



Lancashire  
Enterprise Partnership

Appendix '1'

# Lancashire Innovation Plan







Lancashire  
Enterprise Partnership

Solicitors

Edwin Booth  
Lancashire Enterprise Partnership  
Solicitors





# Innovation Plan Foreword

## Edwin Booth

Chairman of Lancashire Enterprise Partnership

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**From the Spinning Jenny to the development of the jet engine, Lancashire has always been able to build a vibrant economy, based on the innovation of those who work here. In 2018 the challenge has never been greater to harness innovation, to retain our competitive position and imagine Lancashire's industries of the future.**



The challenge to increase productivity and match the performance of established and emerging competitors is an issue for the UK as a whole, but Lancashire is well placed to respond. Building on an already strong academic and industry base, Lancashire Enterprise Partnership has directed much of the investment it has won to creating and enhancing a range of innovation assets and centres of excellence which can match the needs of our key industrial sectors.

The commitment of both industry and academia to invest in significant facilities such as the North West Advanced Manufacturing Research Centre, UCLAN's Engineering Innovation Centre, Lancaster University's Health Innovation campus and Edge Hill's Tech Hub are matched by new skills development infrastructure such as Energy HQ at Blackpool and the Fylde College and BAE's own Academy for Skills and Knowledge.

The Lancashire Innovation Plan provides a framework within which we can re-focus our efforts. It explores the immediate challenges which need to be addressed to retain our advantage in key sectors such as aerospace, advanced manufacturing and energy but also challenges us to think about how current capabilities and research capacity can service the industries of tomorrow.

Existing programmes need to be better integrated with key supply chains and small and medium sized enterprises to define the role which new technologies can play in meeting the aspirations of Lancashire businesses.

Finally, we will meet the need to communicate progress both locally and globally through telling our story of innovation in Lancashire and the North of England as a whole. The evidence and assets referenced in the preparation of this plan will be central to our new Strategic Economic Plan and Local Industrial Strategy, illustrating the part we can play in the economic future of the region and beyond.

# Executive Summary

## The Commission

In Autumn 2017, the Lancashire Local Enterprise Partnership (LEP) commissioned SDG Economic Development (SDG-ED) to develop Lancashire's Innovation Plan, a new Strategic Framework to drive forward innovation across the County. Building on the work done to inform Lancashire and Sheffield's Science and Innovation Audit in 2016, the Plan provides a practical analysis of the economic role and contribution of innovation in the County's economy, with an informed assessment of how Lancashire's innovation resources – actual and latent – can be better led and deployed to drive productivity, industrial resilience, and sectoral agility in the County's economy.

## Context

Innovation is increasingly viewed as a key driver to improving productivity across the UK. Businesses that innovate grow faster than those that do not, and innovating economies are more resilient to market and technology change, and better equipped to plot their futures than those that do not. Sub-nationally, innovation was identified as one of the key enablers of the Northern Powerhouse, and innovation was front-and-centre of last November's UK Industrial Strategy. Internationally, work by the Organisation of Economic Development and Cooperation (OECD) is highlighting the importance of innovation, as technology brings once distant markets increasingly close to one another. So, innovation matters, and must increasingly be an imperative for how Lancashire 'works'.

So, what is the local economic context we face? Gross Value Added (GVA) per head, the commonly used measure of productivity, across Lancashire's local authority geographies ranges from £31,494, (amongst the top 50 districts in the UK and within the top 20 outside London and the South East) to £14,524. So, our first challenge is to use innovation to help drive-up the productivity performance of our sub-areas to the levels of our county's best. Second, we have many strengths and assets to build on to move our productivity efforts forward. We are home to leading global businesses at the cutting edge of innovation in Advanced Manufacturing, supported by a supply chain cluster of high-tech small and medium-size enterprises (SMEs). There are longstanding and well-known strengths in Aerospace, Automotive, and Energy industries and exciting emerging strengths in sectors including Digital and Applied Healthcare. Moreover, the County is home to high-performing universities and Further Education providers, working closely with national centres of research excellence and knowledge transfer partnerships.

It is against this background that this Plan sets out how we will use innovation more widely, deeply and, importantly, visibly to drive the resilience and productivity of our economy and enable Lancashire to achieve its full economic potential and role and sub-national and national levels. Informed by evidence and extensive consultation, this Plan has been prepared to support the innovation agenda in the County through to 2030. The Plan is not a set of rules or regulations, but rather a route map on how we want to build, diffuse, and embed innovation. It seeks to develop further what we do well currently, identify and stimulate new routeways to innovation, and develop the infrastructures required to innovate across our economy, for the benefit of our businesses, people and communities. And, as technology and markets do not stand still, this Plan has been designed with flexibility at its core, enabling us to act dynamically in the face of those new challenges that we will face in the coming years.



## Plan Process

The Plan's development launched with a series of 'scoping calls' with key senior stakeholders from across the private and public sectors. These included representatives from the Advanced Manufacturing, Aerospace, Automotive, Nuclear, Digital, and Health Sectors. The purpose of these calls was to obtain early-stage inputs from well-placed experts on those aspects of innovation activity and development in Lancashire that the emerging Plan needed to address.

Alongside these consultations, a comprehensive analysis of socio-economic and innovation datasets, econometric projections was undertaken, together with a formal 'Call for Evidence' from key stakeholders in Lancashire. In addition an asset list of Lancashire's innovation assets was developed and iterated throughout. This 'Asset List', presented at Appendix a to final report, is a live document which will be maintained on an ongoing basis.

Further stakeholder workshops provided additional data analysis and market futures research to enhance the evidence base, identifying the key actions, both existing and new, that are needed to turn the framework into action. These fed into the development of the 'Action Agenda' which is described later in this document. The evidence base, the strategic framework, and the proposed actions together form our Lancashire Innovation Plan.

Overall, the Plan's development involved over 70 individuals from over 50 organisations from within, and outwith, the County. This is the launch platform we start from, and as the Plan is now implemented formally we will develop and build on this.

## And the Plan's underpinning framework?

At the heart of the Innovation is a simple framework which sets our focus areas for attention as we work to progress innovation in the County. The key components of the framework are:

A Vision which describes the County's long-term innovation intent;

Five Strategic Aims which, at a strategic level, define those objectives the Innovation Plan is seeking to realise; These are configured as a '2x3' structure: two of our Aims relate to our innovation capability – the ability of existing and new businesses to develop, adopt, and commercialise innovation, and three Aims relate to building our innovation ecosystem – building the infrastructures, mindsets, and marketing capability across the County necessary for innovation;

Within each Strategic Aim, a rationale for why the Aim is needed, and a series of supporting objectives which define the broad areas of practical activity to achieve the Aim; and A defined suite of actions to progress the Plan. These are a mixture of short, medium, and long-term actions that complement and enhance existing and ongoing actions.



## Action Agenda

To make the Plan a reality, a series of actions are proposed:

- + For Strategic Aim 1 'Staying Ahead', key actions will involve:
  - Focus on delivering the Made Smart Review's North West National Adoption Programme Pilot;
  - Connecting with Centres of Excellence outside Lancashire, so helping to improve our participation in national, and potentially international, innovation networks;
  - Working in collaboration with large employers in the County to strengthen innovation capabilities of their supply chains;
  - Developing a network of Lancashire 'Innovation Ambassadors' to work with local SMEs; and
  - Implementing a Lancashire Technology and Market Foresight Observatory.
- + For Strategic Aim 2 'New Routeways to Excellence', key actions will involve:
  - Developing supply chain crossover networks;
  - Encouraging an increase in Knowledge Transfer Partnerships (KTPs);
  - Developing Test Beds in new sectors such as Digital, and initiatives such as 'Failure Labs' and 'hackathons', with different sector foci over time; and
  - Starting to analyse rigorously how overlaps and synergies between the activities and technologies of our existing sectors can be drawn out to define new areas of sectoral strengths that we can develop.
- + For Strategic Aim 3 'Broadening the Innovation Base', key actions will involve:
  - Enhancing existing, or building new, leadership development programme activities, ensuring that innovation is given the same priority as wider core business disciplines;
  - Ensuring relevant capital developments include provision for incubating innovation-led start-ups;
  - Facilitating networking between innovation and incubation centres within and outwith the County to share best practice; and
  - Developing a programme of visits to Lancashire from innovation success stories across the world, helping to stimulate global networking, and bringing best practice to Lancashire's attention.
- + For Strategic Aim 4 'Enabling Infrastructures for Innovation', key actions will involve:
  - Creating an 'innovation graduate' placement programme for SMEs;
  - Developing a single point of contact programme of support for innovation-led start-up or early-stage businesses;
  - Exploring options for creating a Lancashire Innovation Fund for early-stage funding for innovation-led start-ups;
  - Developing a programme to promote innovation across public and third sectors; and
  - Embedding Intellectual Property (IP) management in to innovation initiatives.
- + To deliver Strategic Aim 5 'Letting the World Know!', key actions will involve:
  - Holding an annual Innovation Showcase to celebrate successful innovation in, and across, the County;
  - Developing a Lancashire Innovation Marketing Strategy;
  - Developing, and disseminating a portfolio of Lancashire innovation case studies; and
  - Ensuring Lancashire is represented in all key national fora relating to innovation, so that forward and backward linkages to innovation in our County are be promoted and developed.



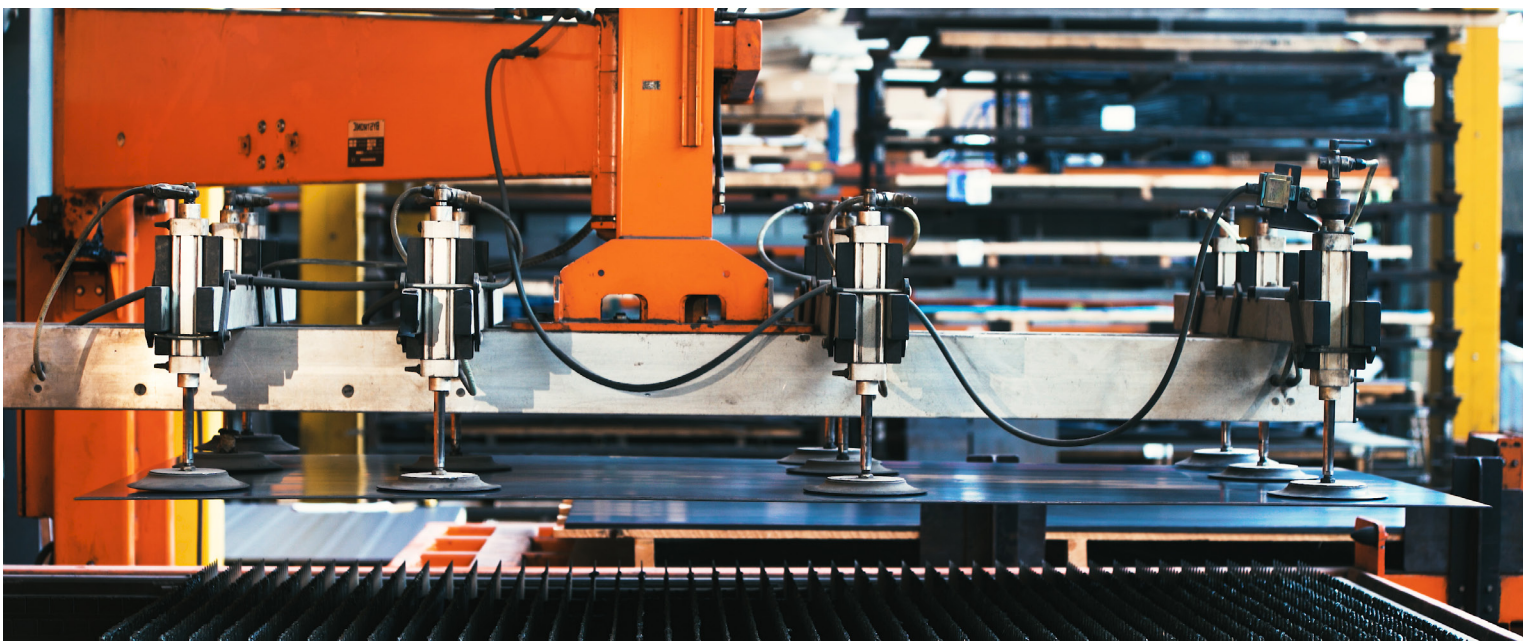
## Governance

Strong leadership, collaboration, and willingness to deliver change are fundamental to making this Plan a reality. Leaders from across private and public sectors will need to come together to drive and deliver innovation for Lancashire. Making the most of existing resources and re-calibrating these to support the Aims of this Plan will be vital to its success.

The LEP has a central role to play in driving this Plan and its success. Accordingly, the Plan proposes a new Innovation Board within the LEP's structure to provide the strategic leadership and accountability for this Plan and its delivery. The Board will be private sector-led, but be representative of publicly-funded partners and representatives of the key innovation assets in Lancashire. The Innovation Board will integrate and complement existing innovation fora, such as the emerging Higher Education Institution (HEI) Innovation forum (which brings together HEI representatives on common innovation-facing issues), so driving a unified approach to innovation in the County.

## Timeline

This plan is intended to provide the strategic agenda for innovation in the County through to 2030. Between now and then, much can change, both in terms of technologies and markets. This Plan needs to be able to flex effectively to the changes, but at the same time it needs to give a level of certainty and stability such that innovation increasingly becomes a constant in the way that the County, its businesses, communities, and individuals behave. In a very real sense, the underpinning intent of this Plan is that innovation becomes the County's 'first nature'.



### Case Study Esse Engineering - Offline Robotic Programming

To maintain the highest quality the company assemble each stove by hand. In order to match demand the company were looking to make further investment into robotics, for the use of enamel application and the removal of cast iron flashings. Using robotics in the Advanced Manufacturing Laboratory at UCLan's Burnley campus, the DigitME2 project carried out research into company requirements and available solutions, before simulating methods of flash removal

To supplement this, DigitME2 provided knowledge transfer to staff providing them with skills to use the companies existing robotics in an offline environment. This allowed

staff to write programs for new product models offline, which has led to removing the need to halt the production line, an easier mitigation of risk through offline simulation and a reduced deployment time for new products. "We were impressed by UCLan's facilities and expertise, we had previously been unaware of the extent of activities taking place at the Burnley campus. We hope to extend the use of robotics within our manufacturing process during the next 12 months."

**Martin Ashby,**  
**MD - Esse Engineering**



## Vision.

By 2030, Lancs will have positioned itself as a globally connected & resilient innovation ecosystem. The way we innovate will embody excellence & collaboration, feeding through to greater commercialisation, entrepreneurship, & competitiveness in our economy. We will have a track-record as a centre for globally-competitive knowledge clusters & talent, & as a developer of new solutions to the emerging challenges of our world.

Strategic Aim 1	Strategic Aim 2
Innovation Capability – Staying Ahead	Innovation Capability – Routeways to Excellence
Rationale	Rationale
<ul style="list-style-type: none"><li>+ Lancs has recognised sectoral strengths &amp; differentiators</li><li>+ These need to be developed &amp; worked harder to ‘stay ahead’ of new/existing competitors</li><li>+ Market &amp; technology change will impact significantly on our existing business models</li><li>+ Maintaining County’s existing employment &amp; GVA performance</li></ul>	<ul style="list-style-type: none"><li>+ Vital for county to keep ‘recreating’ its economic base, &amp; to build new sectoral USPs</li><li>+ ‘Standing start’ sectoral development increasingly difficult to deliver</li><li>+ Connectedness between existing sectoral strengths provides opportunities for new diversification</li><li>+ Source of new employment &amp; GVA</li></ul>
Objectives	Objectives
<ul style="list-style-type: none"><li>+ Maintain Lancs’ distinctive world-class prominence in existing priority sectors</li><li>+ Develop supply chain capability &amp; capacity servicing these sectors, &amp; gap fill</li><li>+ Identify innovation inter-dependencies with other geographies to maintain competitiveness</li><li>+ Develop strategic partnerships with Centres of Innovation Excellence outside Lancs</li></ul>	<ul style="list-style-type: none"><li>+ Build distinctive cross-over driven strategy to exploit existing strengths</li><li>+ Prioritise R&amp;D, innovation, &amp; skills development for emerging sectoral strengths</li><li>+ Develop new global supply chain participation strategies to scale these new areas</li><li>+ Identify innovation inter-dependencies with other geographies to build new competitiveness</li></ul>



Strategic Aim 3	Strategic Aim 4	Strategic Aim 5
Innovation Ecosystem – Broadening the Innovation Base	Innovation Ecosystem – Enabling Infrastructures for Innovation	Innovation Ecosystem – Letting the World Know!
Rationale	Rationale	Rationale
<ul style="list-style-type: none"> <li>+ Major dependence on major/global companies for innovation – SMEs must also be part of the mix</li> <li>+ Long tail of less innovative, less productive businesses</li> <li>+ Further economic shocks &amp; restructuring a certainty, given market/tech change. Resilience is vital.</li> <li>+ Risk of hollow-out by adjacent economies as they grow</li> </ul>	<ul style="list-style-type: none"> <li>+ Innovation critically dependent on skills/talents, specialist facilities, knowledge generation, &amp; money</li> <li>+ Significant ongoing investment in innovation infrastructure – exploit better</li> <li>+ Vital role of innovation networks &amp; collaboration</li> <li>+ Innovation needs to be pervasive across the private, public, &amp; third sectors</li> </ul>	<ul style="list-style-type: none"> <li>+ Competition between places &amp; economies intensifying</li> <li>+ Lancs not instinctively recognised as a place for innovative new solutions</li> <li>+ Lack of clear, coherent, &amp; comprehensive innovation narrative for the County</li> <li>+ Insufficient resources given to promoting/coordinating innovation, given its importance</li> </ul>
Objectives	Objectives	Objectives
<ul style="list-style-type: none"> <li>+ Greater diffusion of innovation &amp; adoption by more businesses to increase resilience of local employers/ their ability to respond to emerging opportunities &amp; threats</li> <li>+ Selling the benefits of innovation for competitiveness &amp; growth</li> <li>+ Enhance innovation management &amp; leadership skills</li> <li>+ Prioritise clustering investment in innovation in Lancs</li> </ul>	<ul style="list-style-type: none"> <li>+ Innovation embedded as a 'first nature' behaviour &amp; mindset for Lancs</li> <li>+ Wider economic policies (e.g. SEP, Lancs Technical Education etc.) aligned with this Plan to drive success</li> <li>+ Enhance management &amp; leadership skills around innovation</li> <li>+ Human capital development &amp; re-deployability prioritised</li> <li>+ Develop strategic partnerships with Centres of Excellence, wherever they may be</li> </ul>	<ul style="list-style-type: none"> <li>+ This Plan, SEP refresh, and a new Local Industrial Strategy together create a coherent innovation &amp; growth framework for Lancs</li> <li>+ A proactive function to promote &amp; celebrate innovation in the County</li> <li>+ Clear &amp; expert leadership on shaping national innovation thinking – Lancastrians in all the key national fora</li> <li>+ Connecting for innovation – GINs &amp; GVCs</li> </ul>

**Application-inspired in our R&D & its deployment**

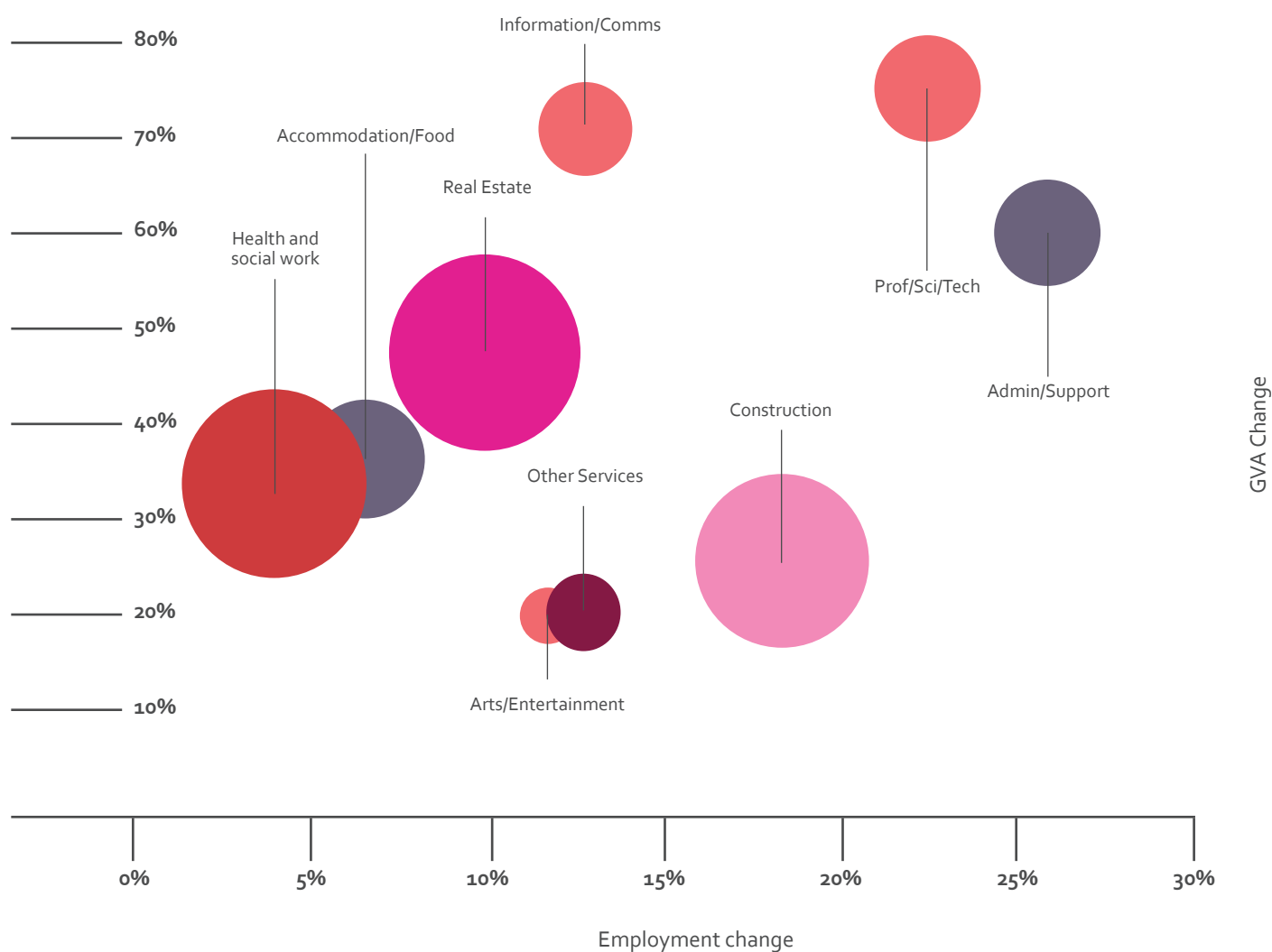
**Excellence in delivery, driven by real evaluation & learning**

**Collaborating for a competitive Lancs**

## The Changing Shape of Lancashire's Economy

- 1 Econometric forecasts suggest that, under a 'Do Nothing' scenario, the productivity gap will remain. By 2036, GVA in Lancashire is due to increase by just over 30% to £38.5 billion. Over the same period, UK GVA is forecasted to increase by just over 40%: the productivity gap will grow. If Lancashire's GVA grew at the same rate as the UK over this period this would result in an additional £2.5 billion in GVA by 2036.
- 2 Employment growth is also forecast to remain slower than that of the UK. By 2036, employment in Lancashire is set to grow by 2.7% (an added 19,000 jobs). Over the same period, the UK employment is due to increase by 7.3%. If Lancashire's employment grew at the same rate as the UK this would result in an extra 53,000 jobs in the local economy.
- 3 Moreover, Lancashire's economy will experience significant change over the next two decades. Sectors are expected to perform in one of two ways:
  - + Expanding sectors which are forecasted to grow in both GVA and employment; and
  - + Adjusting sectors where GVA will increase but employment is likely to decrease.
- 4 The figure below shows the Expanding sectors. Significant growth in both GVA and employment is forecasted in service sectors such as Professional/Scientific/Technical, Administration/Support (including Technical Support), and Information/Communications. Most sectors are forecasted to grow in GVA and employment. These data are at a broad sectoral level, which can miss the nuances and variety of job roles within each sector.

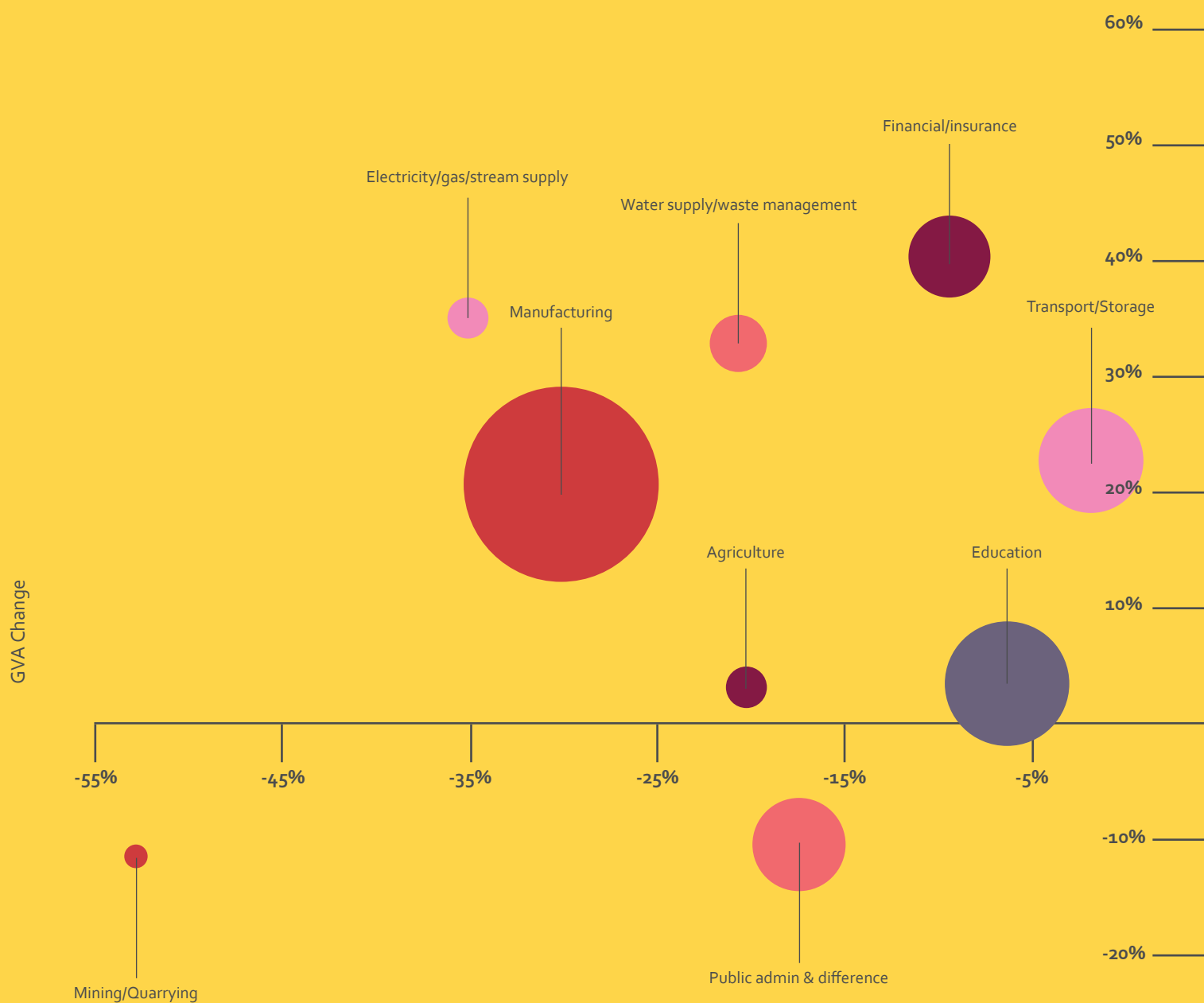
Expanding Sectors in Lancashire in the period to 2036



Source: BRES and ONS, Regional Accounts, 2015



- 5 The figure below shows the Adjusting sectors. Most significantly, the current key employment sector of manufacturing is forecast to decline in employment by 24% (c.20,000 jobs) by 2036. This trend is expected nationally, however, is expected to be more keenly felt in Lancashire due to the size of the sector in the County. The fact that manufacturing is forecast to grow in GVA despite this points to the productivity opportunities in data and automation that Industry 4.0 presents. It is important to remember that these forecasts are 'policy-off', meaning they do not consider different policy scenarios or their implications. Interventions such as those advocated later in this Plan, alongside ongoing actions across the County and North, can address these potential employment challenges.



# Lancashire's Innovation Ecosystem

**This Section sets out the strengths, weaknesses, opportunities, and threats (SWOT) assessment of the Lancashire innovation ecosystem**

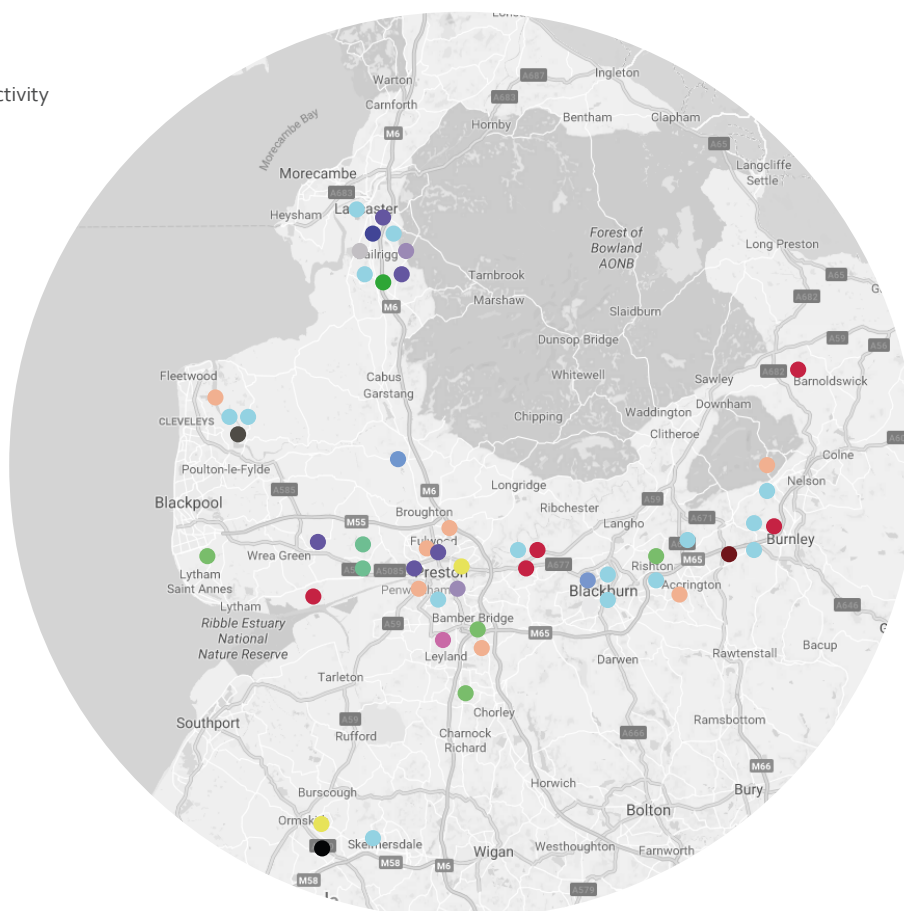
- 2.1 Through a range of stakeholder consultations, data analysis, and a review of over 40 documents received via a 'Call for Evidence', this section will present the strengths, weaknesses, opportunities, and threats (SWOT) for innovation in Lancashire.
- 2.2 The SWOT was conducted through four lenses. These are:
  - People/Human Capital – covering demographics, mindsets, skills and occupation offer, education, and access to work;
  - Infrastructure/Assets – covering sites, premises, (and the cost and location of these), housing, environment, transport, and national strategic infrastructures (digital/energy/waste/water/flood risk);
  - Knowledge – covering Further and Higher Education, research institutions, innovation systems, networks, and commercialisation processes; and
  - Money and External Business Expertise – covering access to finance, accounting and legal professions, intellectual property management, and marketing.



- 2.3 Lancashire has well established and recognised strengths in the Aerospace, Automotive, Energy, Nuclear, Digital, and Health Innovation sectors. There are strengths in biological sciences, Life Sciences and Healthcare, Advanced Manufacturing and materials, and Digital. Protecting, enhancing, and diffusing these strengths across their supply chains and across sectors will be a key feature of the future innovation landscape in Lancashire.
- 2.4 The local HEIs have research strengths in STEM subjects, in particular, Computer Science, Mathematical Science, and General Engineering, and provide significant research and consultancy services (with a total income of £26m from contract research and consultancy services across the four HEIs in 2015/16). There are translational research centres such as the Engineering Innovation Centre at UCLan, the North West Advanced Manufacturing Research Centre at Samesbury, and the forthcoming Lancaster Health Innovation Campus which can be catalysts for research development and adoption across the local economy and beyond.
- 2.5 Graduate retention rates are good in Lancashire, and strong Further and Higher Education provision is starting to show in the improving rates of residents with higher level skills. Maintaining and continually improving these will be key to ensuring a pipeline of talent to support Lancashire's businesses and innovation capabilities.
- 2.6 Analysis of the IPO patenting data indicates strong intellectual property advances in areas such as Civil Engineering, Mechanical Elements, Medical and Computer Technology, and Thermal Processes. Ongoing analysis of patenting data can provide an indication of emerging innovation specialisms and differentiators. Providing support for businesses in generating and managing their intellectual property can help them to protect their intellectual property assets and maximise the value from them.

#### Innovation Assets

- Advanced Manufacturing
- Aerospace
- Automotive
- Business Support
- Chemistry
- Construction
- Creative
- Digital
- Eco-innovation
- Education
- Energy
- Engineering
- Health
- International connectivity
- IT
- Maritime
- Mixed
- Nuclear



To request a copy of the full  
report visit the LEP website:  
[www.lancashirelep.co.uk](http://www.lancashirelep.co.uk)

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