol (31%), and London (38%). However, when looking at the proportion of the workforce qualified in the important science, technology, engineering and maths (STEM) subjects, the wider Yorkshire & Humber region compares less favourably. According to the UK Innovation Survey (BIS, 2010) (UKIS) which presents its findings at a regional level, the average proportion of STEM graduates across Yorkshire and the Humber in broad innovator firms is 6%, below the UK average (8%).

The City Region has an employment rate of 70%, close to the national average (71%), and below only Bristol (74%) of the comparator areas (Annual Population Survey, 2013). Since 2009, the City Region’s employment rate has remained almost unchanged (0.2% increase 2009-13), consistent with the national average. However, some comparator areas have experienced a greater increase since 2009, such as London (1.5% point increase) and Liverpool (2.1% point increase), although they still have a lower rate overall. Analysis of employment data (BRES 2012) indicates that Leeds is the only city other than London that has a concentration of employment in company headquarters above the national average (Leeds location quotient = 1.1). This puts the City Region in a strong position, since R&D investment and decision-making is more likely to be concentrated in places with large numbers of head offices.

AVERAGE PROPORTION OF FIRM EMPLOYEES THAT HOLD A DEGREE OR HIGHER - 2010

LEEDS CITY REGION BENEFITS FROM HAVING A LARGE POPULATION ON ITS DOOR-STEP, MORE THAN ALL OUR COMPARATOR LEP AREAS WITH THE EXCEPTION OF LONDON

Footnote:

[6] Broad Innovators is defined in the UK Innovation Survey as any firm which partakes in any of the following activities: introduction of a new or improved product or process; engagement in innovation projects not yet complete or abandoned; new and improved forms of organisation, business structure or practices and marketing concepts or strategies; and activities in areas such as internal research and development, training, acquisition of external knowledge or machinery and equipment linked to innovation activities.
BUSINESS BASE

The City Region performs less well in terms of entrepreneurship and business start-ups over its competitors. Over the period 2009-11, our start-up rate has remained unchanged at 34 per 10,000 residents, which is amongst the lowest across our UK competitor cities (ONS Business Demography). Although our total number of start-ups increased by 2% since 2009, Bristol (18%), Manchester (11%), and Newcastle (10%) all eclipse our progress. The increase in start-ups in the City Region has been concentrated mainly in York and Leeds.

Leeds City Region has an average business failure rate of 31 per 10,000 residents, surpassed by that of Bristol (35), Manchester (36) and London (53) (ONS Business Demography, 2011). High rates of business closure rates are a healthy sign of churn in an economy and tend to be associated with high start-up rates. To avoid stagnation in our business base we need to see both the start-up and the failure rates rise.

INNOVATION INPUTS

GOVERNMENT FUNDING AND EXTERNAL SOURCES OF INVESTMENT

Innovation inputs in the form of R&D investment and broader innovation activities occur across a number of public and private sector organisations. Given the global economic downturn, it is not surprising that government funding and external sources of investment such as venture capital have declined.

Government and higher education institutions’ R&D expenditure is reported at the regional level by ONS. Over the period 2009-11 government expenditure on R&D (GovERD) in Yorkshire remained constant at £60 million, the lowest across all regions in England. The only regions to have experienced an increase in GovERD over the same period were the South East (increased from £800m to £830m) and the South West (increased from £400m to £410m).

Higher educational institutions’ expenditure on R&D (HERD) in Yorkshire fell over the period 2009-11, from £510m to £500m. Over the same period most regions experienced an increase in HERD, with the exception of the North West (decreased from £590m to £580m) and the East Midlands (decrease from £350m to £340m).

TECHNOLOGY STRATEGY BOARD FUNDING

Over the last three years, the City Region has attracted a total of £24.1 million in Technology Strategy Board (TSB) funding. This ranked it at 14th among all LEP areas in terms of the total awarded and 19th (out of 39) in terms of funding per business.

Analysis of data published by the TSB (2013) provides a breakdown of the funding across the 12 competition types and is provided in the Evidence Base Compendium. It is clear that as national budgets have contracted and competition stiffened, we have not levered in as much investment as our competitors.

Having said that, the City Region does comparatively well in Knowledge Transfer Partnerships, having secured over £4m investment from TSB over the period 2010-13. When looking at KTP drawn down, per business across the LEPs, Leeds City Region comes fourth in the rankings. Although the Small Business Research Initiative only makes up a relatively small proportion of TSB funding (£1.8m over three years), our region has done comparatively well in this area too. The breakdown of TSB investment in the City Region by sector reveals that the largest amount went to technology businesses (£2.6m), closely followed by healthcare (in both cases largely via the collaborative R&D scheme). Over the last three years only the energy sector has secured funding through ‘large’ competition routes for ‘exceptional projects’ as defined by the TSB.
### TSB Funding in Leeds City Region by Sector Focus, 2010-2013, (£ 000s)

<table>
<thead>
<tr>
<th>Competition Type</th>
<th>Digital</th>
<th>Energy</th>
<th>Healthcare</th>
<th>Manufacturing</th>
<th>Space</th>
<th>Sustainability</th>
<th>Technology</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative R&amp;D</td>
<td>-</td>
<td>727</td>
<td>2,247</td>
<td>1,129</td>
<td>-</td>
<td>1,099</td>
<td>1,675</td>
<td>1,240</td>
</tr>
<tr>
<td>European</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>825</td>
<td>-</td>
</tr>
<tr>
<td>Fast Track</td>
<td>150</td>
<td>-</td>
<td>153</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>130</td>
<td>-</td>
</tr>
<tr>
<td>Feasibility Study</td>
<td>247</td>
<td>571</td>
<td>182</td>
<td>123</td>
<td>38</td>
<td>506</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Large</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Small Business Research Initiative</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>£19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total per Sector</td>
<td>397</td>
<td>2,111</td>
<td>2,582</td>
<td>1,252</td>
<td>38</td>
<td>1,624</td>
<td>2,667</td>
<td>1,282</td>
</tr>
</tbody>
</table>

Note: Only funding awarded by sector is reflected in this table, thus the figures do not sum to total Leeds City Region TBS funding. Source: TSB 2013

### Business R&D Expenditure

Leeds City Region is also under-performing in terms of business expenditure in R&D. Although the City Region has experienced a relatively high growth rate in business expenditure in R&D over the last decade (2nd across all comparator areas), the amount spent is the 2nd lowest among the English regions.

ONS data indicates that business R&D expenditure in Yorkshire and Humber was £540m in 2011, less than half the level in any other region apart from the North East. Yorkshire & Humber was also the lowest ranked English region for the amount of R&D tax credits claimed per business in 2012, coming in at less than half the national average.

UKIS (2010) surveyed businesses on how they allocated their innovation expenditure. Results show that Yorkshire businesses’ innovation expenditure is highly concentrated in two areas: internal R&D (56%) and acquisition of capital (40%). Comparatively little is spent on market introduction of innovation, training, design or on the acquisition of external knowledge and R&D.
INNOVATION EXPENDITURE IN 2010, YORKSHIRE REGION, % TOTAL

Collaboration

Open innovation is crucial and critically relies on businesses and institutions opening up their processes and ideas to external inputs from collaborators (who at other times may even be competitors). UKIS (2010) as well as the Leeds City Region Quarterly Economic Survey (Quarter 2 2013) surveyed firms about their collaboration activities.

UKIS indicate that companies in the Yorkshire region rely on either clients/end users (35%) or people within their business or enterprise group (36%) for assistance. But both these figures are a little below the UK average (40% and 39%, respectively). Of those information sources which may support R&D activities and knowledge creation, Yorkshire firms are in line with the UK average; 2% of Yorkshire firms use government/public research institutes, 2% use universities, and 4% use private R&D institutes and consultants.

The Leeds City Region Quarterly Economic Survey (Quarter 2 2013) suggests that R&D collaboration is a function of company size: only 24% of firms with 1-9 employees collaborate with universities compared to 60% of firms that have 250+ employees. This pattern is replicated when it comes to collaboration with innovation/research associations, with smaller firms relying more heavily on in-house resources and business networks.

The survey also indicates that collaboration with HEIs is a function of business age. Of the firms that have sought advice or support from HEIs, 33% had been in operation for over 10 years, 19% for 1-5 years and only 13% for less than a year. This finding is not hugely surprising since more established firms have had more time and resources to build links externally. Start-up firms are clearly harder to reach but potentially could benefit most from assistance.

“BUSINESSES ARE NOT VERY GOOD AT COLLABORATIVE WORKING, THEY’RE MORE IN A MODE OF COMPETITION THAN COLLABORATION”

LEEDS CITY REGION CITIZEN, 26TH NOV.
As is the case across the country, only a minority of firms in Yorkshire and Leeds City Region participate in innovation activities. Regionally, 37% of Yorkshire firms were classified as broad innovators compared to 39% across the UK (UKIS 2010). Some of the regions with the highest levels of broad innovators were the East and South East (43% each) and the North East (42%). The UKIS also asked firms if they had abandoned innovation activities, to which 6% of Yorkshire firms responded ‘yes’. Although this is above the UK average (4%), this could be seen as a positive sign of a willingness to embrace failure as part of the innovation process. The Leeds City Region Quarterly Economic Survey (Quarter 2 2013) found that about half of firms had introduced a new products or process over the last 12 months (49%). Interestingly, firms in service sectors seem to be as likely to be innovators as those in manufacturing.

PROTECTION OF INNOVATION

Intellectual property performance locally is mixed. Across the 39 LEP areas, Leeds City Region ranks in the bottom half at 23rd in terms of European Patent Office patents per 10,000 residents. Using UKIS data we can see that at the regional level the proportion of firms that apply for a patent in Yorkshire (2.7%) is slightly above the national average (2.6%). Nevertheless, in other areas of innovation protection we lag behind other regions.

Looking at the protection of innovation and intellectual property, 7% of Yorkshire firms use secrecy including non-disclosure agreements, compared to 8% in London and 10% in the South East. Similarly, just 2% of Yorkshire firms produce materials eligible for copyright, compared to 5% in London and 4% in the East and South East.
PRODUCTIVITY

Labour productivity is a fundamental measure of innovation and a key factor which all regions strive to improve. The most recent sub-regional figures indicate that GVA per worker was 44,920 in 2012, below the English average, although only West of England had above average productivity in 2012 among core cities. Leeds City Region’s GVA per worker was similar to other core cities, though considerably better than the worst performers. Our GVA per worker has grown 7.7% since 2009, about the same as England.

GVA PER WORKER

<table>
<thead>
<tr>
<th>LEP Area</th>
<th>GVA per worker</th>
<th>GVA per worker change 2009-12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2012</td>
</tr>
<tr>
<td>Leeds City Region</td>
<td>41,695</td>
<td>44,920</td>
</tr>
<tr>
<td>England</td>
<td>46,970</td>
<td>50,527</td>
</tr>
<tr>
<td>D2N2</td>
<td>37,748</td>
<td>42,310</td>
</tr>
<tr>
<td>Greater Birmingham and Solihull</td>
<td>42,656</td>
<td>45,112</td>
</tr>
<tr>
<td>Greater Manchester</td>
<td>41,736</td>
<td>44,293</td>
</tr>
<tr>
<td>Liverpool City Region</td>
<td>41,145</td>
<td>43,600</td>
</tr>
<tr>
<td>London</td>
<td>67,210</td>
<td>69,578</td>
</tr>
<tr>
<td>North Eastern</td>
<td>37,874</td>
<td>41,764</td>
</tr>
<tr>
<td>Sheffield City Region</td>
<td>37,082</td>
<td>40,168</td>
</tr>
<tr>
<td>West of England</td>
<td>45,571</td>
<td>51,209</td>
</tr>
</tbody>
</table>

Based on ONS LEP GVA data and BRES 2012 data (NOMIS.)

PRIORITY SECTORS

LEEDS CITY REGION SECTORS IN THE INNOVATION CONTEXT

Six key sectors have been identified by the LEP for priority attention: financial, professional and business services; advanced manufacturing; health and bioscience; creative and digital; food and drink; and low carbon & environmental industries. A new report analyses these sectors in depth, identifying the key strengths and opportunities across the City Region.

For this report, we have explored the innovation drivers within these sectors and what assets we have locally that can support better innovation outcomes and their alignment with the Key Enabling Technologies (KETs) and the government’s Eight Great Technologies. Our twin-track focus on priority sectors and key technologies underpin our commitment to Smart Specialisation.

“WE HAVE THE HUGE FLEXIBILITY TO BE ABLE TO MOVE WITHIN THE MARKETPLACE, SO WHETHER IT’S AUTOMOTIVE OR DEFENCE OF WIND ENERGY, WE HAVE THE KEY COMPONENTS OF THAT.”

LEEDS CITY REGION CITIZEN, 26TH NOV.
FINANCIAL, PROFESSIONAL AND BUSINESS SERVICES

The financial, professional and business services sector is the largest of the City Region’s priority sectors, with a total of 256,000 jobs in 2012. Although the number of jobs here has increased by 4% (9,100 additional) since 2009, our growth is behind the 6% national average in the sector.

Preliminary findings from the Witty Review (July 2013) indicate that while London is the sector’s leading world centre, there are other strong UK clusters in Birmingham, Manchester, Leeds and Liverpool. The City Region’s performance against these areas has been below par. Employment growth has been strongest in Liverpool (17% increase) and London (10% increase), while the other areas also managed to grow in line with or faster than the national average.

Big Data is an extremely important Key Enabling Technology which will support future growth and innovation in this sector. This aligns well with Leeds University’s recognised strength in this area, which we explore later.

FINANCIAL AND PROFESSIONAL BUSINESS SERVICES EMPLOYMENT, 2009-12

<table>
<thead>
<tr>
<th></th>
<th>Total Jobs 2012</th>
<th>LQ v. England</th>
<th>Change 09-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leeds City Region</td>
<td>256,100</td>
<td>0.8</td>
<td>9,100</td>
</tr>
<tr>
<td>Birmingham</td>
<td>203,000</td>
<td>0.8</td>
<td>15,700</td>
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<tr>
<td>Manchester</td>
<td>270,000</td>
<td>0.9</td>
<td>15,900</td>
</tr>
<tr>
<td>Liverpool</td>
<td>106,700</td>
<td>0.7</td>
<td>15,300</td>
</tr>
<tr>
<td>London</td>
<td>1,465,000</td>
<td>1.2</td>
<td>135,100</td>
</tr>
<tr>
<td>England</td>
<td>7,157,300</td>
<td>1.0</td>
<td>384,800</td>
</tr>
</tbody>
</table>

Source: BRES 2012

HEALTH AND BIOSCIENCE

Although it is the smallest of our sectors in terms of employment (36,000 jobs), Leeds City Region has a concentrated base of health and bioscience R&D activities. In particular, City Region employment within this sector is most highly concentrated in human health activities (20,000 jobs), a sub-sector in which we have a LQ of 1.1. Nevertheless, employment in this sector has decreased by 14% (6,100 job losses) since 2009, while nationally the sector has only shrunk by 6%. The drop was concentrated in our big human health sub-sector, whereas the important manufacturing of pharmaceutical products and scientific R&D sub-sector actually increased.

Preliminary findings from the Witty Review (July 2013) indicate that there are several health related clusters throughout the UK with specific sub-sector specialisms. While drug discovery and development is clustered around the London/Cambridge/Oxford triangle and Manchester, manufacturing is clustered in Teesside, Tyneside and Speke (Merseyside). Meanwhile, medical technology sub-sectors are concentrated in Yorkshire (orthopaedic devices), South East and East (in-vitro diagnostics) and the Midlands and Yorkshire/Humberside (wound care).

When Leeds City Region is mapped against other areas, performance is mixed. To our advantage we have the largest cluster in terms of employment outside of London, with a level of specialisation that is in line with England. However, our employment losses since 2009 have been faster than in all the comparator areas apart from Manchester.

Big data, synthetic biology, advanced materials and nanotechnology, and regenerative medicine are all important Key Enabling Technologies which can support future growth and innovation in this sector.
CREATIVE & DIGITAL

Creative and Digital is Leeds City Region’s second largest priority sector, with a total of 72,000 jobs in 2012.

Although the sector’s location quotient does not indicate a level of specialisation above the national level, employment has increased by 13% since 2009 (8,200 additional jobs), surpassing the national trend (4% increase).

Preliminary findings from the Witty Review (July 2013) indicate that the information economy activities are clustered in several areas including London, Manchester, Bristol, and Sunderland. Comparing these areas’ creative and digital sectors to that of Leeds City Region, we see that after London we have the largest cluster in employment terms. London is the only other comparator area that experienced high employment growth similar to that of Leeds City Region, while others experienced employment losses or only modest growth. Big data, is an important Key Enabling Technologies which will support future growth and innovation in our information economy.

CREATIVE AND DIGITAL EMPLOYMENT, 2009-2012

<table>
<thead>
<tr>
<th></th>
<th>Total Jobs 2012</th>
<th>LQ v. England</th>
<th>Change 09-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leeds City Region</td>
<td>36,400</td>
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<td>-6,100</td>
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<tr>
<td>Liverpool</td>
<td>20,700</td>
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<td>London</td>
<td>85,800</td>
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<td>-8,600</td>
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<tr>
<td>Manchester</td>
<td>23,200</td>
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<td>-6,900</td>
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<tr>
<td>Newcastle</td>
<td>10,200</td>
<td>0.9</td>
<td>-1,800</td>
</tr>
<tr>
<td>Sheffield</td>
<td>19,700</td>
<td>1.4</td>
<td>2,500</td>
</tr>
<tr>
<td>England</td>
<td>801,400</td>
<td>1.0</td>
<td>-52,700</td>
</tr>
</tbody>
</table>

Source: BRES 2012

CREATIVE & DIGITAL JOBS

72,000

CREATIVE & DIGITAL JOBS

<table>
<thead>
<tr>
<th></th>
<th>Total Jobs 2012</th>
<th>LQ v. England</th>
<th>Change 09-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leeds City Region</td>
<td>71,600</td>
<td>0.7</td>
<td>8,200</td>
</tr>
<tr>
<td>Bristol</td>
<td>33,100</td>
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<tr>
<td>London</td>
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<tr>
<td>England</td>
<td>2,108,300</td>
<td>1.0</td>
<td>77,700</td>
</tr>
</tbody>
</table>

Source: BRES 2012
ADVANCED MANUFACTURING AND ENGINEERING

Advanced manufacturing and engineering includes aerospace, automotive, life sciences, and agri-tech and is one of BIS’ Industrial Strategy Sector priorities. This is a strong sector for Leeds City Region, with a total of 29,000 jobs in 2012.

We have a strong concentration of this sector in Leeds City Region (LQ =1.1) and have experienced high levels of employment growth since 2009, increasing by 18% (4,400 additional jobs), faster than all other key comparators and in contrast to the static national employment total.

Comparator areas with high concentrations of advanced manufacturing and engineering include Birmingham, Bristol and Sheffield. Since 2009 these areas have all exhibited strong employment growth above the national level, but slower than our impressive expansion.

There are a number of important Key Enabling Technologies for Advanced Manufacturing sub-sectors.

For life science manufacturing, these are big data, synthetic biology, advanced materials, and regenerative medicine; for aerospace, KETs are big data and advanced materials; for automotive, it is advanced materials and energy storage; and for agri-tech, the important KETs are synthetic biology and agri-science.

FOOD AND DRINK

The food and drink sector in Leeds City Region sustains 37,000 jobs, making it the third largest of the region’s priority sectors. Although employment is more concentrated here than nationally (LQ =1.1), since 2009 City Region employment has not grown despite an 8% increase nationally.

Food and drink is not one of the UK Government’s Industrial Strategy (BIS, 2012) key sectors, but it does have links with agri-tech which is included in the Strategy.
Important Key Enabling Technologies for agri-tech, include synthetic biology and agri-science, as well as big data. Additional KETs relevant to advanced manufacturing will also help to support future growth and innovation in this sector.

**FOOD AND DRINK EMPLOYMENT, 2009-2012**

<table>
<thead>
<tr>
<th>Total Jobs 2012</th>
<th>LQ v. England</th>
<th>Change 09-12</th>
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<tbody>
<tr>
<td>Leeds City Region</td>
<td>37,000</td>
<td>1.1</td>
</tr>
<tr>
<td>Bristol</td>
<td>8,800</td>
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<tr>
<td>Birmingham</td>
<td>21,300</td>
<td>0.8</td>
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<tr>
<td>Manchester</td>
<td>26,500</td>
<td>0.9</td>
</tr>
<tr>
<td>Sheffield</td>
<td>19,100</td>
<td>1.6</td>
</tr>
<tr>
<td>England</td>
<td>713,200</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**LOW CARBON & ENVIRONMENTAL INDUSTRIES**

The low carbon & environmental industries sector is the second largest priority sector in the City Region. In 2012 Leeds City Region had 39,000 jobs in this sector with an estimated growth of around 18% since 2009, compared to a 2% increase at the national level.

There are strong links between this sector, the Industrial Strategy sectors of nuclear, offshore wind and oil and gas, as well as energy storage which is one of the Eight Great Technologies. Leeds City Region is working to become ‘resource smart’ by supporting innovation that will allow more to be done with less resources across all sectors of the economy, i.e. reducing business costs and raising efficiency in the use of energy, waste, water, and minerals. A wide number of Key Enabling Technologies will support future growth and innovation in these sectors.

Big data will be needed to support oil and gas, while advanced materials and nanotechnology and robotics will be fundamental across all three of the Industrial Strategy Sectors.

Energy storage will be a vital technology for a range of low carbon & environmental industries. The key opportunities for Leeds City Region to capitalise on in this sector are bio-renewables and carbon capture and storage. Bio-renewables will be supported by BioVale (additional details page 19) and Drax, soon to become the largest biomass co-firing power plant in Europe. Carbon capture and storage will be supported by demonstration plans and government funding to City Region plants which are employing this technology.

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10 Estimates based on Regeneris in-house low carbon goods and environmental services sector model.
OUR KNOWLEDGE & INNOVATION INSTITUTIONS

Educational institutions and particularly those that are research intensive, are critical elements of the innovation ecosystem. They contribute new intellectual property, facilitate networks and relationships between people, act as hubs of information and knowledge exchange and act as go-betweens for industry, government and the wider community. Across Leeds City Region, we have innovation assets of the highest quality.

We have eight higher education institutions, one of the largest concentrations in Europe, producing 36,000 graduates each year. Leeds is the 8th largest university by research power in the UK (out of 161 HEIs) and is listed in the top 100 globally by QS Ranking. York University is also ranked in the top 100 world universities by the Times Higher Education World University Rankings. Both The University of Leeds and Leeds Metropolitan University fall in the UK top 20 by student numbers, and all our universities have solid track records of industrial and community engagement.

Other key innovation assets in Leeds City Region include Science City York (one of six science cities in the UK), the York Science Park (which hosts almost 150 independent companies and organisations), and the Food & Environmental Research Agency (FERA) at Sand Hutton. We are also home to Medipex, a healthcare innovation hub working with the NHS, industry and academia to improve patient care by accelerating knowledge transfer and providing market access solutions.

Over one third (36%) of Leeds City Region’s combined university research is ranked as world-class, and a further 10% is world-leading in fields such as business & management, medical & healthcare technologies, pharmaceuticals and biotechnology, nanotechnology, advanced engineering and advanced textile technology.

The sheer size of the research power in the region focused around Medicine and Health – particularly the national expertise and industrial engagement in Regenerative Medicine at Leeds and in Pharmaceutical Innovation and Cancer Therapeutics at Bradford – means we have critical mass which can be readily combined with real industrial engagement, and which is based on truly excellent multidisciplinary research.

OVER ONE THIRD OF LEEDS CITY REGION’S COMBINED UNIVERSITY RESEARCH IS RANKED AS WORLD-CLASS, AND A FURTHER 10% IS WORLD-LEADING.

This hotspot of excellence has already led to some of the largest investments in UK university spinout companies, starting from Bradford Particle Design, and most recently Tissue Regenix PLC (Leeds).

More widely, our research power and standing when mapped against industrial engagement aligns with our priorities and recognised strengths, particularly around: Food Science, Food Manufacturing and Food Health (at Leeds, York and Leeds Metropolitan), Advanced Materials (around Plastics at Bradford, and Nanotechnology at Leeds), around Colour Chemistry at Leeds and Green Chemistry at York; and around transport and materials at the Huddersfield Institute for Rail Research. Less obvious assets exist in Automotive, Aerospace and Satellites technology that reflect sectoral strengths in the region. However, these are areas for longer term ambitions.

Levels of consultancy activity within HEIs are a useful measure of how relevant research is to businesses. Consultancy trends are increasing significantly across the City Region’s institutions, as is income generated from intellectual property. Leeds Metropolitan has rapidly increased consultancy performance, leading all the City Region’s universities, while the University of Leeds has driven up its licensing activity. Since an increasing amount of consultancy is being undertaken by commercial companies established by universities, it is not possible to capture all the value created through consultancy engagement.

However, it appears that Leeds University is still only approaching the national mean while Leeds Met consultancy income continues to be lower than most.
The position of our universities in relation to the Eight Great Technologies is summarised in the table. The City Region has strengths in six of them: advanced materials, agri-science, big data, regenerative medicine, robotics and satellites.

**LEEDS CITY REGION KNOWLEDGE ASSETS RELATED TO THE EIGHT GREAT TECHNOLOGIES**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Details</th>
</tr>
</thead>
</table>
| Advanced Materials  | • The University of Leeds ranks 8th in the UK for Advanced Materials research and is home to the Centre for Molecular Nanoscience.  
  • Proctor and Gamble signed a strategic research alliance with Leeds University in October 2013 to develop new products in the area of materials and particles.  
  • The Nanofactory located in Leeds also supports partnerships between universities and the private sector in micro and nanotechnologies. This is further complemented by the EPSRC Centre for Innovative Manufacturing in Advanced Metrology based at the University of Huddersfield, which is a national centre of excellence with significant automotive industry engagement. |
| Agri-Science        | • University of York ranks 4th in the UK for Agri-Tech research.  
  • Linking its strength in environmental and bio-renewable technologies Science City York has launched the York Environmental Sustainability Institute (YESI) which includes the Initiative for Agri Food Resilience, the Centre for Novel Agricultural Products (CNAP), the Centre for Crop Protection (CCP), and the Bioscience Technology Facility.  
  • The BioVale scheme is currently being developed in collaboration with industry by the Biorenewables Development Centre, the Centre for Novel Agricultural Products, and the Green Chemistry Centre at the University of York. BioVale will be a major asset and focal point of industrial engagement between the University of York and FERA aimed at building a broad based innovation hub for the bio-based economy in our city-region. |
| Big Data            | • The University of Leeds ranks 1st in the UK for Big Data research and the University of York ranks 1st in the area of Information Economy. Big data is a hugely important across other Leeds City Region research strengths and sectors including life sciences, bioinformatics and transport.  
  • The University of Leeds was awarded £6 million from the Medical Research Council and £5m from the Economic and Social Research Council in February 2014 to fund a Consumer Data Research Centre that is jointly with University College London. The Centre will be a national resource that will make data, routinely collected by business and local government organisations, accessible to academics and offer new Masters level learning to address national skills shortages in big data analysis. |
### Regenerative Medicine
- Welmec is a Centre of Excellence in Medical Engineering funded by EPSRC and the Wellcome Trust which is developing new ways to extend human joint and cardiovascular health, and so improve quality of life, for ‘50 active years after 50’.
- The Innovation and Knowledge Centre Regenerative Therapies and Devices (IKCRTD) at Leeds University provides real commercial engagement and collaboration between academia, industry and the NHS to accelerate the commercial development of new medical technology products and services.

### Robotics
- National Facility for Innovative Robotic Systems at University of Leeds announced in July 2013 is a £4m national facility which will make the University a world leader in robot design and construction supported by the Engineering and Physical Sciences Research Council.

### Satellites
- In February 2014 the University of Leeds was awarded £180k from NERC to enable researchers to expand a processing facility for radar data from the ESA satellite Sentinel-1, due to be launched in March.

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### The Voice of Our Citizens

Extensive consultation was undertaken to help refine our understanding of the City Region’s sector strengths and the barriers standing in the way of better innovation performance. We engaged with partners and stakeholders through a variety of ways, including an online ‘whisper study’ via Twitter which posed daily questions about Leeds City Region’s innovation environment, giving anyone the opportunity to respond with their opinion. This exercise was organised as a lead-up to the major innovation consultation event on the 26th November in Leeds supported by AGFA. This workshop event was attended by 93 people and brought together people in a series of structured group sessions to tease out stakeholders’ views of our strengths and weaknesses.

#### Whisper Study
The objective of the whisper study was to stimulate and analyse a set of Twitter conversations around innovation in the Leeds City Region in the lead up to the workshop on 26th November. The dialogue that has developed over Twitter is the start of a conversation which the City Region needs to continue.

This platform for engagement has been a successful vehicle to identify influential people who are talking about innovation, what their sentiments may be, and how the City Region can plan effective engagement strategies to include these people in future work. The key points from the conversations are as follows (a detailed report on the outcome of this study is included in the Evidence Base Compendium):

- **International Perspective.** There was a strong focus in the conversation on international examples of innovative cities that we can learn from. Those which were mentioned the most included New York (focus on autonomous cars), Barcelona (Smart City Expo), Toronto/Ottawa (Ottawa’s bid to open an Innovation Centre in 2016), Denver and Chicago (Chicago’s tech city start-ups). Our innovators have a global perspective.
• Local Innovation Influencers. Based on the analysis of the conversation surrounding the innovation event on the 26th, the study revealed a number of individuals who are key innovators and influencers in the City Region. The group includes individuals in the games industry in Leeds, local investors and entrepreneurs and other private sector actors passionate about innovation. Their passion for driving forward innovation and their connections to the local community should be harnessed to support the goals of this strategy.

INNOVATION WORKSHOP, 26TH NOVEMBER

The whisper study leading up to the Innovation Workshop allowed the event to have a wide reach in the number of people who participated in the conversation. In addition to those who attended the event, the TweetReach of the event was measured using #innovatelcr (the hashtag used throughout the whisper study). A total of 125,000 twitter accounts were reached using Leeds City Region’s unique innovation hashtag, while 404 tweets were made by 68 unique contributors over the course of eight days leading up to and including the event.

The event involved a wide ranging exploration of many aspects of innovation performance and the eco-system underpinning it. A detailed transcript of the event has been included in the Evidence Compendium. Our distilled analysis of the insights has led us to identify eleven key demands from our businesses and innovation communities which need to be addressed if Leeds City Region is to drive up innovation ambition among its organisations, businesses and civic bodies:

EXTENSIVE CONSULTATION WAS UNDERTAKEN TO HELP REFINE OUR UNDERSTANDING OF THE CITY REGION’S SECTOR STRENGTHS AND THE BARRIERS STANDING IN THE WAY OF BETTER INNOVATION PERFORMANCE.

• Raised ambitions set out in a series of achievable goals which provide a clear measure of success for improving the innovation culture
• Greater international focus and competitiveness, through benchmarking the region’s success against the rest of the world
• Promote and amplify Leeds City Region’s successes and assets
• Drive home the message that innovation is essential; not innovating is a high-risk strategy
• Use futures & foresight knowledge to signpost businesses to opportunities and mega-trends
• A clear focus on securing a small but significant number of world-class sectors
• Better, business-led and business-focused support which is simpler to access
• Support existing innovation networks to expand their reach and influence
• Boost local supply chains by procuring innovative solutions and investing in the infrastructure needed to underpin future competitiveness
• Leadership to manage the flow of skills into the innovation process and transfer best innovation practice
• Driving collaboration through the development of the new working spaces that today’s way of work requires and demands, networking and developing an environment that nurtures business interactions
• Networked civic bodies that engage with the private sector to collaborate on the challenges facing the public sector and require innovative approaches and responses to drive economic growth.
Leeds City Region already offers its businesses a range of services and assistance aimed at driving up innovation performance. We have engaged directly with and consulted a range of businesses and support providers to help develop a SWOT overview of the current innovation offer and to identify areas where further attention is needed. The insights gained from this exercise are synthesised below and set out in more detail in the Evidence Compendium.

**Strengths:** Leeds City Region is large and is recognised nationally and internationally. The size of our economy allows us to tap into a large and strong skill-set among our local communities, businesses, networks and institutions. The region has an embedded culture of industry, hard-work and innovation dating back to the industrial revolution which underpins a strong sense of passion about the place and identity. The relatively low cost of doing business and the easy reach to knowledge assets and key markets are real strengths.

**Weaknesses:** despite a strong local culture, its more conservative tendencies can manifest themselves as a lack of ambition. Local innovation investment is in short supply and this has been weakening our innovation potential and led to a stunted tech start up and innovation community. We must widen our perspective to gain a better understanding of what others are doing and draw in ideas which can be adopted and adapted in our region.

### STRENGTHS
- Size of region and City Status
- Accessible location and good transport links to UK cities
- Brand Yorkshire
- Hard-working Industrious Culture
- Sector assets
- Academic assets
- Changing civic ethos
- Competence, capabilities, skills
- Quality of place & known reputation
- Cost of doing business

### WEAKNESSES
- Narrow scale of ambition and conservative culture
- Reluctance to celebrate success
- Limited exposure to what others are doing
- Too few sector-focussed innovation assets
- Skills
- Small Tech - start up community
- Limited investment community
- Weak transportaion and connectivity
- Patchy start-up, investment readiness and incubation support offer
- Failure to capitalise on existing government initiatives

### OPPORTUNITIES
- People and community assets
- New markets
- New sectors
- New products and services
- Export markets
- Technology development
- Public sector austerity
- Disruption with existing business models
- The Grand Départ

### THREATS
- Young people’s ability to engage with businesses
- Innovation finance too thinly spread across initiatives
- Poor ability to retain top quality graduates
- Limited tendency to collaborate
- Too few co-working spaces
- Fear of risk taking
- Global competition
- Parochial attitudes
- Complexity vs organisational capacity
- Absence of cross cutting innovation hubs
- Austerity
- External tech and start-up investment community
• **Opportunities:** among the people and communities of Leeds City Region there are clear opportunities to extend networks and business connections. Around us there is a vibrant world of new markets and sectors emerging where we are well-placed to prosper, such as open data, energy and smart meters, health and medical devices and civic innovation. These opportunities all have international growth potential and can help chart a course towards growth economies around the world. We know that disruptive technology and new business models will continue to transform the nature of the economy. We need to be ready to support our leading growth businesses to capitalise on these trends, particularly in our tech start up accelerators. Flagship events such as the 2014 Grand Départ for the Tour De France can be used to articulate our plans and help us better tell our innovation story while we have the attention of the outside world.

• **Threats:** the rapid pace of technological and economic change points to a different institutional landscape that is more fleet of foot and better attuned to taking risks. The complexity of the market place and the backdrop of austerity accelerate the challenge to the agencies in the City Region seeking to support and drive innovation. Universities have traditionally been the principal source of knowledge for innovation. We need to maintain their strengths and better harness them for the benefit of our local businesses, while boosting the capacity of other institutions and businesses to play their part in rebalancing our innovation focus towards commercial opportunities better aligned with growth outcomes.

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**OUR KNOWLEDGE & INNOVATION INSTITUTIONS**

We know that the competition for investment and talent is high. We also know that lessons can be learned from other City Regions around the globe which have enhanced their innovation credentials. We have taken time to explore, experience and develop a set of guiding insights, from a series of cities with a strong presence in the global innovation system.

We have looked in detail at seven comparator cities (and City Regions) that are not capital cities, which are making significant strides in embedding innovation into their growth plans. **We have considered the following questions for each city:**

1) What can Leeds City Region learn?
2) What should Leeds City Region adapt?
3) What is not relevant to Leeds City Region?
4) Where else should Leeds City Region look for inspiration?
5) Who is Leeds City Region competing with?
6) Who should Leeds City Region be collaborating with?

“WE NEED TO BE MORE INTERNATIONALLY COMPETITIVE, NOT NATIONALLY COMPETITIVE. DON’T WORRY ABOUT WHAT MANCHESTER’S DOING, WORRY ABOUT WHAT THE REST OF THE WORLD IS DOING.”

LEEDS CITY REGION CITIZEN, 26TH NOV.
THE FOLLOWING LESSONS HAVE BEEN DRAWN FROM OUR REVIEW OF WHAT OTHER CITIES ARE DOING TO SUCCEED:

<table>
<thead>
<tr>
<th>Lessons Learned</th>
<th>Relevance to Leeds City Region</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. An engaging story and a strong, shared sense of identity, culture &amp; purpose, built around innovation values can create strong publicity and momentum</td>
<td>Leeds City Region does not perform well in terms of branding and communications of its innovation assets. This weakness was further highlighted during the workshop on 26th November. The City Region could learn a great deal from Medellin &amp; Grand Rapids, Michigan.</td>
<td>Need for an innovation figurehead to articulate Leeds City Region’s innovation priorities and the progress the City Region is making internally and externally.</td>
</tr>
<tr>
<td>2. Physical spaces dedicated to innovators and the facilities they need can provide a focus for concentrated action</td>
<td>Leeds City Region appears to lack flexible and collaborative spaces to work and meet. There are numerous models of spaces in the likes of Eindhoven &amp; Toronto that could form the basis of new investment in physical infrastructure. Barcelona’s 22@Barcelona is another example of a successful innovation district we can learn from. This need was repeatedly highlighted during the workshop on 26th November.</td>
<td>Identify physical areas that can act as hubs which draw in entrepreneurs and innovators and where hotspots of creative collaborative innovation can take root.</td>
</tr>
<tr>
<td>3. A strong base and good flow of international students &amp; migrants refreshes and diversifies the knowledge base</td>
<td>Leeds City Region performs extremely well in terms of HEIs and attracting students but fails to connect these effectively into the local economic ecosystem. More could be learned from Eindhoven, Medellin and Toronto who have shown strong city leadership in this space.</td>
<td>The young learner and university population needs to better encouraged into STEM subjects and have more reasons to stay working locally upon graduation.</td>
</tr>
<tr>
<td>4. Attractive cities can be a strong magnet for talent</td>
<td>Leeds City Region and Yorkshire more generally is well known to be a wonderful place to live and could build on that to attract innovative talent and organisations to come to and stay in the region the same way as Zurich. This strength was a common view amongst the workshop participants.</td>
<td>The cultural and creative aspects of Leeds City Region that give it such a high quality of life need to be championed to the business community.</td>
</tr>
<tr>
<td>5. A focus on established industrial strengths, especially where you have HQ presence, can generate rapid change</td>
<td>Leeds City Region has a strong base of Corporate HQs and could learn from Eindhoven &amp; Grand Rapids, Michigan about how best to use these as magnets for other talent and assets. The concentration of HQs is identified in the Evidence Base Compendium.</td>
<td>The City Region’s existing influential innovation decision makers need to become more actively engaged in supporting the innovation process among local SMEs.</td>
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<table>
<thead>
<tr>
<th>Lessons Learned</th>
<th>Relevance to Leeds City Region</th>
<th>Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. New scope for growth and diversification can be exploited from adverse developments</td>
<td>Leeds City Region already has a strong and diverse economy and its SME base offers scope for flexibility and agility as has happened in recent years in Eindhoven, Medellin &amp; Grand Rapids. Cross pollination of ideas between sectors &amp; disciplines can generate new solutions and help identify challenges while helping develop distinctive differentiators for the regional economy.</td>
<td>Leeds City Region needs to focus on building upon the strengths in the Eight Great Technologies and its priority sectors to best position itself to take advantage of future market opportunities.</td>
</tr>
<tr>
<td>7. Integrating cultural, social, economic and technological capital gives a city better access to a distinctive set of innovation factors</td>
<td>Leeds City Region has a great quality of life and should seek to learn from Vienna, Medellin &amp; Toronto about how to combine economic, social and cultural institutions to best effect.</td>
<td>Leeds City Region needs to use this high quality of life to foster informal interactions between its citizens and better sell itself when attracting inward investment.</td>
</tr>
<tr>
<td>8. Regional, national and global leadership and commitment to public sector innovation can open up local commercial opportunities</td>
<td>Leeds City Region currently lacks innovation leadership and could benefit from stronger co-ordination as has happened in Vienna and Zurich. This point was highlighted by participants of the workshop on 26th November.</td>
<td>Influential public and private sector leaders need to work together to support local firms and also send clear messages to innovators outside our City Region.</td>
</tr>
<tr>
<td>9. Tapping into corporate philanthropy can help propel change and provide leadership</td>
<td>Leeds City Region performs poorly currently in terms of corporate philanthropy due to the lack of big employers in the region, but could learn from the likes of Grand Rapids, Michigan as to how best to harness the concentration of corporate HQs in the region.</td>
<td>A stronger story needs to be told about Leeds City Region by a figurehead who is championing the region as ‘open for innovation’.</td>
</tr>
<tr>
<td>10. Transport investment &amp; the links they generate can be a catalyst for wider innovation</td>
<td>Leeds City Region internal transport connections are generally perceived to be very poor and the population, whilst large, is quite disconnected. Leeds City Region could better learn how to better exploit a critical mass of innovative talent from Zurich &amp; Medellin.</td>
<td>Embracing the principles of a Smart City and Smart Transport</td>
</tr>
</tbody>
</table>
LEEDS CITY REGION: A STRATEGIC FRAMEWORK TO IMPROVE OUR INNOVATION PERFORMANCE
Drawing on the wide and deep body of evidence and insight we have generated, Leeds City Region has identified a set of long term priorities for action on which partners will focus effort and investment. Taken together this framework of actions will:

- spread a commitment to innovation across the City Region
- stimulate globally competitive innovation in our priority sectors
- develop the next generation of innovators and smart city infrastructure to compete tomorrow.

This is a long term strategic plan which requires concerted effort by public and private sectors and which reaches out into the academic, commercial and community arenas. Our evidence trawl has flagged up that innovation is a broad ranging agenda which requires a focus on:

- **hard and soft interventions**: providing physical spaces and infrastructure for innovators alongside efforts to address underlying cultures and behaviours
- **top-down and bottom-up perspectives**: leadership and vision from the key players needs to be matched with broad based change among the learners, SMEs and residents of Leeds City Region
- **near & longer term agendas**: immediate opportunities need to be quickly exploited while we also prepare ourselves to be better able to capitalise on, as yet uncertain, down-stream challenges
- **requires a focus on supply and demand**: balancing the potential in the Leeds City Region’s ideas, people and institutions against the commercial realties and market opportunities in the global market place and our businesses’ ability to compete.

We have concentrated our priorities where we can see an alignment of our distinctive business strengths and research excellence. We have deliberately been selective in focusing on those places, technologies and sectors where we believe we can make a difference and see genuine innovation-led economic growth emerge. Throughout the rest of this section, we set out our three strategic priorities and a set of actions and proposals which will help Leeds City Region realise its innovation Vision:

**LEEDS CITY REGION AIMS TO HAVE THE STRONGEST INNOVATION SYSTEM IN THE UK, OUTSIDE THE SOUTH EAST, AND WILL BE SUCCESSFULLY COMPETING GLOBALLY TO ATTRACT TALENT AND INVESTMENT INTO OUR PRIORITY SECTOR BUSINESSES AND INSTITUTIONS**

**PRIORITY 1: DRIVING UP INNOVATION APPETITE ACROSS THE CITY REGION**

**OUR VISION: TO SPREAD A COMMITMENT TO INNOVATION ACROSS THE CITY REGION**

Our Objectives

**1A Innovation Leadership**: Boost innovation leadership by better co-ordinating actions and investment, and bringing together people and ideas to collaboratively exploit innovation opportunities.

**1B Innovation Know How**: Develop a strong pool of people with the skills and insight to oversee and implement innovation-led change in our businesses, public sector organisations and communities.

**1C New Platforms**: Better connect innovation challenges with innovation solutions.
# PRIORITY 1: ACTION AREAS

## INNOVATION ANIMATEUR

### Aims

To catalyse and stimulate action on innovation across Leeds City Region by developing and curating intelligence, insight and stories. Although there are merits in a figure-head, the animateur role shouldn’t just be filled by a single person or even an organisation; that is too much to expect a single person or entity to achieve. Instead, Leeds City Region should nurture a network of Innovation Advocates/Animateurs to build the buzz and who can facilitate connections, tell the stories and articulate the vision. Crucially the Animateur will provide leadership in bringing together investors and agencies, challenge people to strive for more and sowing the seeds of change in the City Region.

### Rationale

- Our workshop event uncovered a clear view that despite having real strengths, the City Region does not successfully communicate what it has and what could be achieved. There is strong sentiment focussed on making Leeds City Region a more supportive innovation environment which recognises our influential people must work together in order to realise our potential.

- Through the whisper study we learned that we already have a strong network of innovation influencers who have a voice. Networks such as this need to be animated and scaled-up so that our plans are heard across our communities and beyond the Leeds City Region area.

- At present only 37% of firms in Yorkshire and The Humber can be considered broader innovators (the widest definition of innovation) compared to a national average of 39% (UKIS 2010). The Innovation Animateurs need to encourage firms to more proactively adopt innovation behaviours.

- Birmingham Science Park at Aston (Feb 2013) recently started a similar initiative with three leading entrepreneurial figureheads, and Vienna and Zurich have both set good practice examples.

### Critical Activities

- Champion innovation across the private and public sectors and support innovative investment, with a particular focus on changing procurement behaviours to support more intelligent working/purchasing/investment decisions

- Co-ordinate promotion of innovation, collate compelling stories that can be retold, and embed core innovation messages in marketing campaigns, especially building on opportunities from events, to generate positive innovation perceptions of Leeds City Region

- Develop and disseminate innovation success stories internally and externally to support inward investment and engage with national innovation investors to channel more attention towards Leeds City Region

- Assist inward investment, particularly focussing on attracting HQs and new agencies undertaking research & innovation
Critical Activities

- Establish a panel of innovation advocates who can lead the push for a stronger and wider appetite for innovation, and who will actively stimulate public and private sector collaboration on innovation
- Build on the whisper study to establish a lasting and curated network of local innovation leaders who can disseminate insights and rally others to get more closely involved in driving forward our innovation plans
- Push public and private agencies to aggressively open up their data for exploitation by local businesses and innovators, and encourage local business and agencies to compete for innovation awards
- Drive forward and monitor implementation of the Innovation Plan for Leeds City Region

Target Beneficiaries

<table>
<thead>
<tr>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public and private sectors across Leeds City Region, as well as investors across the UK and globally</td>
<td>Local Authority, ERDF, LGF, Private Sector</td>
</tr>
<tr>
<td>• Increased innovation appetite</td>
<td></td>
</tr>
<tr>
<td>• Better understanding of Leeds City Region’s innovation offer &amp; plans</td>
<td></td>
</tr>
<tr>
<td>• Enhanced collaboration among the innovation active community</td>
<td></td>
</tr>
<tr>
<td>• Increased number of firms that innovate.</td>
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</tr>
</tbody>
</table>

INNOVATION FORESIGHT

Aims

To generate a body of stimulating insights and intelligence on market opportunities and global trends to guide investment and stimulate collaborative exploration of emerging market and technological opportunities and to better prepare Leeds City Region to respond to threats and challenges down the line.

Rationale

- Consultations have uncovered concerns that Leeds City Region may not be sufficiently extrovert and inquisitive. Leeds City Region must be risk taking in its approach in order to make the most of its existing assets and to take advantage of the opportunities coming its way.
- Leeds City Region has clear strengths across the Eight Great Technologies that UK government expects to drive future economic growth and many of these align well with our identified priority sectors. Leeds City Region has a real chance to build on this strong alignment and develop a longer term and more detailed understanding of the emergent trends and opportunities opening up globally.
- Low levels of government and HE investment in R&D suggest we may not be fully preparing the Leeds City Region economy to capitalise on these breaking opportunities.
INNOVATION FORESIGHT

Critical Activities

- Develop easy to digest packages of economic foresight and intelligence to stimulate business understanding of the productivity benefits from innovation and to better understand how other businesses and cities are making progress.
- Detailed investigation to identify how trends within the Eight Great Technologies are expected to create market opportunities for SMEs in our priority sectors.
- Continually showcase how other cities and businesses are exploiting and building their innovation potential.
- Secure resource for more detailed market/product area research investigations to develop a better understanding of Leeds City Region’s potential, including an early warning signal to kill-off ideas which are not developing into commercial opportunities.
- Drive forward a commitment among Leeds City Region’s bigger agencies and businesses to open up data and allow local SMEs and researchers to experiment and innovate with new analytical tools and techniques which could be rolled out nationally and internationally.

Target Beneficiaries

- Businesses, public bodies, HEIs, innovators and entrepreneurs

Target Outcomes

- Wider understanding of opportunities and threats facing Leeds City Region, especially among the Great 8 & our priority sectors
- Better intelligence to shape Leeds City Region’s innovation services and investments
- Greater collaboration with and learning from other cities and markets globally.
- A stronger appetite for longer term risk taking, guided by excellent foresight intelligence

Potential Investment Sources

- Private sector, HEIs, Research Councils, private investors
**INNOVATION LEADERSHIP**

**Aims**

To ensure that Leeds City Region has a core and growing cadre of business and public leaders committed to driving innovation forward in their workplace and communities.

**Rationale**

- Although Yorkshire has one of the highest growth rates of business R&D expenditure, in real terms it is the second lowest out of all regions in the country (£543m) and suggests Leeds City Region’s business leaders are not developing the products and processes needed to capitalise on new market opportunities or to face up to new competitive pressures.

- Our consultations and results from the Leeds City Region’s Business Survey indicate that SMEs in particular rely heavily on in-house resources to drive their innovation and so are perhaps not as fully engaged in knowledge sharing as their competitors.

**Critical Activities**

- Mentoring & business angels to advise and nurture early-stage entrepreneurs in the nascent business planning phases of start-ups by providing sage guidance and motivational inspiration, while stimulating ambitious growth trajectories.

- An energising and challenging leadership programme to build a local network of SME and public sector leaders with a clear understanding of the tools and solutions needed to assess and overcome business challenges. A programme of workshops, study visits, networking and reflection would help managers create value for customers and stakeholders, drawing on insight from the fields of business model engineering, technology development, neuroscience and practical thinking skills.

- A competitive pool of up to (say) five bursaries per annum to finance places on globally recognised innovation programmes for outstanding innovators in SMEs across the Leeds City Region with a commitment to share insights back in Leeds City Region networks.

- Forge public and community sector partnerships with innovative cities outside the UK to inspire ambition, stimulate learning, generate ideas/solutions and forge collaborative relationships to help set Leeds City Region’s collective sights higher and wider.

**Target Beneficiaries**

- Business and public sector senior managers and leaders
- Early stage entrepreneurs

**Target Outcomes**

- Enhanced management commitment to innovation in businesses and public sector agencies
- Increase in total amount of business expenditure on R&D, particular in longer term product & process development
- Increase SME engagement in external networks and with collaborators.

**Potential Investment Sources**

- Direct: Private sector, ERDF
- Indirect: Growth Accelerator, Growth Hub
## INNOVATION SKILLS

### Aims
To ensure that a growing base of people working in our businesses and institutions are empowered to contribute to driving up innovation outcomes and that innovation principles are embedded into skills development programmes across the Leeds City Region.

### Rationale
- Despite a large population, Leeds City Region has a narrower pool of working age people with the STEM skills often associated with higher levels of innovation in an economy. We need to respond to this challenge, and the view expressed anecdotally that our business culture can be traditional and risk averse, by better empowering and up-skilling our current workforce with the know-how and insights which will trigger their involvement and commitment to innovation in the workplace.
- A below average proportion of Leeds City Region firms are broad innovators (UKIS 2010), a term which includes innovation across a wide spectrum of business activities including R&D, product development and marketing. By equipping more employees in our City Region with the training and know-how of innovation and its importance, the Leeds City Region will be better able to more quickly drive change from within (and mitigate the pressure on the wider and more complex challenge of a more fundamental restructuring of the labour market).

### Critical Activities
- Develop (& potentially deliver) a general purpose module on innovation principles and practice which can be adopted for a range of different Continuous Professional Development (CPD) courses and which is aimed at encouraging all staff to understand the importance of continuous innovation and which will better prepare them to proactively innovate at work.
- Work with and support CPD providers (inc Colleges) on steps to embed innovation into established training programmes and courses on offer across the Leeds City Region, drawing in practice from internationally recognised courses.
- Promote the importance of CPD (with an innovation focus) upon businesses and explore opportunities to make it easier for employees to attend.

### Target Beneficiaries
Leaders and employees in organisations seeking to broaden innovation across the workforce, in their services and in their approach.

### Target Outcomes
- Drive up innovation awareness and aptitude in the Leeds City Region workforce
- Increase levels of proactive, self-starter innovation in the workplace
- Achieve an overall increase in the number of businesses that are innovation active.

### Potential Investment Sources
ESF, HEIs, FEIs and private providers of CPD.
### INNOVATION CHALLENGE COMPETITIONS

**Aims**

To create a platform which supports collaborative open innovation involving businesses and institutions with the express purpose of cross-fertilising ideas and solving challenges across sectors and between institutions.

**Rationale**

- Leeds City Region needs more churn in its business base. Our economy is too reliant on long-established companies (44% of total business base aged 10+ years) and has too few new firms (16% of total business base established for less than two years) (ONS, 2013). In London only 34% of firms are over 10 years old.
- Leeds City Region’s business start-up rate and the accompanying failure rate are comparatively low too, suggesting we are not drawing in a sufficiently strong and vibrant feed-stock of new ideas and entrepreneurs needed to constantly refresh our competitive edge.
- Businesses in Leeds City Region have attracted too little of the TSB’s own challenge competition resource, in part because their focus is not always greatly aligned to our SME strengths and interests.
- The Innovation Commons and initiatives like the Open Living portal being pursued by the Liverpool LEP provide examples of how to operate these competitions/challenges and to get real crowd entrepreneurial input, rather than committee/panel input.

**Critical Activities**

- Establish an Innovation Challenge Portal (building on the Genius York model) which can commission enquiries into key innovation challenges facing the business and communities of the Leeds City Region. Open invitations would be issued to generate proposals for challenge ideas which can then be short-listed and selected by the Challenge Panel who would oversee short enquiries to generate potential solutions. The strongest ideas should be supported to progress through to feasibility testing and early-stage implementation.
- Challenge Competitions offering higher risk, small investments (£10,000 to £30,000) to fund more detailed exploratory projects with the strongest potential (including those emerging from the Innovation Challenge Panel) to test and develop innovation solutions to business challenges. These competitions should be designed to align closely with the Leeds City Region priority sector and their supply-chains.

<table>
<thead>
<tr>
<th>Target Beneficiaries</th>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
</tr>
</thead>
</table>
| SMEs, entrepreneurs, innovators, the community and researchers. | • Channel small packages of investment into high risk exploratory investigations  
• Stimulate collaborative partnerships between sectors and organisations  
• Increase levels of entrepreneurial activity and the Leeds City Region business start-up rate | LGF, ERDF, HEIs, Private Sector |
### Knowledge Access Point

#### Aims
To allow SMEs to more easily identify research expertise and support and better re-orientate the HEI offer around the needs of Leeds City Region businesses.

#### Rationale
- Smaller firms predominately depend on in-house resources for R&D (87% of firms surveyed), with only 24% interacting with universities and 16% with research associations, in part due to the complex challenge of finding appropriate support in our HEIs.
- Although Leeds City Region HEIs have grown the level of consultancy work they do, we appear to be some way below the highest levels of performance and have scope to deliver more and better exploit the knowledge embedded in our research organisations.

#### Critical Activities
- Develop new intelligent tools (perhaps as part of a Challenge Competition) for harvesting intelligence on HEI competence, research programmes and capacities which use the latest data analytics to identify expertise locally and globally for SMEs to tap into.
- Provide SMEs in the Leeds City Region with privileged ready access to real time intelligent web based insight into the capacities, support and expertise available on their doorstep.
- Create a facility for SMEs to publish their research enquiries and allow our research institutions work out how best to serve this need or signpost them to better sources of assistance.

#### Target Beneficiaries
- SMEs & Researchers

#### Target Outcomes
- Better align Leeds City Region HEI services with local SME demand
- Drive up Leeds City Region HEI consultancy income
- Increase the proportion of SMEs that engage external support from HEIs

#### Potential Investment Sources
- HEIs, SME Community
PRIORITY 2: STRONGER INNOVATION PERFORMANCE

OUR VISION: TO STIMULATE GLOBALLY COMPETITIVE INNOVATION IN OUR PRIORITY SECTORS

Our Objectives

2A Innovation Support for SMEs: Increase the quality and volume of innovation support available to and used by SMEs

2B Innovation Hot Spots: Establish physical centres where concentrations of innovation activity can occur

2C Innovation Assets: Strengthen our knowledge assets which support four of the Eight Great Technologies and align with Leeds City Region growth priority sectors

INNOVATION ADVICE & GUIDANCE

Aims

To provide SMEs with a comprehensive package of advice and guidance to help bring forward innovative solutions, enhance competitiveness in new markets and drive diversification.

Rationale

- Too few of our existing business are classed as broad innovators for us to remain competitive and too few seek external help in taking forward their innovation commitments.
- The supply of business support has become centralised and complicated, making it harder for SMEs to easily identify appropriate innovation support configured around the growth and sector opportunities prioritised by Leeds City Region.

Critical Activities

- Innovation Advisor Support: on-site and web based one to one support advising SMEs on how to implement innovation solutions in their workplace and exploit the innovation potential of new processes and projects. This support could largely be drawn from existing services but with some added focus on the identified Leeds City Region priority sectors and their specific needs and opportunities.
- Innovation Vouchers: multi-purpose resource to help fund the costs of small packages of technical review and advice for SMEs. These vouchers would complement the national Technology Strategy Board scheme, but be dedicated to buying in expertise from around the world for aspects of IP exploitation and registration (eg use of Patent Box), rather than general support, which should be sought through the TSB scheme, and have an emphasis on businesses in the City Region’s key sectors.
INNOVATION ADVICE & GUIDANCE

Critical Activities
• Staff Placements: resource to help reduce /cover the transaction costs of setting up secondments between organisations seeking to jointly develop new innovation projects. This may involve business-academia arrangements as well as business-business arrangements where there is a sound rationale. This resource should be used in part to bring expertise into Leeds City Region from elsewhere in the UK and abroad.

Target Beneficiaries

<table>
<thead>
<tr>
<th>Target Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increase the number of SMEs using external support to help implement innovation</td>
</tr>
<tr>
<td>• Increased levels of open collaborative innovation</td>
</tr>
<tr>
<td>• Increase the number of SMEs that innovate</td>
</tr>
</tbody>
</table>

Potential Investment Sources
<table>
<thead>
<tr>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>Direct: ERDF</td>
</tr>
<tr>
<td>Indirect: national services, eg Growth Accelerator, MAS, UKTI, etc</td>
</tr>
</tbody>
</table>

INNOVATION FINANCE

Aims
To ensure a comprehensive portfolio of finance is available to SMEs looking to innovate, and that Leeds City Region businesses draw down the existing national (and regional) resources which businesses elsewhere appear to be attracting more successfully. The primary focus should be to ensure finance for innovative businesses is readily available from existing sources of investment rather than to establish new mechanisms.

Rationale
• Over the period 2009-11 government expenditure on R&D (GovERD) in Yorkshire remained constant at £60 million, the lowest across all regions in England. Similarly, higher educational institutions’ expenditure on R&D (HERD) in Yorkshire decreased over the period 2009-11, from £510m to £500m.
• The Leeds City Region has not been as successful as competitor LEP areas in attracting TSB investments – we rank 17th out of 39 LEPs in terms of our per-business drawn down from TSB investment opportunities.

Critical Activities
• Since the economic downturn, available seed funding from venture capitalists has strongly declined, limiting funding sources for SMEs.
• Advice & Investment Readiness: promoting existing financial solutions such as TSB grants/competitions, EU Agenda 2020 schemes, private resources, government incentives such as R&D Tax Relief, and emergent solutions such as crowd funding. This package of support should provide businesses with advice on making compelling proposals for investment and preparing businesses to draw down external investment (and the obligations which will go with it).
INNOVATION FINANCE

Critical Activities

- Replication of TSB and NESTA investment: these investment programmes are an example of best practice although they only reach a small segment of those who apply. There are many viable applications that do not receive funding, but which could be supported through a similar programme led at the regional level by the LEP BIG panel. These could include grant funding to applicants as well as competitions.

- Regional Innovation Investment: Leeds City Region businesses already benefit from access to JEREMIE and partners should continue to support these facilities to ensure support is available for improved innovation outcomes and that there is an emphasis on start-ups, innovation and the cross cutting themes, such as open & big data, social innovation, sustainability & resilience, health, energy, housing, connected people & places.

- Innovative Local Investment Solutions: Leeds City Region partners should formally explore the gaps in the market for innovation finance aimed at SMEs. There are a range of local innovative solutions that use new techniques such as crowd sourcing and peer-to-peer lending, and which could be expanded to generate greater local momentum.

Target Beneficiaries
SMEs with an appetite for innovation and growth potential.

Target Outcomes

- Increase deal flow for innovation to Leeds City Region SMEs
- Increase Leeds City Region SMEs’ success rate in successfully landing national innovation investment support

Potential Investment Sources
Private Sector, HEIs, ERDF

INNOVATION ACCELERATOR

Aims
To work with the private sector to develop a series of innovation workspace hotspots (or Impact Hubs) with the facilities to house collaborative projects, incubate new start-ups, and drive forward inter-company and cross-sector collaboration. These innovation hubs would be the focus for new high growth and high risk start-ups and provide a platform to showcase the exciting environment Leeds City Region can offer to budding entrepreneurs and potential investors.

Rationale

- Consultations among the Leeds City Region’s business and innovation community have highlighted a shortage of flexible space that can accommodate innovative start-ups and act as a magnet for those want to engage with them.

- Our review of other cities has shown examples in Eindhoven & Toronto that could form the basis of successful new investment in start-up workspace and we know competitor cities such as Manchester are already better served than we appear to be.

**INNOVATION ACCELERATOR**

### Rationale
- Accelerator programmes are widely acknowledged as a fundamental component to a competitive City Region attracting and retaining entrepreneurial activity. Recently published research by MIT Sloan School of Management (2013)\(^{13}\) ranked the US's top accelerator programmes which provides plenty to guide Leeds City Region. The number one seed accelerator (Y Combinator) is based on a model which twice a year invests in around 70 start-ups, which then move to Silicon Valley for a 3 month period during which they develop their pitch to investors. This model has already been adapted by Ignite100, one of the few accelerators in the UK to run outside of London in Newcastle\(^{14}\).

### Critical Activities
- **Workspace:** flexible and small unit desk facilities offering the very best ultra-fast broadband and data storage/processing facilities, as well as standard business needs like reception and shared meeting rooms.
- **Mentoring:** a programme of on-site support available to entrepreneurs, including group workshops advice and guidance on the business start-up process.
- **Investment Access Support:** a series of investor showcase events allowing early start-ups to present their ideas to potential investors and get early informal advice, plus build relationships which could quickly mature into commercial arrangements. Plus also a ready home for technology investment funders.
- **Hosted Start Up Accelerator Programmes:** adopting the established lessons from the best in the field identified by MIT.
- **Meeting space to host events and stimulate wider interest and engagement in innovation including among our public sector organisations and communities.**

### Target Beneficiaries
- Micro Businesses, SMEs and Large & Corporate business with innovation teams with an appetite for innovation growth potential.

### Target Outcomes
- Generate attention and interest in Leeds City Region’s commitment to innovation
- Attract business start-ups and better connect them to sources of investment & mentoring advice
- Drive up the survival rate and growth prospects of high risk

### Potential Investment Sources
- **Direct:** Private Sector
- **Indirect:** See Business Support Sources above

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\(^{13}\) 2013 Seed Accelerator Rankings, Yael V. Hochberg, Sloan School of Management, [http://yael-hochberg.com/rankings.htm](http://yael-hochberg.com/rankings.htm)

**INNOVATION QUARTERS**

**Aims**
To develop a limited number (two or three) of central locations across the region with the cultural offer, workspace, infrastructure, public realm and profile needed to attract and excite innovators. Learning from the progress made by other cities and the lessons from successful innovation-led clusters, we plan to concentrate on the mix of factors which provide creative spaces, drawing interest and investment in innovation among young entrepreneurs.

**Rationale**
- Innovation Quarters should be special and distinctive, which immediately points to them being few in number. First priority should be given to city-centre locations close to a large university, with good connections to the transport network, an existing cultural offer and a solid base of start-ups on which to build. Leeds and York would be the two logical places to explore initially. Other locations across Leeds City Region may also be encouraged to look at establishing an Innovation Quarter, but partners should be wary of diluting the concept and instead try to concentrate on scarce assets. Leeds Dock-Engine represents an immediate opportunity as Allied London has submitted a planning application to develop Engine Leeds, a mirror of Tech Hub London and their Tech Hub in Manchester.

- Although innovation needs to happen across the City Region, lessons from elsewhere have also pointed to the value of identifying a location for concentrated attention and equipping it with (and being near to) the facilities needed to help businesses start up and grow and the wider support / infrastructure which attracts new creative firms. These include the much vaunted London Tech City Cluster and 22@Barcelona - which has now attracted 4,500 firms in the last decade with links to 10 universities, 12 R&D clusters and new spaces for start-ups.

- Since 2009, only Leeds and York have seen a real increase in the annual number of start-ups, which is almost certainly in part driven by their access to markets and labour. Competitive knowledge-based clusters are underpinned by concentrating essential resources such as talent, ideas, capital and technology into clearly identifiable places so they are easy to access and collaborations are more readily established.

- The footloose nature of these entrepreneurs allows them to be highly selective about where they work and live. This puts a premium on ensuring the right mix of work and leisure are available (even though the distinction may be blurred) and there is a reputational cachet associated with the place.

- Our consultation workshop revealed a strong desire for designated physical spaces, both formal and informal, that facilitate the coming-together of people to speak, share ideas, and interact and where serendipity can germinate new projects. Research from MIT emphasises that despite the importance of tech for communicating, face-to-face interactions are the best way to develop relationships in the innovation ecosystem.

**Critical Activities**
- Planning: use local authority planning policy to designate (initially up to two) quarters where development activity can be focused on securing a mix of workspace, bars and entertainment venues. Critical to the mix is creating spaces where chance encounters can lead to unplanned collaborations.
**INNOVATION QUARTERS**

<table>
<thead>
<tr>
<th>Target Beneficiaries</th>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovators &amp; entrepreneurs</td>
<td>• Generate external attention and interest in Leeds City Region’s commitment to innovation</td>
<td>Direct: Private Sector</td>
</tr>
<tr>
<td></td>
<td>• Channel investment interest and entrepreneurs into high quality destination equipped to</td>
<td>Indirect: Public Sector (via planning)</td>
</tr>
<tr>
<td></td>
<td>support and reward innovation led start-ups.</td>
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</tbody>
</table>

**BIO ASSETS**

**Aims**

To secure new innovation and research capacity to better exploit Leeds City Region’s expertise in a range of bio-related agendas. The principal focus will be developed under the banner of BioVale, a one-stop shop on bio-renewables to help business navigate from initial R&D through to commercial exploitation of products.

**Rationale**

- The Leeds City Region has a clear research advantage in the bio-arena with the presence of York University’s excellence in agri-tech and the nearby Sand Hutton Applied Innovation Campus run by the Food & Environment Research Agency. There is also food related research expertise at Leeds and a complimentary link with our research strengths in the wider health agenda and the big data expertise we also have in Leeds.
- Agri-Science is also recognised by UK national government as one of the Eight Great Technologies which will underpin a broad range of innovation developments across a wide set of sectors globally.
- Leeds City Region partners have already committed to further developing Food and Drink as a priority growth sector and building on our existing employment concentration, and presence of some important HQs, and to address recent contraction in the employment base.
- Developing Supply Chains: a Bio-based Supply Chain Initiative (BBSCI) scheme modelled on the Advanced Manufacturing Supply Chain Initiative (AMSCI) to provide grants or loans to address barriers that hold back bio-based supply chains (e.g. SME investment or research and development).

**Critical Activities**

- R&D & Innovation: a funded innovation programme to support open access technology facilities such as the Biorenewables Development Centre (BDC) and the Green Chemistry Industrial Engagement Facility. This initiative will bridge the substantial gap between the region’s agriculture, industry and its R&D knowledge base, and draw new industries into the bio-based innovation environment while also promoting movement of staff between the academic and private sector science base.
Critical Activities

- **Business Growth**: BioHub, a mixed-use, high-profile bio-renewables business escalator which would support businesses to progress from incubator space to large-scale manufacturing and utilise existing larger-scale laboratory space close to the University of York.

- **Training**: A self-supporting programme of apprenticeships for younger people developed in collaboration with industry and local training providers. A series of short courses for more mature staff focused on technology, leadership or management skills such as access to finance, policy overviews and developments in legislation, standards and IP.

- **Trade & Investment**: Promoting Yorkshire as a hub for the bio-economy, working with the regional business support services and inward investment organisations (e.g., UKTI and the SIN network) to develop an online portal, social media, public speakers, trade missions, and hosting or exhibiting at international conferences, as well as participating in co-operative activities with other international clusters.

Target Beneficiaries

<table>
<thead>
<tr>
<th>Target Beneficiaries</th>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
</tr>
</thead>
</table>
| Bio-SMEs and larger businesses & investors in the Food and Life Sciences Sectors | • Better exploit research and intelligence to drive innovation-led growth in our food and drink sector  
• Further strengthen research expertise across the bio agenda  
• Better exploit cross-discipline opportunities to integrate agri-science, bio and health research | ERDF, private sector, HEIs, Research Councils, LGF |

**HEALTH ASSETS**

**Aims**

Develop new innovation and research facilities which will position Leeds City Region as the UK’s first Health and Innovation City Region built on a network of businesses, innovators, entrepreneurs and academics across a health ecosystem and which drives innovation among our businesses while securing better health and wealth outcomes for our people.

**Rationale**

- Leeds City Region has an enormous established body of research power focused around medicine and health including international expertise around Regenerative Medicine (at Leeds) and in Pharmaceutical Innovation and Cancer Therapeutics at Bradford. We also have Welmec, a Centre of Excellence in Medical Engineering, and the Innovation and Knowledge Centre for Regenerative Therapies and Devices (IKCRTD), which provides real commercial engagement and collaboration between academia and industry.

- Leeds is home to the NHS Commissioning Board as well being home to a number of major teaching hospitals.
## HEALTH ASSETS

### Rationale
- Regenerative Medicine and Big Data are both among the Eight Great Technologies identified by national government, and we have existing strengths that are expected to underpin innovation in global markets over the coming years. The preliminary Witty Review also recognises our medical technologies sub-sector around orthopaedic devices and further hot spot activity around wound care.
- Leeds City Region’s business base also houses a concentrated set of health and bio-science R&D activities.
- Physical space for innovation: a dedicated Innovation Exchange Hub (Leeds), which provides a physical space for entrepreneurs, SMEs and investors (which could be an early Innovation Accelerator).
- Communicate industry demand to the research community: a Training and Simulation Centre (Leeds) would harness the expertise of the City Region’s health and social care ecosystem to assemble investment and lead new product innovation in medical technologies and develop collaborative tie-ups with business.

### Critical Activities
- Develop the Supply Chain: a programme to link local manufacturing firms to innovation knowledge assets to ensure they are able to capture new demand for medical devices. This would build on the new Centre for Innovative Manufacturing in Medical Devices, a government-backed initiative which will bring together five UK centres of excellence in medical technology and manufacturing at Leeds, Newcastle University, and the Universities of Nottingham, Sheffield, and Bradford.
- Commercialisation: further developing the spin-out of new firms stimulated by the Innovation and Knowledge Centre for Regenerative Therapies and Devices, and the excellent work at the Institute of Cancer Therapeutics which spawned a major new anti-cancer drug spin-out. Working in concert, centres such as these can generate a critical mass of commercial engagement and collaboration between academia, industry and the NHS which would make the Leeds City Region the logical place for the next generation of health-tech start-ups.

### Target Beneficiaries
- Life Science Sector (including related manufacturing) & potentially digital & creative sector

### Target Outcomes
- Better exploit research and intelligence to drive innovation-led growth in our life sciences sector
- Develop strong links between our life sciences sector and advanced manufacturing plus big data expertise.
- Further strengthen research expertise across the health sciences sector

### Potential Investment Sources
- ERDF, private sector, NHS, HEIs, Research Councils, LGF
### DATA ASSETS

#### Aims

New innovation and research facilities offering businesses better access to computing power, research expertise, data and commercial opportunities to exploit the huge potential of big data analytics for the Leeds City Region. Opportunities to exploit the huge potential of big data analytics for the Leeds City Region.

#### Rationale

- The University of Leeds ranks first in the UK for Big Data research and York first in Information Economy, and it is a cross-cutting theme for many of the other City Region research strengths in the areas of life sciences, bioinformatics and transport optimisation. Leeds has also recently been awarded funding to establish the Consumer Data Research Centre as well as a Masters programme in big data analytics.
- We have clear potential to become a national leader in this field, which the UK government recognises as one of the Great Eight, with huge scope for further globally driven innovation and expansion.
- the City Region’s base of health, finance and of course creative/digital business are recognised priority sectors which can benefit from further innovation and better alignment/collaboration with our existing research facilities.
- Build Sector Networks: amplify and animate the emerging open data enablers that have been recently established for the benefit of the City Region, i.e. the Open Data Institute (ODI and the Leeds (City Region) DataMill.

#### Critical Activities

- Developing skills: support data analytics training through Leeds’ Centre for Excellence to generate the highly skilled data analysts needed to compute massive amounts of information. The City Region must ensure that: 1) universities have courses on offer that up-skill students to work in the field of open data; and 2) that open data is promoted as a high growth industry with practical application locally.
- Cross sector application: big and open data creates opportunities in a range of sectors, but industry must be aware of what information is available to them. The University of Leeds is the leading UK academic centre in big data and analytics and this expertise should be harnessed to exploit the potential in three key areas: health/informatics (high growth), manufacturing modelling (large sector), and finance (low growth potential but large market).
- Industry adoption: provide local businesses with the opportunity to commercialise and test-bed data services before rolling out business models across the UK and globally. A Big Data Institute at Leeds University would provide this range of support and develop formal data sharing arrangements to drive analysis of information that exists and flows within the city, beginning with health, social care and well-being.
- Supporting infrastructure: there are key sector opportunities for big and open data in health, genomics, epidemiology, satellite, robotics, synthetic biology, manufacturing and finance. Assets such as the Credit and Risk Management Research Centre at University of Leeds, the National Consumer Data Research Centre (Leeds & ULC) and the Centre for Research in Electronic Health Records (with high volume molecular data, such as genome sequences) clearly map against some of our identified opportunities. Leeds City Region needs to explore how the full range of expertise and capacity can be harnessed to support and exploit these other emergent market areas.
## DATA ASSETS

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<th>Target Beneficiaries</th>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
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| Sectors including health and life sciences, satellite and robotics, manufacturing, and finance & potentially the digital & creative sector | • Become a national leader in big data and work to develop national and international linkages between with commercial growth opportunities.  
• Further strengthen research expertise across the big data spectrum in Leeds City Region HEIs  
• Better exploit research and intelligence to drive innovation-led growth in our digital, finance and health sectors. | Private sector, HEIs, TSB, NHS, Research Councils, LGF |

## ADVANCED MANUFACTURING & ENGINEERING

### Aims
Further explore scope for new innovation and research facilities to better engage with the local business base, to identify opportunities to better access new research, development capacity, workspace and support. The advanced manufacturing & engineering agenda is less well developed in Leeds City Region and the opportunities for new innovation assets are less clearly identified at this stage. However, the match between the local business base, the global opportunities for advanced materials and the existing engineering research capacity in our HEIs suggest there is as yet untapped potential to be exploited.

### Rationale
- Leeds City Region has a long tradition of manufacturing industry and has identified advanced manufacturing & engineering as one of its priority growth sectors, building on recent excellent job growth performance.
- Advanced manufacturing is recognised as a priority sector in the UK Industrial Strategy and advanced materials is recognised one of the Eight Great Technologies with far reaching global growth potential.
- The sector underpins growth and innovation in other important parts of the Leeds City Region economy such as life sciences and food & drink.
- Leeds University ranks 8th nationally for advanced materials and is home to the Centre for Molecular Nanoscience and Nanofactory.

### Critical Activities
- Supply Chain Development: the Rail Research Centre at Huddersfield University is already well established and resourced, and operates near to market. There is scope to build on this platform connected to innovation and crowd funding.
Critical Activities

- Advanced manufacturing and its innovation potential cuts across several of Leeds City Region’s priority sectors. There are early signs of activities at the sector level which have the potential to develop into future opportunities. The sector specific activities below should be closely monitored and better understood in order to ensure their impact is maximised:
  - Health and care: Centre for Innovative Manufacturing in Medical Devices and Health Centres for Piezoelectrics (University of Leeds) and cross over with the self-organising Molecular Systems and the Nanofactory at University of Leeds. The technology transfer initiatives at Nanofactory are a step in the right direction and should be studied to determine if it is a replicable model for engagement.
  - Materials: Centre of Polymer Micro and Nanotechnology (University of Bradford) and Plastics, Polymers and Metals, and Centre for Innovative Manufacturing in Advance Metrology; University of Huddersfield (in partnership with NPL & STFC). The Centre for Innovation Manufacturing and Advanced Metrology has engaged in a number of knowledge transfer partnerships, but it is imperative that Leeds City Region has a relevant business base in this area that is capable of engaging in such partnerships. Here, the Priority 1 Action Areas will be needed to support our business base. There appears to be scope in Huddersfield to further exploit colour chemistry expertise too.

Target Beneficiaries

SMEs and corporates working in the wide field of advanced manufacturing and engineering.

Target Outcomes

- Better understand scope to build Leeds City Region’s advanced manufacturing and engineering knowledge assets.
- Encourage HEIs to come forward with ambitious plans to better support the sector locally to grow and innovate.

Potential Investment Sources

Private sector, HEIs, TSB and Research Councils
PRIORITY 3: NEW SOURCES OF INNOVATION

OUR VISION: TO DEVELOP THE NEXT GENERATION OF INNOVATORS AND SMART CITY INFRASTRUCTURE TO COMPETE TOMORROW

Our Objectives

3A) Grow Our Next Generation of Innovators: ensuring today’s school and university learners have the appetite for driving innovation throughout our economy.

3B) Smart Cities: Prioritise a smart agenda for our cities which uses open data and information to improve energy, travel, and infrastructure efficiency.

YOUNG INNOVATOR

Aims

To nurture a new cadre of young innovative entrepreneurs working, living and creating in the Leeds City Region economy; also to ensure our graduates and college leavers are equipped to play their part in pushing innovation boundaries forward in the workplace and their communities.

Rationale

- There are eight Higher Education Institutions (HEIs) in Leeds City Region that educate around 120,000 students at any one time and produce 35,000 graduates each year, many in the important STEM subjects.

- Despite this, Yorkshire’s businesses have a below average proportion of graduate employees with STEM related degrees (UKIS, 2010), i.e. 5% compared to highs of 11% in London and 7% in the South East.

- Levels of start-up performance in the Leeds City Region suggest that we are losing out in terms of graduate entrepreneurs looking to set up and grow their businesses in the city-region.

Critical Activities

- Establish a matching service to better hook up graduate & student entrepreneurs with support schemes which engage global companies to incubate and guide new ideas by sharing their capacity and expertise, such as the recently announced Proctor & Gamble partnership & national schemes such as Collider.

- Offer rotational innovation internships to a limited number of exceptional students based on a year-long investigation-led Masters level programme. This would offer them the chance to work and explore in a series of highly innovative SMEs while developing a year-long innovation project and securing an accredited qualification.

- Create a competitive grant pot to offer small amounts of start-up finance (up to £10,000) to take innovative final year project ideas into prototyping and commercial testing. The grant incentive would be promoted by participating courses to drive up interest in enterprise and innovation among students.
Critical Activities

- Up to two years of business start-up mentoring advice for young (under 25) entrepreneurs seeking light-touch guidance to help them navigate through the early stages of establishing a business. The offer would include help with making links with potential collaborators, preparing for finance, making introductions to potential clients and basic business planning.

Target Beneficiaries

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<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
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<td>Young innovative entrepreneurs 16-25 years old</td>
<td>• Increase the number of STEM graduates working in Leeds City Region businesses</td>
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<td>• Increase the retention rate of STEM graduates</td>
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<td>• Raise graduate enterprise levels</td>
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<td>HEIs, local colleges, private sector</td>
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SCHOOL LEARNER INNOVATION

Aims

To ensure Leeds City Region’s schools are producing bright young people with the core attributes to equip them for working in innovative organisations and help guide them to fulfil their potential in a fast moving, challenging business environment.

Rationale

- GCSE attainment is improving, but skills levels vary markedly within the City Region. The proportion of the working age population with good GCSE or higher qualifications (NVQ level 2+) ranges from 62%-63% in Barnsley, Wakefield and Bradford to around 80% in York and in the north of the LEP area. There is undoubtedly a strong link between school performance, level of ambition amongst young people, and developing an entrepreneurial culture amongst our young generation. Not all school children will progress to obtain Level 4+ qualifications, but it is important that we equip pupils with the knowhow that will allow them to adapt and contribute to changing work practices and patterns, whether as self-starters or valuable employees in our local businesses.

- The number of apprentices in the City Region is increasing. More young people began apprenticeships in business information technology and communication than any other sector in 2010/11.

- Leeds City Region citizens expressed strong concerns during the workshop that our school leavers are not prepared for entry into the workforce. It was also acknowledged that we do not yet have the culture of enterprise needed to drive up innovation and that schools have a critical role to play.
**SCHOOL LEARNER INNOVATION**

**Critical Activities**

- Financial support to cover costs involved in embedding innovation into the school curriculum. This would provide course costs and cover to allow teachers in schools across Leeds City Region to learn how to ensure children are able to play their full part in the innovation challenge ahead. This support could also include establishing a network of innovator leads in schools across the region who can learn from each other and develop effective approaches to marrying up pupils up with the innovation agenda.

- A Young Dragons competition to encourage pupils to develop and present business ideas in pursuit of awards and/or small pots of investment money.

- Gifted Innovator – offering work placements in exciting high growth, high tech innovation-led companies to a select group of talented school-age pupils who show potential. The relationships forged between businesses and schools should be used to provide a wider longer term platform for on-going engagement and partnerships which more closely involve the business community in supporting the school’s commitment to producing innovation-able pupils.

**Target Beneficiaries**

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<th>Target Beneficiaries</th>
<th>Target Outcomes</th>
<th>Potential Investment Sources</th>
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| School age learners | • Increase the number of school leavers looking to set up innovative new businesses  
• Boost numbers of school leavers studying applied STEM subjects at university and FE  
• Enhance the work-readiness and innovation appetite among school leavers. | HEIs, local schools, private sector |

**SMART INFRASTRUCTURE**

**Aims**

To ensure that Leeds City Region keeps pace with emergent market requirements by proactively securing widespread, affordable access to digital infrastructure for households and businesses and position the City Region to capitalise on opportunities from the Internet of Things.

**Rationale**

- The potentially significant market supply chain opportunities from the huge smart city agenda will only be unlocked once the smart infrastructure is in place to connect devices and share data.

- The Leeds City Region’s digital and creative sectors and its established track-record in big data research put it in a strong position to capture early mover opportunities, but only if they are accompanied by ultra-fast digital infrastructure and access points are available across the City Region.
SMART INFRASTRUCTURE

**Rationale**
- New business models and innovative start-ups increasingly demand ready access to ultrafast broadband to facilitate their business operations. Wide coverage of this high-speed internet will be necessary.
- The government-sponsored Smart Cities Forum (part of the Information Economy Strategy, 2013) will see local authorities and businesses working together to support this digital agenda.

**Critical Activities**
The Leeds City Region Digital Infrastructure Plan sets out our detailed plans for developing our digital smart infrastructure and draws on a range of intervention options:
- Connection Vouchers: small grants of up to £10k to ensure ultra/fast fibre to the property (FTTP) broadband is available to priority SMEs, building on the national voucher scheme
- Concession contracts: engaging in commercial deals with network operators to use public sector owned assets (building street furniture etc.) to extend and develop network infrastructure across the Leeds City Region
- Planning Standards: developing and enforcing planning policies to ensure all new commercial premises are equipped with future proof digital networking capacity.
- Investment Models: adopting and developing new models for investment in infrastructure alongside market investors and operators to ensure Leeds City Region is at the forefront of new solutions from the City and Europe.
- Competitive Sector Focus: Leeds City Region has sector strengths in high value sectors which, with access to faster broadband and the ICT services which run on it, can generate real competitive advantage and should be targeted to encourage adoption

**Target Beneficiaries**
- SMEs and households

**Target Outcomes**
- Increase the reach of ultrafast broadband
- Extend city centre Wi-Fi coverage
- Drive up adoption of fast broadband and exploitation of fast data driven technologies
- Position Leeds City Region as a test-bed for future smart city demonstrator projects

**Potential Investment Sources**
- Private sector, TSB, LGF, BDUK, local authorities, HEI
SMART TRANSPORT

Aims

To put in place the technological infrastructure needed to ensure Leeds City Region has an efficient, responsive and intelligent local transport network to maintain our economic competitiveness and exploit supply chain opportunities for our SMEs.

Rationale

- Connectivity is a critical element of Leeds City Region’s economic offer. The City Region is well-connected to other major cities and has a large labour market on its doorstep, but the local connections are under pressure and the City Region economy and its residents risk losing out if we do not improve internal transport options.

- Smart transport represents a long term agenda for exploring new ways to manage flows in densely packed economies and offer travellers access to the communications network while they travel.

- Leeds City Region’s expertise in big data analytics alongside strengths in engineering and transport position it well to be at the forefront of innovative approaches to transport in our cities. Pro-active exploration of this longer term agenda could improve the competitiveness of the Leeds City Region offer, attract interest from other cities, innovators & investors and capture supply chain opportunities for local businesses.

Critical Activities

- Advertising the problems: there is scope in this area for innovation in the public sector by launching pre-commercial procurement in smart transport solutions. Instead of procuring a solution, the public sector advertises the problem, opening the door for the private sector to formulate solutions. This open competition model was developed in Sweden and first used by the Swedish Transport Authority and is a good practice model worth exploring in Leeds City Region.

- Intelligent Transport Systems: are already operational in Bradford, Calderdale, Kirklees, Leeds and Wakefield. In Leeds city centre, a Strategic Traffic Management System is in place to control signals on priority bus routes. Partners will continue to deploy intelligent transport system technologies to manage congestion and parking and provide real time traffic and travel information to the public.

- Smart Commuter Travel Information: Forum for the Future is taking forward a feasibility study developed in conjunction with O2 through TSB funding for an app which would provide real time travel information across Leeds. Investment should be focused on scaling up its coverage to the rest of the LEP area, which will put Leeds City Region on the map with transport intelligence in other global cities such as London and Singapore.

- Smart Transport Cards: allowing users to access and pay for multiple transport providers using one card. The West Yorkshire Combined Authority is rolling out this initiative in 2014, which will create time savings for commuters and further integrate the area’s transport infrastructure. This initiative should be implemented throughout the City Region.

- Planning Standards: developing initiatives through the planning system to promote and encourage cycling as a preferred means of commuter transport throughout the City Region, in part through using best practice knowledge of cycling schemes elsewhere.
**Target Beneficiaries**

- Transport users, plus local SMEs in the supply chain.

**Target Outcomes**

- Improve transport efficiency and reduce peak flow travel times within Leeds City Region.
- Exploit supply chain opportunities in engineering big data and digital infrastructure.
- Enhance Leeds City Region’s reputation as a leading UK Smart City Region.

**Potential Investment Sources**

- Private sector, TSB, LGF, BDUK, local authorities, HEI

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**SMART ENERGY**

**Aims**

To put in place the technology needed to ensure Leeds City Region has an efficient, responsive and intelligent local energy production and management infrastructure.

**Rationale**

- Energy efficiency is vitally important to keep down business costs and ensure we reduce our environmental footprint as the economy grows. Businesses need to take every opportunity they can to reduce their risk of mission critical failures in their energy supply.
- Public sector bodies spend enormous sums on energy and the cost of heating homes has a profound impact on poorer households in the City Region which could be alleviated with more energy efficient approaches to managing supply.
- New technologies for energy production, distribution and management offer great innovation potential to smart, switched-on innovators and the economies in which they are located which could benefit local businesses and residents.

**Critical Activities**

This is a long term agenda in which Leeds City Region clearly must have a strong interest, although the opportunities to create value and advantage are not yet fully understood. Leeds City Region needs to monitor and capitalise on opportunities emerging in this arena over the coming years by continuing to support a range of exploratory initiatives such as:

- Project development and deployment financing: funding sources are needed to support new ideas and product development in heating and electricity consumption. These technologies are necessary in order for smart meters and smart heat systems to be used in the City Region. The proposed Leeds City Region Energy Hub will provide a central resource for partners to come together and develop such ideas.

- Explore a local energy delivery model: Leeds is one of 11 local authorities to work with the Energy Technology Institute and consultancy Baringa Partners to design and develop the software modelling tool EnergyPath, which will demonstrate the scope to provide cost effective and energy efficient heat in residential and commercial buildings. This is a partnership between Energy Element, Hitachi and University College London. Once the methodology and solutions are identified, partners will be needed to bring solutions forward.
**SMART ENERGY**

**Critical Activities**

- Energy Mapping: Leeds City Region has received funding from DECC to undertake energy/district heat mapping, with the aim of identifying smart energy opportunities at the very local level. The findings of this exercise should be made public to allow partners the opportunity to bring forward solutions.

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<th>Target Beneficiaries</th>
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<th>Potential Investment Sources</th>
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| Business and residential consumers of energy, plus SMEs in the supply chain | - Explore options to improve energy efficiency and savings amongst Leeds City Region’s homes and businesses  
- Enhance Leeds City Region’s reputation as a leading UK Smart City  
- Better understand market and research opportunities to develop Leeds City Region’s smart energy reputation and offer. | Private sector, local authorities, energy companies. |

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Our innovation agenda is broad and long-term. It will take many years of hard concerted effort to change the behaviours of our businesses and the assets at our disposal.

Leeds City Region does not have the resources to immediately embark upon every Action Area set out in the strategy. We have made some tough choices about our immediate priorities and the investments which we believe will make the greatest contribution to ramping up our offer and laying the foundations for the future.

There are a set of key landmark investments that will serve the region well over the long term and where the resource implications are significant. And we have identified a set of very immediate early wins which can quickly demonstrate our commitment and start to forge the support and interactions needed to sustain innovation performance in the longer term.

Key Landmark Investments

- Bio Assets: support York University’s plans to realise the Bio Vale initiative with direct investment
- Health Assets: support the Leeds Innovation Heath Hub with business planning advice to further refine the plan so it is ready for direct investment
- Innovation Accelerator: identify the key locations where innovation assets can be concentrated and lay foundations for Innovation Accelerators
- Young Innovator: secure resource to establish a package of support to stimulate graduate and student entrepreneurship and innovation, focussing immediately on forging relationships with major companies in the area.

Early Wins

- Innovation Animateur: appoint a figure head lead for innovation to drive the strategy forward and co-ordinate a range of activity
- Challenge Competitions: establish an Innovation Challenge Panel and assemble a pot of money to fund small scale Challenge Competitions
- Innovation Advice & Guidance: ensure the innovation support needs of Leeds City Region businesses are reflected in the emergent EU Strategic Investment Framework and national opt-in programmes
- Innovation Finance: develop an investment support service which can help businesses in Leeds City Region improve their applications to existing sources of investment finance support, such as the ongoing regional JEREMIE funds, and refine the offer to ensure it aligns with the City Region’s innovation agenda.

DELIVERY SEQUENCING

Over time all Action Areas in the plan will be progressed. We recognise that it will take time for initiatives to be planned and investment secured. We are committed to giving schemes space to experiment and adapt in their early stages before they shift into full blown high impact roll out. The table below gives an overview of how we plan each of the Action Areas to come on stream over the next six years.

THERE ARE A SET OF KEY LANDMARK INVESTMENTS THAT WILL SERVE THE REGION WELL OVER THE LONG TERM AND WHERE THE RESOURCE IMPLICATIONS ARE SIGNIFICANT.
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- Planning & Preparation
- Early Delivery & Refinement
- Impact & Roll-Out
MEASURES OF SUCCESS

We are committed to learning from our innovation challenge and eager to make intelligent choices about how best to use the resources at our disposal. This will require insight into the progress we are making and an agreed set of performance indicators to capture change over time within each of our Action Areas. To reflect the different aspects of our strategic objectives, we plan to deploy five different measures of success across the Innovation Plan.

1) Awareness & attitudes
- Commitment to innovation among
  - Students
  - Entrepreneurs
  - Managers
  - Community Leaders
  - Public Sector

2) Behaviours & collaborations
- STEM graduates retained
- Businesses assisted
- Entrepreneurs/innovators advised
- Collaborations supported
- Innovation-focused training provided
- Projects invested in

3) Foundations laid
- Business premises served by fibre
- Sq. metres of innovation workspace
- £m invested in R&D/innovation
- £m of innovative products/services purchased

4) Economic effects
- Jobs created
- GVA generated

WE ARE COMMITTED TO LEARNING FROM OUR INNOVATION CHALLENGE AND EAGER TO MAKE INTELLIGENT CHOICES ABOUT HOW BEST TO USE THE RESOURCES AT OUR DISPOSAL.
The fifth strand of success measures the overall composite innovation performance of Leeds City Region. We are committed to propelling the Leeds City Region up the comparative rankings. To monitor our progress we will focus on a key set of indicators (published nationally) which we will monitor and for which we have set ourselves targets to achieve by 2020:

- **Business Investment in R&D**: to play our part in increasing business R&D investment in Yorkshire & Humber from £540m in 2011 to £1.2bn in 2020, by maintaining our strong recent annual growth rate of 9.5% per annum (2009-2011) through to 2020.

- **Innovation Active Businesses**: to increase the proportion of Leeds City Region’s business base reporting being innovation active to 50% by 2020. If replicated across Yorkshire and the Humber, this would equate to an increase of 26,300 innovation active firms by 2020 (a 14 percentage point increase).

- **Business Start-Up Rate**: double the number of start-ups per year from 10,000 in 2011 to 20,000 by 2020. This would require an 11% increase per annum but would put us in line with London, the leading region for growth in business start-ups.

- **Proportion of Employees from STEM Subjects**: to increase representation of STEM graduates in our businesses to 11% of employees by 2020; if replicated across Yorkshire, this would equate to an increase of 140,000 STEM graduates (increasing from 5% of employees at present) putting us in line with London, the highest performing region.

- **Innovation Protection**: to increase the average proportion of firms reporting use of innovation protection to 7% in our City Region. Replicating this across the wider Yorkshire & Humber region would equate to a 4% point increase above the 2010 level, an increase of 75,000 firms. This would put exceed the South East’s leading average of 4%.

- **Labour Productivity**: assuming each of our comparator City Regions match their 1998 to 2011 annual GVA growth rate, for Leeds City Region to be on par with the leading comparator LEP (after London), i.e. West of England, Leeds City Region would need to achieve an 82% increase in GVA per head, which would involve a 7% growth rate compared to the 2.6% achieved from 1998 to 2011. This would take GVA per head in Leeds City Region to around £32,000.
THE WAY FORWARD
Driving up our innovation performance is a shared endeavour which will require imagination, commitment, fortitude, creativity and investment. The Leeds City Region Enterprise Partnership will play the lead role in owning the Innovation Plan and encouraging partners to support our vision. We cannot, however, do it alone, and there needs to be clear understanding of the different roles each of our core partners is expected to play.

**THE LEP (INCLUDING THE BUSINESS INNOVATION & GROWTH PANEL)**
- Own and oversee the strategy and progress towards its implementation
- Endorse and promote major strategic investments which help secure our innovation goals
- Report to stakeholders and investors on overall performance against milestones and targets
- Champion Leeds City Region as a destination for innovation

**INNOVATION ANIMATEUR**
- Rally support and drive up enthusiasm for the Leeds City Region innovation vision
- Drive partners to implement innovative processes and to support wider programmes of innovation across Leeds City Region
- Stimulate new partnerships, services and facilities
- Promote Leeds City Region as an innovation destination
- Generate insight and foresight to boost awareness of the innovation challenge and opportunities facing businesses and the local economy

**PUBLIC SECTOR PARTNERS (INCLUDING LOCAL AUTHORITIES, NHS, EMERGENCY SERVICES)**
- Secure the investment resources from Europe, central government and internally to put in place new innovation support and facilities
- Align local investment decision-making and procurement of goods and services behind our innovation priorities and provide accountable processes to administer public sector resources
- Develop policy and planning which supports the development of innovation hotspots and secures the long term infrastructure needed to sustain competitive innovation performance

**KNOWLEDGE CENTRES (INCLUDING UNIVERSITIES, COLLEGES, SCHOOLS & RESEARCH ESTABLISHMENTS)**
- Develop new innovation facilities and services which align with the needs and opportunities of local priority sectors and the SMEs trading in them
- Commit to fully exploiting national funding opportunities around the identified key knowledge assets in the Innovation Plan (bio, health, big data & engineering/materials)
- Participate in schemes to generate the right mix of technical skills and innovation commitments among students, people and learners in work
BIG BUSINESS

- Get actively involved in developing partnerships with priority SMEs, outstanding students, emergent innovators and our Innovation Challenge Panel
- Help promote Leeds City Region as a highly attractive destination for investment among knowledge based high innovation businesses
- Sponsor innovation and new business development among young entrepreneurs by opening up access to capacity and expertise

GOVERNMENT AND FINANCE COMMUNITY

- Come to the Leeds City Region and learn more about our exciting offer(s), the progress we are making and the plans for the future
- Take seriously our considered Innovation Investment Plan and support the roll-out of our Action Areas

SMES, INNOVATORS & ENTREPRENEURS

- Take heart, remain focussed, build relationships, collaborate, embrace risk and work with the partners around you to grow your businesses ideas.
WE ARE COMMITTED TO UNLOCKING THE INNOVATION POTENTIAL OF THE LEEDS CITY REGION AND ACCELERATING OUR INNOVATION PERFORMANCE.

THROUGH OUR PLAN WE WILL CREATE THE BUILDING BLOCKS FOR A THRIVING INNOVATION SYSTEM, ENABLING THE LEEDS CITY REGION TO COMPETE GLOBALLY TO ATTRACT TALENT AND INVESTMENT INTO OUR BUSINESSES AND INSTITUTIONS.

THE INNOVATION AGENDA OUTLINED IN OUR PLAN IS BROAD AND LONG-TERM BUT NOW IS THE TIME TO WORK WITH BUSINESSES AND OUR PARTNERS TO DELIVER.

#INNOVATELCR