Introduction to Innovation in Lancashire

Introduction

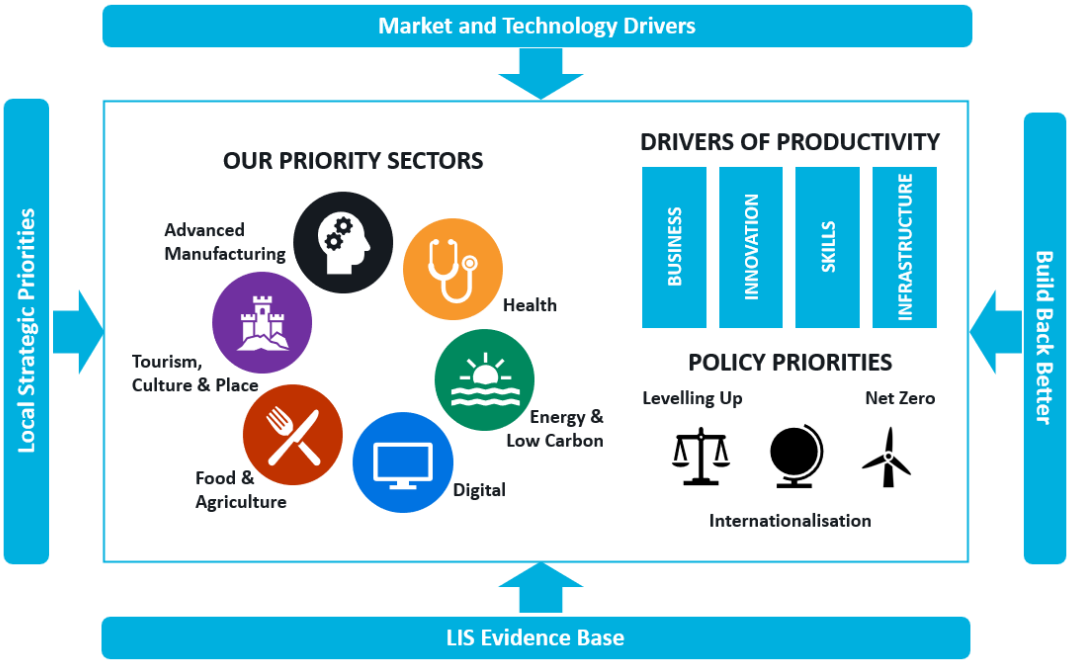
This report sets the scene for the innovation ecosystem in Lancashire, giving an introduction to the field of innovation, the trends and opportunities presented by innovation and technology and the emphasis placed on innovation in current and emerging LEP plans.

LEP approach & role of Innovation

Innovation is a core component of the LEP strategy and is illustrated as a cross cutting theme in the Strategic Framework which sets out the key sectors and activities which can benefit from innovation.

The LEP Growth Plan is structured around four overarching drivers of growth and shared prosperity, with the following ambitions:

- Skills: to build a talent pipeline aligned with the needs of the economy, boost the skills of our people to enhance productivity and drive an inclusive workforce in partnership with business, providers and stakeholders.
- Business: to make our economy more prosperous and resilient by enabling business recovery, growth, diversification and internationalisation through digital transformation, tailored business support and strong sector leadership.
- Innovation: to be more innovative by embracing technological change and collaborating across sectors to support globally leading, cutting edge R&D and enable the broader diffusion and adoption of innovation across our business base.
- Infrastructure: to enable sustainable growth through strategic transport, digital and utilities infrastructure and focus growth around the development and expansion of high-quality strategic employment sites and thriving town centres.

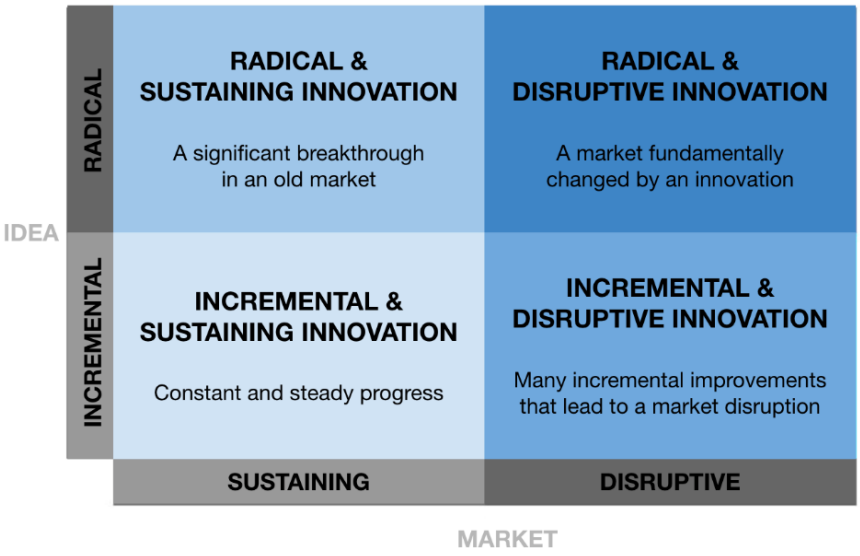


Defining Innovation

A 2009 study of definitions of innovation in scientific papers came up with the following multi-disciplinary definition:

"Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace"

As such Innovation as a concept has long been regarded as the key lever in transforming societies, industry and economies. It has underpinned major transformations such as the Industrial Revolution as well as being closely aligned to productivity gains. It is important to understand that innovation is much more than invention as it is not enough to have an idea, it has to be purposeful and aimed at meeting a need where a transaction is enabled in the economy. In this sense Innovation is closely associated with enabling technology and new ways of working and is mainly associated with markets. It comes in different forms as illustrated below:



Technology is driving change

Lancashire, like other areas, is facing a number of key technology drivers and rapid global change. Some of the technology drivers are enabling ones – essentially new technologies that have a multitude of potential applications. These are not necessarily being developed in response to one specific field or market opportunity but represent ways of addressing wider challenges which the county needs to understand how to harness to stay ahead (eg AI, machine learning, robotics, genomics). These enabling trends include:

* Digital connectivity – more and more things (and people) can and will be connected up digitally (sometimes known as the Internet of Things) which is being facilitated by the roll-out of 5G or data comms from space.

* The intelligent automation of more and more activities previous carried out by people (combination of robotics and AI) - replacing the “dull, dirty and dangerous” jobs and responding to areas of labour shortage.

* Changes in energy vectors (largely electrification but other potential sources such as hydrogen and synthetic fuels) and the associated resultant infrastructure (batteries, charging, smart grids, local energy storage/buffering, cogeneration tech etc).

* The combining and integration of technologies such as bio-convergence, electech, embedded functionality etc

Market & Socio-Economic Change

Key drivers of technology trends in industry can largely be categorised into market led and external drivers. Market led drivers include the emergence of secure digitalisation, customisation/ personalisation (of products and services) and automation (e.g. AI, IoT, 3D printing). These trends have been accelerated by COVID-19 and overlayed by the need for new working practices, resilience in supply chains, security, on-shoring and sovereign capabilities.

Alongside market led trends are external drivers including the imperative for low and zero carbon practices, health pressures (from long term ageing populations and shorter term health threats), and political influences (such as Brexit and growing economic and security threats to the East).

These multiple drivers highlight the importance of businesses having digital and technology ‘starting blocks’ in place to enable them to adapt to new and developing business models, market demands, working practices, and contextual changes.

Technology consequently opens up new opportunities and influences the shape of the economy. Essential technologies including IoT, AR/VR, Blockchain, Drones/Robots, 3D printing and AI are being deployed across multiple sectors, leading to rapid change in how traditional sectors are operating at ‘convergence zones’.

Global experience points to the key to productivity being entrepreneurialism and innovation. Studies of areas of the world that successfully nurture innovation indicate common features occurring at a critical mass, chiefly including:

- Long term goals and a culture of experimentation and entrepreneurialism with innovative open management;
- Networking/mixing of sectors, companies (small and large), staff and researchers - immersing them in problems and challenges;
- Business model innovation and strong market orientation alongside product and technical strengths/facilities;
- Significant funding and R&D investment for ventures through to later TRL, start-ups and larger scale-ups.

While Lancashire has been successful in maintaining its overall competitiveness and supporting business, evidence suggests further work is required to achieve the critical mass to engender sufficient levels of knowledge intensive activity in the face of the changes described and to join up our strong asset offerings.

Innovation Policy Arena

The last few years has seen frequent Government changes in their approach to innovation. When the first Lancashire Innovation Plan was written UK government prioritised economic growth and productivity through a National Industrial Strategy which targeted a number of Grand Challenges based on national strengths and opportunities (Healthy Ageing; Future of Mobility; Clean Growth; Data & Digital) alongside drivers of productivity (Ideas; People; Infrastructure; Business Environment; Places). It was intended that all LEPs would develop and institute a Local Industrial Strategy but this has been discontinued as a policy.

The UK Innovation Strategy was published in August 2021 and it replaced the National Industrial Strategy of the previous Government, although there are aspects that crossover such as the underpinning technologies that informed the Grand Challenges and the importance of key themes that arose from those challenges. It sets out interest in supporting innovation in Places, Sectors and Business with an emphasis on levelling up the economy, creating high value jobs and global trading opportunities. At various stages the interlinking of these factors is stressed and the importance of infrastructure, skills and innovation as key drivers and sets out to boost private sector investment. To assist it commits to increasing public spend on R&D.

It states at various points states that it has asked Innovate UK to inform on detail and operationalise the strategy and in the development of the Places Pillar, it is clear that the work of Regional Heads of IUK in co-designing cluster priorities with local stakeholders is key. It is likely this will underpin funding whether through Innovation Deals or cluster initiatives.

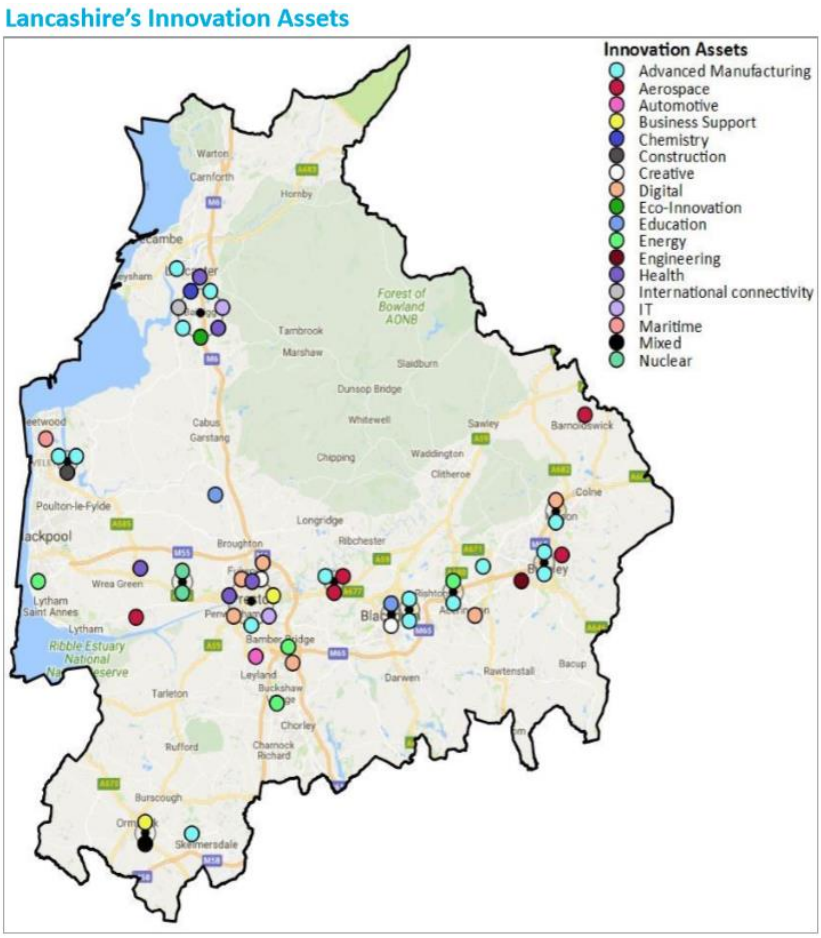
In February 2022 the UK Government launched its Levelling-Up White Paper which set out 12 ambitious missions cutting across Government departments and proposing public R&D outside the south east will increase by 40% along with more devolution of powers including nine priority areas for County Deals (not including Lancashire). The Metropolitan Combined Authorities were highlighted with three Innovation Accelerators proposed for city regions, one of which was Manchester. The plan was however limited on the specifics of how the ambitions would be achieved.

The paper included references to the Shared Prosperity Fund (SPF), intended to replace European funding but this appears comparatively limited in scale compared to previous European funds. For those areas outside of MCAs and County Deals the SPF is proposed to be handled by district councils which could present difficulties in achieving a joined up impactful approach to innovation which tends to operate across areas more typically optimised closer to a regional emphasis.

Structures & Staff

The number of direct staff managing and directing innovation plans in the county is currently small. The LEP has one Innovation Lead funded by the three universities supported by a paid intern from Lancaster University on a 12 month contract. The County Council has an Innovation & Digital Lead supported by two officers. Collectively this represents a small group of five people who meet on a regular basis to address policy, partnerships, initiatives and marketing of innovation efforts.

Indirectly a broader number of organisations encourage and support innovation plans in Lancashire. Through the LEP, Boost deliver general business support which includes some elements of innovation but the bulk of specialist innovation support is provided through numerous programmes delivered by the universities. Over the years these have led to the development of major innovation assets and supported thousands of small and medium sized companies in Lancashire. Such assets include AMRC(NW), the Engineering Innovation Centre and the Health Innovation Centre to name a few.



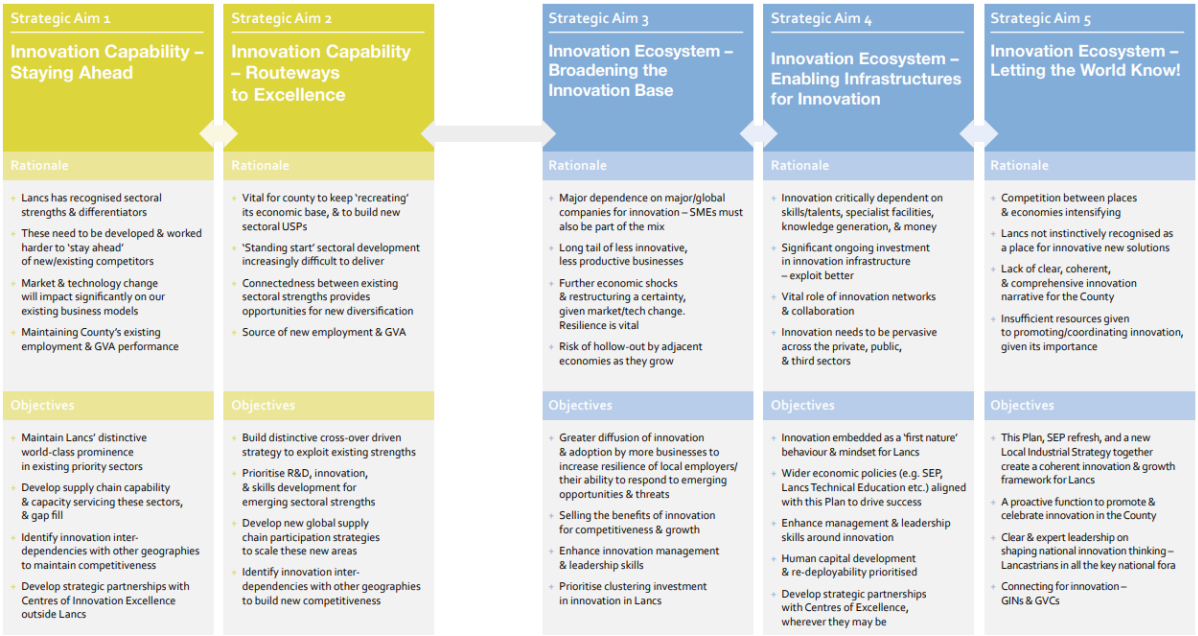
Source: Lancashire Innovation Plan, 2018

These have chiefly been funded through European monies that are currently phasing out due to Brexit and end in 2023 presenting a potential challenge for future delivery of coordinated innovation activities.

The innovation activities are guided and steered by an Innovation Board which was set up in late 2020 and draws together key stakeholders from across the public and private realms and sectors. The Board is chaired by Prof Graham Baldwin, the Vice Chancellor of UCLan. The Board oversaw the successful delivery of two Innovation Festivals and is developing a web platform called Innovate Lancashire as the shop window for innovation activities as well as working with Steer Group Consultants to refresh the Lancashire Innovation Plan with a new set of actions based on the work to date and new opportunities for the county.

Lancashire Innovation Ecosystem

Lancashire has a formal Innovation Plan which was written in 2017 but is currently being refreshed due to major government changes in policy, the impact of Brexit and of Covid and other emerging trends. The basic approach of the Lancashire Innovation Plan was to build on our capabilities to stay ahead in our strong sectors, to cross fertilise new opportunities across our sectors by supporting clusters and to better join up our assets into a strong innovation ecosystem.



Through the LEP Strategic Framework, innovation is a cross cutting enabler and the LEP is developing a vision where innovation plays a key role in further orchestrating growth. A SWOT analysis of the ecosystem identified some key features in the county as follows:

- Lancashire has three Universities delivering research and innovation support programmes with increasing collaborative efforts. Lancashire has supported the establishment of a number of key Innovation assets across its geography (eg EIC, HIC, AMRC etc) with good partnership links and has skills support across five colleges. All Institutes have strong SME support with over 20 ESIF innovation programmes supporting thousands of SMEs.

- Lancashire has leading businesses with world-class expertise in R&D and manufacturing, notably in the aerospace, manufacturing and energy sectors and a history of product development with some key emerging market opportunities aligned to local strengths. Nevertheless it is somewhat reliant on a limited number of larger companies.

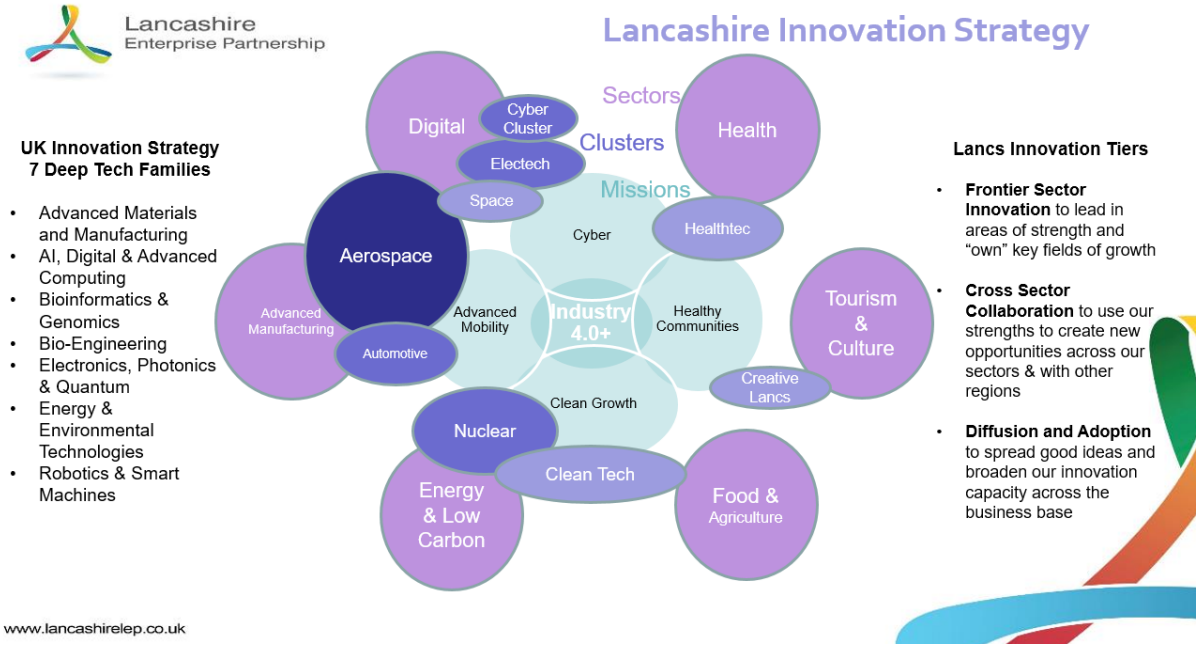
- In keeping with much of the North, Lancashire has lagged on SME R&D spend and business productivity and needs both more high growth innovative companies with international ambitions as well as adoption of new technologies in existing supply chains to keep ahead. The county needs to understand its future strengths and growth opportunities and how to cross-fertilise sectors, join up delivery and better fund innovation to broaden the economic base and improve impact.

- Lancashire has a polycentric geography requiring it to work at uniting its comparative advantages and finding synergies in the face of more compact metropolitan centres more easily able to achieve critical mass. The county needs to better understand the depth and breadth of its strengths and their complementarity with partners locally and nationally in order to lead on building cluster critical mass that advantages Lancashire and reaches out across the Northern region and to the world.

Building on LEP Successes

Recent work at the LEP is building on the analysis of the strengths and capabilities in Lancashire and a deeper understanding of sectors and clusters in the county along with the factors that underpinned recent successes in attracting investment such as the National Cyber Force.

The following illustrations map out the factors around our cluster strengths and how these can be framed as Missions that share synergies and can be relayed as a unique value proposition for Lancashire in the field of *security and resilience*.



Lancashire
Enterprise Partnership

Frontier & Cross Sector Tiers