



UNIVERSITY OF
LINCOLN

GREATER LINCOLNSHIRE'S
INNOVATION
ROU TEMAP



AN INNOVATION ACTION PLAN

NOVEMBER 2024

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FOREWORD

Greater Lincolnshire has a rich history of innovation, with many world-changing inventions and ideas tracing their origins to this region. George Boole, one of the founding figures of modern mathematics and logic, paved the way for what would become the digital age. Isaac Newton, born in Woolsthorpe, revolutionised science through his laws of motion whilst William and Walter Tritton conceived the military tank in 1915 from a Lincolnshire agricultural company, transforming military welfare, cutting short WW1, and saving millions of lives.

Despite this enviable heritage, today Greater Lincolnshire faces significant challenges in maintaining its place as a hub of innovation. Global competition, technological disruption, and the need for greater investment in research and development have all played a part in diminishing the right conditions for growth.

However, we remain home to significant untapped potential within our economy. Boasting a mix of manufacturing and engineering industries, a nationally important agri-food and agri-tech industry, a world-leading offshore wind and clean energy cluster, a growing ports and logistics sector that supplies much of the surrounding region, and a nationally recognised defence cluster, Greater Lincolnshire sits poised with many of the assets needed for innovation-led growth.

Innovation is recognised as a core strand of the proposed Devolution deal for Greater Lincolnshire, with a proposal to form an Innovation Board within the emerging structure. This routemap provides us with firm recommendations and evidence to make the case for future asks and deepening our relationship with government agencies.

The production of this routemap has been made possible through the voluntary commitment and expert input drawn from our business leaders, innovators, and public institutions that have formed our powerful Innovation Commission, and to them we offer them our sincere thanks. We are confident that working with our fantastic employers, colleges, training providers, universities, and partners, we can now really take advantage of our strengths and potential, to make Greater Lincolnshire a region with a thriving, innovative culture at its core. By nurturing and embracing innovation, we will attract more investment, create higher-value jobs, and develop solutions to pressing societal and environmental challenges.

JAMES PINCHBECK

Chair of the Innovation Commission

PROFESSOR NEAL JUSTER

Vice Chancellor of the University of Lincoln,
Chair of the Greater Lincolnshire LEP

EXECUTIVE SUMMARY

Innovation is a catalyst for growth, enabling businesses to stay competitive in an ever-evolving global marketplace. By fostering innovation, regions can attract investment, create good jobs, and develop solutions to pressing societal challenges. But currently, Greater Lincolnshire needs to increase both the scale and value of innovation activity. There are too many businesses not innovating, and too few businesses investing strategically in innovation to drive growth.

Greater Lincolnshire's businesses have untapped innovative potential, building on local sector specialisms, areas of comparative advantage and expertise. But currently there are too many businesses not innovating, and too few businesses investing strategically in innovation to drive growth. This is primarily a result of structural challenges, cultural barriers, and a lack of the right support for businesses that want to innovate. We want to change that.

This routemap sets out our approach to accelerate innovation-led growth across Greater Lincolnshire. We want to create an environment where problem solving and creative thinking thrives, and a culture of innovation permeates businesses of all sizes and sectors. We will target the opportunities which build on our existing assets and expertise. And we will convene the right partners and multi-disciplinary teams, to access funding and investment, and build connections across different sectors, innovation assets and supply chains.

We want to:

- > Create an environment where problem solving and creative thinking thrives, and a culture of innovation permeates businesses of all sizes and sectors. We want to **increase business investment in R&D** in Greater Lincolnshire and **improve productivity in all our businesses, but particularly those within our priority sectors.**
- > Target the opportunities which build on our existing assets and expertise, and where Greater Lincolnshire can deliver world-leading economic activity to support wider prosperity. We want to mobilise around growth opportunities to leverage investment and **increase the number of well-paying innovation-oriented jobs within Greater Lincolnshire.**
- > Convene the right partners and multi-disciplinary teams, to access funding and investment, and build connections across different sectors, innovation assets and supply chains. We want to work with national partners to **increase the share of public innovation spending going to businesses within Greater Lincolnshire.**

We have highlighted two objectives to deliver against these outcomes; to support all businesses that want to invest in innovation, and increase collaboration to accelerate growth around strategic innovation opportunities.

By doing so, we seek to increase the overall capacity of our place to innovate, ensuring that more businesses can engage with and benefit from innovative practices and technologies.

FIGURE 1. OBJECTIVES AND INNOVATION PRIORITIES

OBJECTIVES	INNOVATION PRIORITIES
<p>Support all businesses that want to innovate:</p> <p>Strengthening the foundations of our innovation ecosystem to support a culture of innovation and enable more businesses to innovate.</p>	<p>We want the key building blocks in place to support all businesses that want to invest in innovation; building place-based ecosystems and innovation communities:</p> <ul style="list-style-type: none"> > Profile and networks: Actively promoting innovation and a regional innovation offer, which celebrates our assets, successes and growth opportunities; and creating opportunities to connect different partners and businesses, regionally, nationally and internationally > Comprehensive Finance Offer: Facilitating access to finance which supports innovators from ideas to commercialisation. We want to continue to develop our investor community and connect more businesses to investment opportunities, and support partners with bid writing to access public funds. > Flagship spaces for innovation: Place-making and expansion of innovation clusters and communities; ensuring a supply of start-up and growth space > High quality mentoring and advice: Ensure businesses and entrepreneurs with growth potential have access to a high-quality, tailored innovation support offer, including an accelerator programme for entrepreneurs, start-ups and spin-outs
<p>Collaboration around strategic growth opportunities:</p> <p>Accelerating strategic opportunities for innovation-led growth to increase the value of innovation activity and engage more businesses in R&D</p>	<p>We want to work in partnership to accelerate three cross-sector Strategic Growth Opportunities. Three innovation accelerators will target:</p> <ul style="list-style-type: none"> > Cross-sector growth through Big Data and AI > Innovating at scale towards Food Security > Advanced manufacturing through the Green Energy transition and carbon reduction



FIGURE 2. BARRIERS, INTERVENTIONS AND OUTCOMES FOR INNOVATION IN GREATER LINCOLNSHIRE

INNOVATION TYPE	BARRIERS	INTERVENTIONS
Radical	<ul style="list-style-type: none"> > Access to high level skills and technical staff > Access to wraparound funding support and advisory services for would-be entrepreneurs > Lack of awareness as to support available > Underperforming innovation ecosystem 	<p>Strategic Growth Opportunities</p> <ol style="list-style-type: none"> 1. Recruitment of cluster leads and working groups to develop implementation and resourcing plans <p>Identification and implementation of tailored interventions across:</p> <ol style="list-style-type: none"> 2. Engagement and identification of existing assets and structures to build on 3. Customer and supplier engagement to explore innovation challenges 4. Advisory, funding, brokerage, convening support to connect partners and progress innovation projects 5. Capital investments to strengthen assets and innovation spaces 6. Promotional and networking opportunities 7. Pilot and demonstrator activities 8. Supporting skills interventions
Disruptive	<ul style="list-style-type: none"> > Access to advice and knowledge to support innovation > Lack of skills to implement innovation > Funding or finance to introduce change > Mindset to change adopt doing it differently > Lack of awareness and understanding of the need to introduce innovative change 	
Adjacent	<ul style="list-style-type: none"> > Risk appetite and lack of impetus to innovate to recognise problem 	<p>Supporting all businesses that want to innovate</p> <p>Structures for success:</p> <ol style="list-style-type: none"> 1. Establish Innovation Board 2. Develop regional narrative 3. Engage Innovate UK to co-design action plan 4. Establish regional innovation network <p>Business Support:</p> <ol style="list-style-type: none"> 5. Review innovation support offer 6. Develop targeted innovation support services to address identified gaps <p>Flagship spaces for Innovation:</p> <ol style="list-style-type: none"> 7. Review of capital investment needs and case-making
Incremental		



OUTCOMES FOR BUSINESSES	IMPACT FOR GREATER LINCOLNSHIRE
<ul style="list-style-type: none"> > Established structures and collaborative forums for each strategic growth opportunity > Clear routes and signposting to align innovative activity with Greater Lincolnshire strategic growth priorities > Closer collaboration between local and national innovation ecosystem assets (such as the Catapult network) and local businesses > Progression of collaborative funding/investment opportunities for strategic growth opportunities > Increased spillover benefits between sectors 	<ul style="list-style-type: none"> > More businesses engaged in collaborative partnerships to support innovation. > More businesses across the region understand and invest in innovation for growth. > Increase in the value of business investment in R&D within Greater Lincolnshire. > Increase in Innovate UK funding into the region. > Productivity growth (GVA per job) within priority sectors. > Increase in number of good, well-paying innovation jobs within Greater Lincolnshire.
<ul style="list-style-type: none"> > All businesses have access to a comprehensive package of financial support to de-risk and enable investment in innovation-led growth projects > All businesses wishing to progress strategic innovation-led growth projects have access to high quality, bespoke advisory support > The region has a clear and shared innovation narrative to potential inward investors, funders and government > The region has a supply of appropriate innovation, start-up and growth space which facilitates collaboration and builds density of activity around regional innovation assets 	

INTRODUCTION

This routemap is the report of the Greater Lincolnshire Innovation Commission, a group bringing together leading local and regional expertise from the private sector, academia, and national agencies, and convened by the University of Lincoln and the Greater Lincolnshire Local Enterprise Partnership. Meeting over the course of 2024, the Commission has overseen and shaped this report to meet local need and match local opportunities.

The What Works Centre for Local Economic Growth defines innovation as “the invention, diffusion and exploitation of new ideas.” This concept extends beyond mere discoveries, encompassing products, services, business processes and models, marketing, and enabling technologies that are new to a company, organisation, or sector. Innovation is not just about groundbreaking inventions; rather, it includes the adoption and adaptation of existing ideas in new contexts and can drive growth and resilience across all businesses. We want our approach to innovation to be inclusive; recognising the value small changes can collectively make across the business base, as well as targeting specific innovation-led growth opportunities which strengthen our regional economic assets.

Greater Lincolnshire is a £25.4bn economy with significant potential to increase innovation-led growth. Boasting a mix of manufacturing and engineering industries, a nationally important agri-food sector, a world-leading offshore wind and clean energy sector, a ports and logistics sector that supplies much of the surrounding region, and a nationally recognised defence cluster, Greater Lincolnshire has the assets for innovation-led growth.

Alongside the University of Lincoln and other innovation-oriented institutions, local partners have invested heavily in R&D capabilities, with the ongoing growth of private sector assets like the Lincoln Science and Innovation park. The region has major opportunities for growth in game changing sectors, and is home to many innovative businesses at the forefront of their sectors. Our innovation assets are strong and future-focused.

Like many places across the UK, raising productivity (the average value of work done within a place) remains a priority for Greater Lincolnshire. Increasing the value of economic activity enables more investment in people, places and essential services; and innovation is one of the mechanisms to achieve this. It serves as a catalyst for economic growth, enabling businesses to stay competitive in an ever-evolving global marketplace, and generating wealth and boosting local wages. By fostering innovation, we will be better placed to attract investment, create good jobs, and develop solutions to pressing societal challenges.

The 2021 Plan for Growth identified some of the opportunities where innovation could increase business productivity and create new market opportunities:

- > automation in the agri-food sector to reduce the UKs reliance on food imports;
- > becoming a test bed for technologies in clean energy generation, storage and distribution and pioneer for industrial decarbonisation;
- > developing innovation care models and applying digital technologies to meet the needs for dispersed and ageing populations

There are many possibilities which businesses and academics across the region are already exploring. Businesses in Greater Lincolnshire secured £16m from UKRI in 2020-2021 to progress R&D projects, and the University of Lincoln generated £1.45m in consultancy income in 2022-2023. We have local research specialisms, such as in Computer Science, where 87% of the University of Lincoln’s research impact is rated world-leading. There are also hotspots of activity around strategic assets that help bolster the innovative capacity of our region, and four ‘game changer’ opportunities that have the potential to transform the long-term trajectory of our economy and offer the potential for significant economic impact.

There are opportunities to do much more and continue to build sector specialisms, but we need to address the barriers which currently limit our potential.

BARRIERS TO INNOVATION-LED GROWTH	OPPORTUNITIES FOR INNOVATION-LED GROWTH
<ul style="list-style-type: none"> > Low levels of business density, connectivity and absorptive capacity, restricting a flow of information, ideas and opportunities between firms and sectors > Talent attraction and retention challenges > Practical challenges such as finance, information and space 	<ul style="list-style-type: none"> > Strong base of innovation assets and clusters of activity providing a focus for growth and collaboration > Established sector strengths with complementary expertise which could create new market opportunities > Ambition, and a coalition of local partners keen to raise the profile of innovation and Greater Lincolnshire’s nationally significant sectors

FIGURE 2. INDICATIVE INNOVATION OPPORTUNITIES IN GREATER LINCOLNSHIRE



ACCELERATING INNOVATION: AN INNOVATION ROUTEMAP

Our approach to accelerate innovation-led growth across Greater Lincolnshire has been informed by analysis and consultation with local partners. The evidence base (available at www.greaterlincolnshirelep.co.uk/assets/documents/Innovation_in_Greater_Lincolnshire_-_Evidence_Overview.pdf) highlights that Greater Lincolnshire needs to increase both the scale of innovation activity happening across the region, and also its value.

There are some extremely innovative companies and assets within Greater Lincolnshire, but key statistics indicate that Greater Lincolnshire ranks in the bottom quintile across most metrics which support greater levels of innovation.

WHAT DOES THIS MEAN FOR BUSINESS?

Greater Lincolnshire's businesses have untapped innovative potential, building on local sector specialisms, areas of comparative advantage, assets and expertise. But there are too many businesses not innovating, or only innovating to maintain market share; and too few businesses investing strategically in innovation to drive growth. Fixing this means addressing the structural challenges, cultural barriers, and a lack of the right innovation-oriented support to enable Greater Lincolnshire's businesses to innovate, grow and thrive.

FIGURE 3. INNOVATION METRICS: NORFOLK AND SUFFOLK PROVIDED AS COMPARATOR

INDICATOR	GREATER LINCOLNSHIRE	NORFOLK & SUFFOLK	UK
R&D expenditure per full time employee	£353	£4,101	£1,638
Innovation jobs (% of total jobs)	1.8%	2.2%	4.4%
Total Innovate UK grants per business (5-year total 2018/19-2022/23)	£1,284	£669	£3,356
% of university students enrolled in STEM subjects	40%	32%	45%
% of university research impact at REF 3*/4*	61%	92%	87%
% of university graduates in full time employment or study	68.4%	69.2%	68.6%
Total IP revenue of universities per £100k of income	£7	£703	£702

Source: InnovateUK (2023), HESA (2021), BRES (2023)

WHAT COULD INNOVATION-LED GROWTH LOOK LIKE IN GREATER LINCOLNSHIRE?

In 2019 (the last available data through Eurostat), total R&D spend in Greater Lincolnshire represented around 0.6% of Gross Domestic Product; a low intensity relative to Greater Lincolnshire's innovation potential. Increasing this share to 1.2%, which would take it in line with English regions with comparable economic conditions, such as Devon and Cumbria (both 1.2%), would see **an increase of around £140m in R&D spend in the local economy per year**. Doubling R&D spend is an ambitious target, but one that would have substantial wider benefits in terms of high value jobs, local wages and ability to attract talent.

The reasons for this are varied and often interconnected. The dispersed nature of Greater Lincolnshire's business base, and lack of churn and complexity, means there are fewer competitive pressures on businesses to encourage innovation. Levels of business confidence, access to finance and growth space, as well as technical support and know-how for innovation, can also have an impact. These challenges are certainly not unique to Greater Lincolnshire, and the region's wider investments in infrastructure, business support, trade and inward investment, skills and place are all targeted on creating the wider conditions for growth which will support the delivery of the routemap.

Whilst city regions have been able to capitalise on the density of their innovation and industry assets to accelerate knowledge exchange and commercialisation; some more rural regions have increased clustering around major assets. For example, in Norfolk and Suffolk, a region which performs stronger than Greater Lincolnshire on some key innovation metrics despite having similar mixes of rural and urban areas, innovative activity is concentrated within two key areas. Norwich Research Park has multiple nationally funded strategic research institutes with a combined over 3,000 R&D staff, while Martlesham Innovation is home to BT's global R&D base and has over 65 co-located companies now on the park.

Creating the places where innovation can happen is therefore important. Strengthening clusters which support connectivity within an otherwise dispersed economy and make innovation visible, could help address many of the barriers to innovation. The region's wider investments in infrastructure, business support, trade and inward investment, skills and place will also play a role in creating the wider conditions for growth.

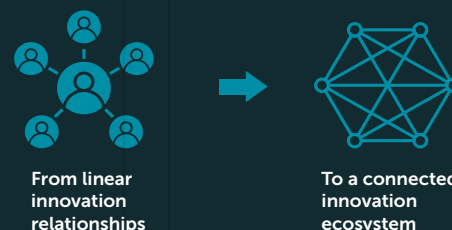
Many Greater Lincolnshire businesses are already innovating, even if they don't recognise it as innovation. Continuous improvements to existing products and services (or **incremental innovation**), and expansion of products or services to new customers (or **adjacent innovation**), are forms of innovation. These types of innovation enable businesses to remain competitive and maintain market share, and we want more businesses, entrepreneurs and employees with the growth mindset, capabilities and support to continually make these on-going improvements. The routemap will put in place a

portfolio of core support services and infrastructure to facilitate this, helping businesses with growth potential to progress their ideas and innovative projects.

To deliver against our strategic growth ambitions and add value to the innovation activity already taking place within our business base, the routemap will bring partners together to support innovation activity which is more disruptive or radical in nature, and which can benefit many businesses and priority growth sectors.

The approach acknowledges that while the number of organisations capable of engaging in disruptive innovation may be limited, by working collaboratively and establishing an open approach to innovation, their impact can be transformative for the entire region. By supporting these frontrunners, we can create a ripple effect that will benefit the broader business community and economy.

Whilst we must continue to support more businesses to engage in linear innovation activity with a customer or knowledge partner, we will accelerate opportunities which have scalable potential or can impact across sectors. These opportunities will require partners and multi-disciplinary teams to come together, access funding, and build connections across different sectors, innovation assets and supply chains.



This balanced approach aims to create an environment where research and development can thrive, while also fostering a culture of innovation that permeates businesses of all sizes and sectors. By doing so, we seek to increase the overall innovative capacity of our region, ensuring that more businesses can engage with and benefit from innovative practices and technologies.

OUR APPROACH TO DELIVERY: FOUNDATIONS AND STRATEGIC INNOVATION OPPORTUNITIES

Our approach is based on building a core support offer for all businesses with growth potential, and targeting collective expertise on innovation-led strategic growth opportunities which may bring together sector specialisms and enabling technologies to accelerate innovation and bring forward new market opportunities:

FIGURE 4. ROUTEMAP OBJECTIVES

OBJECTIVES	INNOVATION FOCUS
<p>Objective 1: Support more businesses across all sectors to innovate to increase individual business productivity and resilience</p>	<p>Supporting incremental innovation and adjacent innovation - forms of innovation defined by their low cost, low risk nature - across the business base, with strong cumulative impacts for productivity, while underpinning more radical and disruptive forms of innovation for certain businesses, institutions and sectors</p>
<p>Objective 2: Work with businesses and innovation partners to accelerate strategic innovation-led growth opportunities which can impact at scale</p>	<p>Directly encouraging disruptive innovation and radical innovation – forms of innovation defined by their high costs, low frequency, high impact and strategic nature - through partnership working which targets scalable strategic growth opportunities for Greater Lincolnshire</p>

Through consultation with regional partners, the Commission has identified the three following strategic growth opportunities for development through innovation accelerators are:

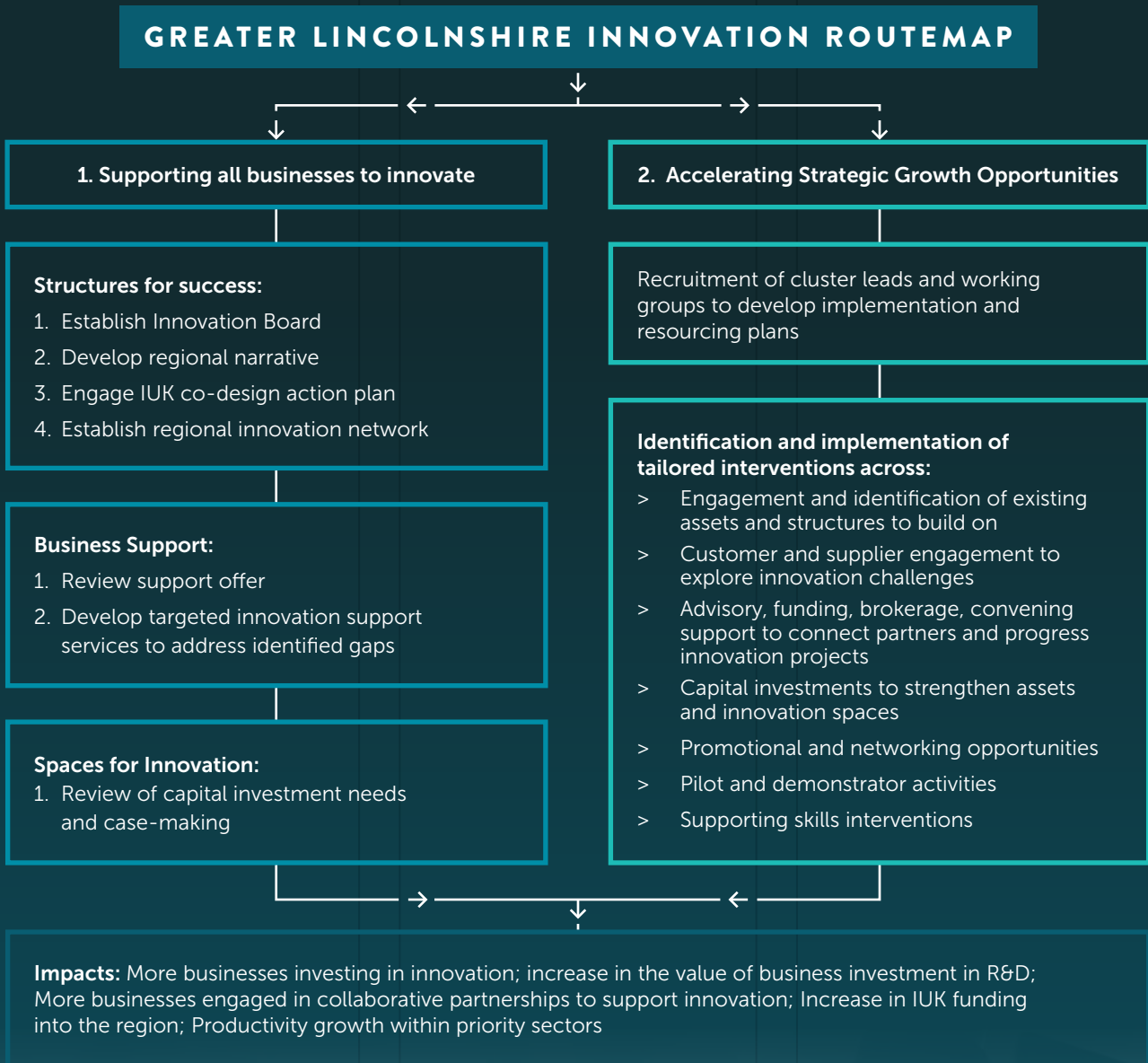
Accelerator 1: Cross-sector growth opportunities through Big Data and AI

Accelerator 2: Innovating at scale towards Food Security

Accelerator 3: Advanced manufacturing supporting through the Green Energy transition

Progressing these opportunities through our innovation routemap will not only strengthen our innovation ecosystem to raise productivity, but will also increase the links between our priority sectors and business base to support business retention and enhance the attractiveness of the region to inward investors.

FIGURE 5. THE ROUTEMAP ON A PAGE



OBJECTIVE 1:

SUPPORTING ALL BUSINESSES TO INNOVATE

THE OPPORTUNITY

The strength of the broader innovation ecosystem underpins the growth and success of innovative companies and organisations across the business base, and facilitates the flow of finance, resources and people between innovative companies and actors. We need to create the conditions for success and for all businesses to innovate.

We've heard that strengthening the innovation ecosystem requires:



PROFILE AND CONNECTIVITY

Greater visibility of innovation and profile raising of successes on the national and international stage, including a shared narrative of innovation opportunities in the region and opportunities for innovators to connect and collaborate



INNOVATION SPACE

On-going expansion of commercial/innovation sites and premises to ensure a supply of start-up and growth space, where companies can collaborate, share ideas and foster innovation and which has increased alignment, connectivity and referrals to ensure good use of space



COMPREHENSIVE FINANCE OFFER

Accessible finance which helps innovators from ideas to commercialisation and funding support which connects businesses to investors and facilitates greater strategic co-ordination and proactive targeting of major funding or investment opportunities



INNOVATION ADVISORY SUPPORT

High quality innovation advisory support offer for businesses and accelerator which is accessible and builds on the success of previous programmes, but also helps to connect and co-ordinate activity across the innovation ecosystem

AREAS FOR ACTION

1. CREATE THE STRUCTURES FOR SUCCESS AND PROMOTING THE REGION'S INNOVATION OFFER

Working with local partners, we will establish a Greater Lincolnshire Innovation Board to continue and embed the work of the Innovation Commission at the Greater Lincolnshire footprint. A key function of the Board will be to lead the co-design of the region's innovation narrative and offer to industry, government and investors, and use this as the basis for promotional activity and events, and discussions with UKRI to agree the development of an action plan.

Networks play an important role in connecting innovators and entrepreneurs to new ideas, opportunities, finance and support, but they need to be activity facilitated. We want to invest in a Greater Lincolnshire Innovation Network and annual showcase event which is open to all businesses and promotes innovation activity across the region.

2. REVIEW AND ENHANCE THE PORTFOLIO OF BUSINESS ADVISORY, FINANCIAL, AND ACCELERATOR SUPPORT SERVICES AVAILABLE TO LOCAL BUSINESSES

We will work with partners to identify where existing services are aligned with our objectives and should be continued, pivoted or expanded to meet the needs of businesses looking to innovate; where we can make better use of national and private sector services to address gaps in innovation support e.g. through better signposting or collaborative working; and where new services are required to drive innovation.

Where gaps are identified, we will work with partners to develop propositions and business cases to secure the investment required to strengthen financial and advisory support services. We anticipate immediate priorities being:

- > The provision of high quality advisory and mentoring support to businesses with growth potential looking to progress innovation projects
- > An accelerator to support innovators to start and grow a business
- > An innovation fund providing innovators and businesses with a blend of finance options and advisory support

3. CREATE THE SPACES FOR INNOVATION AND COLLABORATION

We've heard throughout our work that place-based innovation communities are highly valued by innovative companies, and companies that wish to expand their role in innovation. By bringing together the connective tissue of networks and communications, and wraparound financial support and advice, with the right physical spaces, we can build communities of practice that can attract and nurture innovative business.

We will work with innovation partners to identify where capital investments are required to meet business needs and build density of activity around our innovation assets. We are keen to develop place-based propositions which enhance flagship innovation zones, particularly assets at the University of Lincoln and Lincoln Science Park; the Freeport; and Holbeach Food Enterprise Zone.

CASE STUDY:

HEALTH INNOVATION MANCHESTER

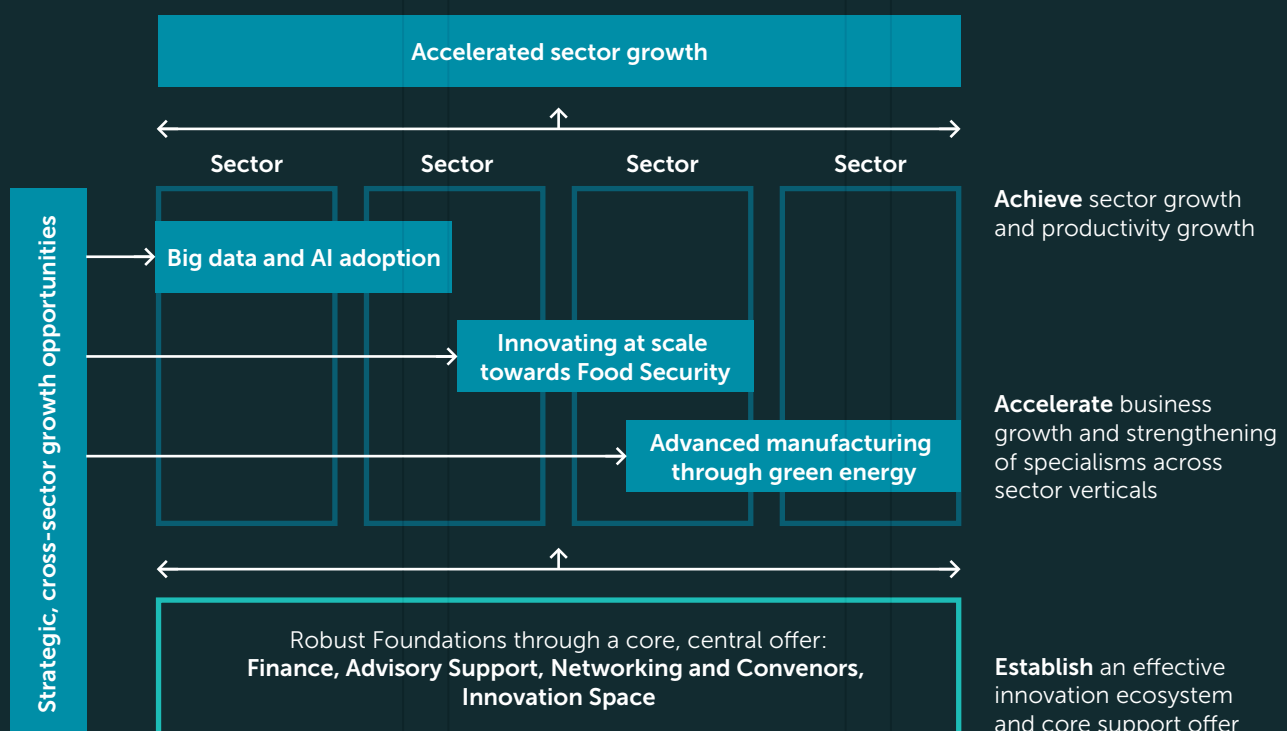
Health Innovation Manchester (HInM), launched in 2017, is a place-based innovation organisation dedicated to discovering, developing, and deploying new healthcare solutions. Founded by health, care, civic, and academic leaders of Greater Manchester (GM), HInM aims to leverage innovation to enhance the lives of local residents.

Through partnership working, HInM has established a Health Innovation Accelerator in GM to advance disease diagnosis. This includes the Advanced Diagnostics Accelerator (ADA) project which utilises advanced diagnostics and data analysis to improve health outcomes for major morbidities. HInM's delivery model is focused on bringing together innovation partners from across the ecosystem to speed up discussion and co-design new pathways which accelerate the commercialisation of research, whilst also purposefully designing-in place-based benefits. By creating a forum for collaboration across GM sectors, the approach has increased partners' understanding of each stage of the commercialisation process and where efficiencies can be achieved. The approach has improved connections between academics and those applying their research, and engaged GM's creative and digital businesses to improve the delivery of health trials across the region.

OBJECTIVE 2: ACCELERATING STRATEGIC GROWTH OPPORTUNITIES

Our three strategic growth opportunities have been identified through consultation with partners, stakeholders and businesses. They are targeted, innovation acceleration opportunities which have the potential to strengthen regional innovation clusters, raise productivity and attract investment by bringing together expertise across sectors and focusing collective effort.

FIGURE 6. OVERVIEW OF THE ROUTEMAP'S ROLE IN SUPPORTING SECTOR GROWTH



The routemap sets out a model for **regional innovation accelerators**, which builds on established approaches such as UKRIs Innovation Accelerator Programme and EPSRC’s Place-Based Impact Accelerator Accounts, and which will initially focus on big data and AI; delivering food security and advanced manufacturing in the clean energy transition. Whilst the focus of regional accelerators may shift over time as new opportunities emerge, they represent long term commitments to focus our innovation efforts, and demonstrate intentionality to raise business confidence and attract investment.

While there will be opportunity-specific considerations required to support successful delivery, mobilising each innovation accelerator will comprise:

FIGURE 7. MODEL FOR REGIONAL INNOVATION ACCELERATORS

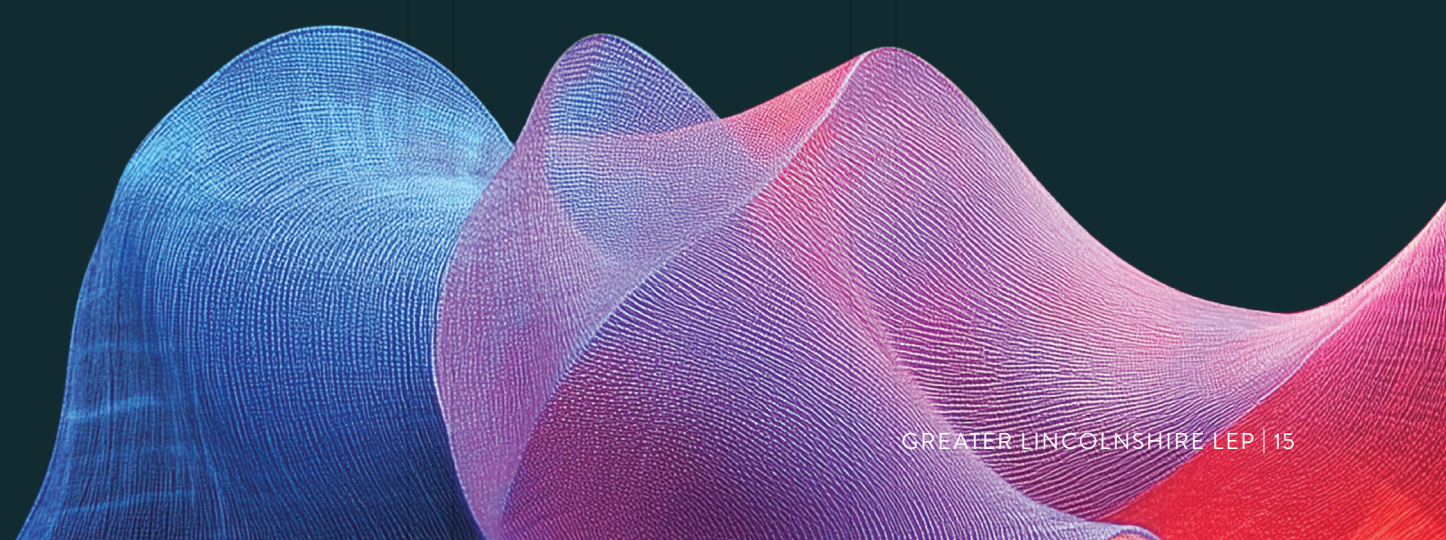
CONVENING	Establish a forum to bring together partners across private, public and academic spheres
TARGETING	Identify the project focus
CO-DESIGN AND PLANNING	Co-design the project scope and implementation plan
RESOURCING	Resourcing plan and joint funding bids
DELIVERY AND IMPACT	Monitoring, marketing and benefits realisation

CROSS-ACCELERATOR AREAS FOR ACTION

4. CAPACITY AND CONVENING

We have heard throughout the work of the Innovation Commission that the soft infrastructure of dedicated personnel and capacity will be essential in mobilising partners, businesses and institutions in support of identified strategic opportunities.

We recommend that the first action should therefore be the **recruitment of accelerator leads**, who in turn can **organise working groups** of businesses, innovation experts and local stakeholders to support each identified strategic growth opportunity. These groups, supported by dedicated resource and capacity would scope, co-develop implementation and resourcing plans, which will necessarily vary depending on the opportunity at hand, as the following sections explore.



ACCELERATOR 1:

CROSS-SECTOR GROWTH OPPORTUNITIES IN BIG DATA AND AI

THE OPPORTUNITY

Our society's **growing digitalisation and utilisation of data** presents opportunities to accelerate innovation. By drawing on existing data assets and expertise, particularly in defence, and applying this to other local sectors such as health and wider growth sectors such as manufacturing, we can extend the regional customer base of defence and digital businesses, supporting their retention in the region, whilst also creating new market opportunities for businesses. The need for generative AI and Machine Learning for instance has been highlighted by the pharmaceutical industry, while cybersecurity and cloud computing are required by the local healthcare network.

With an ageing population, we also have an opportunity to establish Greater Lincolnshire as **a testbed for innovative digital health solutions**. Digital and distributed healthcare is still in its early stages of development as a sector. Although it has all the components for innovation-led growth, it needs supporting infrastructure (hard and soft) to bring the sector together and provide a focus for innovation acceleration.

REGIONAL ASSETS

Nationally significant defence assets with expertise in big data and AI: We have a well-developed and highly innovative defence sector, with the region's strategic importance being underscored by the presence of RAF operations. The RAF forms the backbone of a robust supply chain comprising highly innovative defence organisations. The local ecosystem boasts an established consumer base and significant growth potential, creating a fertile ground for innovation.

We are leading ISTAR operations in the UK, with the headquarters at the RAF base in Waddington. The growth of ISTAR operations present opportunities in data collection and management, and require capabilities in data storage, wrangling and visualisation. Our defence businesses around RAF Waddington have strengths in cyber and security, with emerging opportunities in Unmanned Aerial Vehicles (UAVs), including the manufacturing of swarm UAVs, utilising the strengths the local economy has in 3D printing.

A strong health sector with R&D potential: Our health sector is made up of a strong workforce of 60,000 people, with key assets spread across the local geography. This includes a network of local hospitals, National Centre for Rural Health and Care, Mablethorpe Campus for Future Living, and the Lincoln International Institute for Rural Health, based in the Lincoln Medical School. The Institute focuses on health inequalities and the challenges of delivering high-quality care to rural communities.

A key manufacturing sector with room to benefit from big data and AI. Manufacturing is another key Greater Lincolnshire sector (the second largest by size) with substantial opportunity to benefit from spillovers in emerging regional big data and AI capabilities. Industrial digital technology can help technology helps manufacturers reduce operating costs and carbon emissions, improve quality, productivity, capacity and boost profitability and economic growth; in turn, the growth of big data and AI computing demand will fuel demand for manufactured products and services through the creation of data centres.

IMPLEMENTATION

This opportunity will have relevance to the **health, defence, digital, and manufacturing sectors**. We will put a cluster lead in place and convene a working group to take forward the opportunity and develop an implementation and resourcing plan.

The application of data and AI within the health sector has been identified as a **nascent, long term opportunity, requiring early stage activity to build connections and momentum**. In developing the implementation plan consideration will need to be given to:

- > Working with the Health and Care Enterprise Board and Defence and Security Advisory Board to baseline existing structures, assets, partnerships and connections which can be focused on the data/AI opportunity. Consideration will also be given to the region's manufacturing assets which might play a role in product design and efficiency improvements.
- > Proactive engagement with key customers for data/AI and health innovation, including the NHS, to inform targeting of activity and identify potential funding opportunities.
- > Capital investments required to enable growth and clustering of data and digital assets, particularly around the University of Lincoln and Lincoln Science Park. In addition to commercial space, this will explore wider capital requirements which may accelerate innovation, including enhancing the region's data storage and processing capabilities.
- > Exploration of the long term skills and labour market requirements essential to realise the growth opportunity.
- > The potential provision of targeted start-up support to attract and retain tech entrepreneurs.

CASE STUDY:

MADE SMARTER EAST MIDLANDS

Since its inception in 2022, Made Smarter East Midlands has provided expert support for the region's manufacturing sector. With a focus on alleviating the everyday pain points of manufacturers through digital adoption, the programme has already supported substantial positive change in the industry.

The programme has provided digital transformation consultancy to 120 businesses who have subsequently benefited from the Leading Digital Transformation programme, grant funding or other specialist technical advice to implement innovative digital technology. This has helped manufacturers to make internal efficiencies and given them market leading capability to innovate and bring new products and services to market. The programme has led to £2m of investment in process automation and control, AI, data and systems integrations, robotics, advanced simulation and design, and additive manufacturing. Implementation of industrial digital technology helps manufacturers reduce operating costs and carbon emissions, as well as improve quality, productivity, capacity and boost profitability and growth.



ACCELERATOR 2:

INNOVATING AT SCALE TOWARDS FOOD SECURITY

THE OPPORTUNITY

Greater Lincolnshire's well-established agri-food specialism offers substantial room for innovation uptake. By leveraging our agricultural assets, we can serve as a commercial testbed for agri-food innovation, and further solidify our position as a leader in this nationally critical sector.

Consultation with regional stakeholders has identified a distinct opportunities for innovation-led growth within Greater Lincolnshire in **Accelerating technology adoption to support food security**: Recent global instability, including the COVID-19 pandemic and the Russia-Ukraine war, has highlighted the vulnerability of food supply chains. As food security is one of the 13 Critical National Infrastructures, our region can play a crucial role in supporting national security by adopting new technologies for year-round farming and building on our strengths in automation and robotics. The food manufacturing sector, in particular, has the potential to accelerate automation by adopting new technologies that enhance the efficiency of food packing and processing.

REGIONAL ASSETS

Recognition as the UK Food Valley and nationally recognised R&D assets: The agri-food sector stands as a Game-Changer for our region, presenting a distinct economic opportunity through the UK Food Valley. Built on our historic strengths in agriculture, the area boasts strategic assets such as the Lincoln Institute for Agri-Food Technology (LIAT), National Centre for Food Manufacturing (NCFM), and the Holbeach Food Enterprise Zone, complemented by a strong base of potential private sector partners. Lincoln Institute for Agri-Food Technology uses sector expertise to enhance the future of food, agricultural productivity, efficiency and sustainability.

Nationally significant cluster and agri-food tech capabilities: Our region's advantages include a high proportion of Grade 1 agricultural land, some of the country's richest and highest-yielding, along with strong connections to nearby agri-food hubs in East Anglia and The Fens. We're also home to Europe's largest Agri-food Tech automation and robotics cluster, attracting businesses that invest heavily in automation.

Cross-border partnership with neighbouring agricultural hubs. Led by the University of Lincoln, with the backing of a £4.9m grant award from the EPSRC the Greater Lincolnshire and North Cambridgeshire (LINCAM) region agricultural technologies (agri-tech) cluster project aims to make the LINCAM region an agri-tech gateway for the world. This will enable the development of technologies at commercial scale and provide export opportunities for agri-tech companies and inward investment opportunities within both the agri-tech and primary production sectors.

IMPLEMENTATION

This opportunity will have relevance to the **agritech, digital and manufacturing sectors**. We will put a cluster lead in place and convene a working group to take forward the opportunity and develop an implementation and resourcing plan.

Adoption of technology and circular economy principles to support food security has been identified by partners as **immediate opportunities which can build on existing activity and assets in the agriculture, digital technology, and food manufacturing and processing sectors**. Working with established assets such as the LIAT and GL Manufacturing Board, there will be an opportunity to quickly convene partners around specific interventions and investment propositions. In developing the implementation plan consideration will be given to:

- > Targeted support to help businesses and researchers connect and access funding (e.g. KTPs and Innovate UK grants) in order to accelerate business-led innovation projects which support food security.
- > Engagement with key customers to understand challenges in tech and circular economy adoption and how these could be overcome. Consideration will be given to:
 - > facilitation of tech challenges which convenes partners to tackle common issues and design innovative solutions
 - > financial support to de-risk investment
 - > potential role of pilot projects and promotional activities to demonstrate technology effectiveness
- > Opportunities to promote Greater Lincolnshire as a demonstrator or living lab able to support business and academic partners with product development and the commercialisation of research.

CASE STUDY:

TECH CHALLENGES IN SINGAPORE

Singapore's Infocomm Media Development Authority (IMDA) sets annual nationwide Green tech challenges through the authority's Open Innovation Platform, in partnership with private sector partners such as Microsoft, as part of the national mission of reaching Net Zero by 2050. Applications for the challenges are welcome from early-mid size start ups alongside corporate venture teams, with winners offered benefits including up to \$350,000 prizes and access to Microsoft partner networks.

In 2023, the IMDA set three distinct challenges aiming to target gaps in the national Net Zero strategy; setting and tracking sustainability targets at an individual corporate level, support for businesses to identify and transition to opportunities for renewable energy sources, and the creation, trade and sale of carbon sequestration assets. By setting clear missions with tangible rewards for participation, the IMDA is able to redirect creative private sector effort towards shared objectives.

ACCELERATOR 3:

ADVANCED MANUFACTURING

SUPPORTING THE GREEN ENERGY TRANSITION AND CARBON REDUCTION

THE OPPORTUNITY

As our country aims to achieve Net Zero by 2050, and with global instability highlighting the importance of national energy security, Greater Lincolnshire is well-positioned to capitalise on the transition to clean energy sources and imperative for carbon reduction. The Green Energy sector is one of our game-changing opportunities, with the Freeport and the Energy Estuary offering significant growth potential.

Manufacturing is an essential sector within the Greater Lincolnshire economy, as the largest sector by GVA and a major provider of high value, tradeable exports (which have an outside effect on local productivity). The energy market has played a major role in shaping the local manufacturing sector, with key local employers and specialisms in carbon intensive and energy sector-oriented production.

As the green energy transition and carbon reduction agendas continue to drive change in association markets, manufacturers will need to innovate to respond to these changing customer needs. This offers an opportunity to drive uptake of innovative, advanced manufacturing techniques through customer-oriented innovation, while also reducing the carbon intensity of the sector and contributing to wider carbon reduction goals through opportunities such as industrial digitalisation, energy efficiency and the use of sustainable materials. Meanwhile, the expected and ongoing growth of the clean energy market creates significant new opportunities within Greater Lincolnshire's manufacturing and engineering sector.

REGIONAL ASSETS

A regionally important manufacturing sector with the capacity to serve new clean energy markets: Greater Lincolnshire's Manufacturing sector is particularly resilient when compared to its neighbours of Leicestershire, Derbyshire and Nottinghamshire and indeed the rest of the UK. The number of manufacturer businesses in Greater Lincolnshire has risen by more than 1.7% compared to declines in Leicestershire (-7.5%), Derbyshire and Nottinghamshire (-3.5%) and the rest of UK (-1.1%) over the last 5 years. The sector has grown by 64% in real terms (when adjusted for inflation) over the past decade in Greater Lincolnshire, while nationally (England) the sector grew by 29% in real terms over the past decade.

Established strengths in offshore renewables which provide important markets for regional manufacturing expertise: The South Humber bank, stretching along North Lincolnshire and North East Lincolnshire, serves as a focal point for the UK's clean energy transition, particularly in offshore renewable energy. This area hosts major innovation hubs including the Offshore Renewable Energy Catapult and the newly designated Humber Freeport, one of the region's four Game Changers.

Greater Lincolnshire is also part of a transformative private sector led decarbonisation cluster in the form of the **Humber Industrial Cluster Plan**, with the support of the Humber Freeport and expanding £60m National Net Zero Training Centre based at CATCH UK aim to achieve by 2030.

Emerging markets for regional manufacturers in new energy technologies: A regional Clean Growth Plan will capture the enormous potential of clean growth, offshore renewable energy, and hydrogen; with further opportunities also emerging in the sector through fusion testing in West Burton and the potential for nuclear Small Modular Reactor manufacturing.

IMPLEMENTATION

This opportunity will have relevance to the **manufacturing** and **energy** sectors. We will put a cluster lead in place and convene a working group to take forward the opportunity and develop an implementation and resourcing plan.

Supporting the manufacturing sector to realise the green energy transition and carbon reduction has been identified by partners as **an immediate opportunity which can build on existing activity and assets in the manufacturing and energy sectors**. Working with established assets such as the Manufacturing Board, there will be an opportunity to quickly convene partners around specific interventions and investment propositions. In developing the implementation plan consideration will be given to:

- > Engagement with major customers in the energy sector to understand specific innovation challenges with implications and opportunities for the regional manufacturing supply chain, and explore how these could be taken forward. Consideration will be given to:
 - > facilitation of tech challenges which convenes partners to tackle common issues and design innovative solutions
 - > support to progress targeted business to business innovation projects
 - > financial support to de-risk investment
- > Targeted support to help manufacturing businesses, energy sector businesses and researchers connect and access funding (e.g. KTPs and Innovate UK grants) in order to accelerate business-led innovation projects.
- > Capital investments requires to support growth and co-location of manufacturing, energy and research partners particularly where this strengths existing assets such as the Freeport.
- > Intervention required to support decarbonisation of the manufacturing sector.

CASE STUDY:

SOUTH YORKSHIRE'S AMRC

The Advanced Manufacturing Research Centre is a national focal point for manufacturing growth and translational research, located in South Yorkshire. Anchored around the facilities of major innovative employer (Rolls Royce), the AMRC hosts a growing cluster of advanced manufacturing and engineering businesses. Crucially however, the AMRC is closely integrated with local innovation assets; in this case, through the University of Sheffield, which has a range of complimentary research strengths, and operates a training centre on site to encourage students to engage with and benefit the ongoing activities.

While it is still somewhat early days, the AMRC continues to expand from a small original footprint. It has generated substantial momentum and a growing cluster and network of adjacent businesses, who benefit from proximity to each other and to innovation assets, and from shared pools of skilled workers and investment networks and opportunities.

TAKING THE ROUTEMAP FORWARD

NEXT STEPS

In line with the plan outlined through this routemap, our first step will be to put in place the structures to drive forward and co-ordinate innovation across the region, establishing a Greater Lincolnshire Innovation Board. Following this, we will review resourcing and capacity to deliver the innovation accelerator programmes outlined as part of Objective 2, while reviewing, developing and strengthening our core innovation support offer to businesses.

MOBILISING THE INNOVATION ACCELERATORS

In the immediate term, we will work with partners and with Innovation Commission members to begin scoping the three targeted innovation accelerators and the sequencing of how they will be taken forwards. To focus our efforts, and recognising that each accelerator will be starting from a different base, we will explore which opportunities we can quickly mobilise using existing collaborative infrastructure, and which will require more preparatory work and relationship building. While there will be opportunity-specific considerations required to support successful delivery, mobilising each innovation accelerator will comprise:

The support of wider partners, including national stakeholders and agencies, will be essential to build momentum behind the regional accelerators. In addition to leveraging our existing relationships, a communications drive celebrating examples of private sector innovation within the three strategic growth opportunities will be used to gather attention, engagement and input from policymakers and prospective partners.

FIGURE 9. SEQUENCING FOR REGIONAL INNOVATION ACCELERATORS

CONVENING	Establish a forum to bring together partners across private, public and academic spheres
TARGETING	Identify the project focus
CO-DESIGN AND PLANNING	Co-design the project scope and implementation plan
RESOURCING	Resourcing plan and joint funding bids
DELIVERY AND IMPACT	Monitoring, marketing and benefits realisation

FIGURE 8. SEQUENCING OF INNOVATION ROUTEMAP ACTIVITIES



1 MOBILISATION

- > Establish Innovation Board
- > Develop regional narrative and engage IUK
- > Recruit cluster leads and establish working groups

2 DESIGN

- > Review business support/finance offer and capital requirements
- > Engagement to develop innovation accelerator implementation plans
- > Project/intervention design and case making

3 IMPLEMENTATION

- > Identification of delivery mechanisms
- > Direct delivery of interventions by innovation partners
- > Partnership working to align wider infrastructure and skills activities

4 EVALUATION

- > Ongoing monitoring and oversight by Innovation Board
- > Evaluation of activities and refocusing/refinement where needed
- > Consideration of any new innovation needs or accelerator opportunities

QUICK WINS

The Innovation Commission recognised that taking forward the recommendations within this would be long term and subject to funding. However the commission committed to further exploring the deliverability of the recommendations through a range of means. Current short term commitments include:

- > Work with Innovate UK to create a dedicated Innovation Action Plan for Greater Lincolnshire
- > Create additional entry point on www.businesslincolnshire.co.uk A dedicated section which will collate the UK Research and Innovation (UKRI) funding, programmes and competition calls
- > Amplify service offer of the existing the physical innovation assets and associated networks
- > Work with higher education institutions to enhance and promote the Knowledge Transfer Programme (KTP) opportunities across Greater Lincolnshire to encourage promotion, case studies and industry forums
- > Dedicated higher education support to guide businesses through the innovation pathways

WIDER AREAS TO INFLUENCE

Throughout the work of the Innovation Commission, we have heard of the barriers that are posed by wider factors associated with the Greater Lincolnshire, including access to skilled workers and talent retention, challenging infrastructure, dispersed economic centres and national profile.

- > **Infrastructure** and transport investments supporting business growth and expansion and the connectivity of residents to jobs and opportunities
- > **Placemaking** creates the environment to attract inward investment
- > **Generic business support** offer supports on-going business improvement and resilience
- > **HE/FE CPD and skills offer** to build the absorptive capacity and management skills of business base and provide a talent pipeline which is connected to industry and the regional labour market
- > **Embedding the benefits of supply and value chains** from innovative activities into the local economy

We will continue to work with local partners to advocate, input into and refine investment and wider policy decisions to support a positive environment for innovation.

MEASURING SUCCESS

As we move into delivery, further work will be required to scope specific outputs and associated outcomes. However, as a starting point, we want to target improvements in outcomes across the following key metrics:

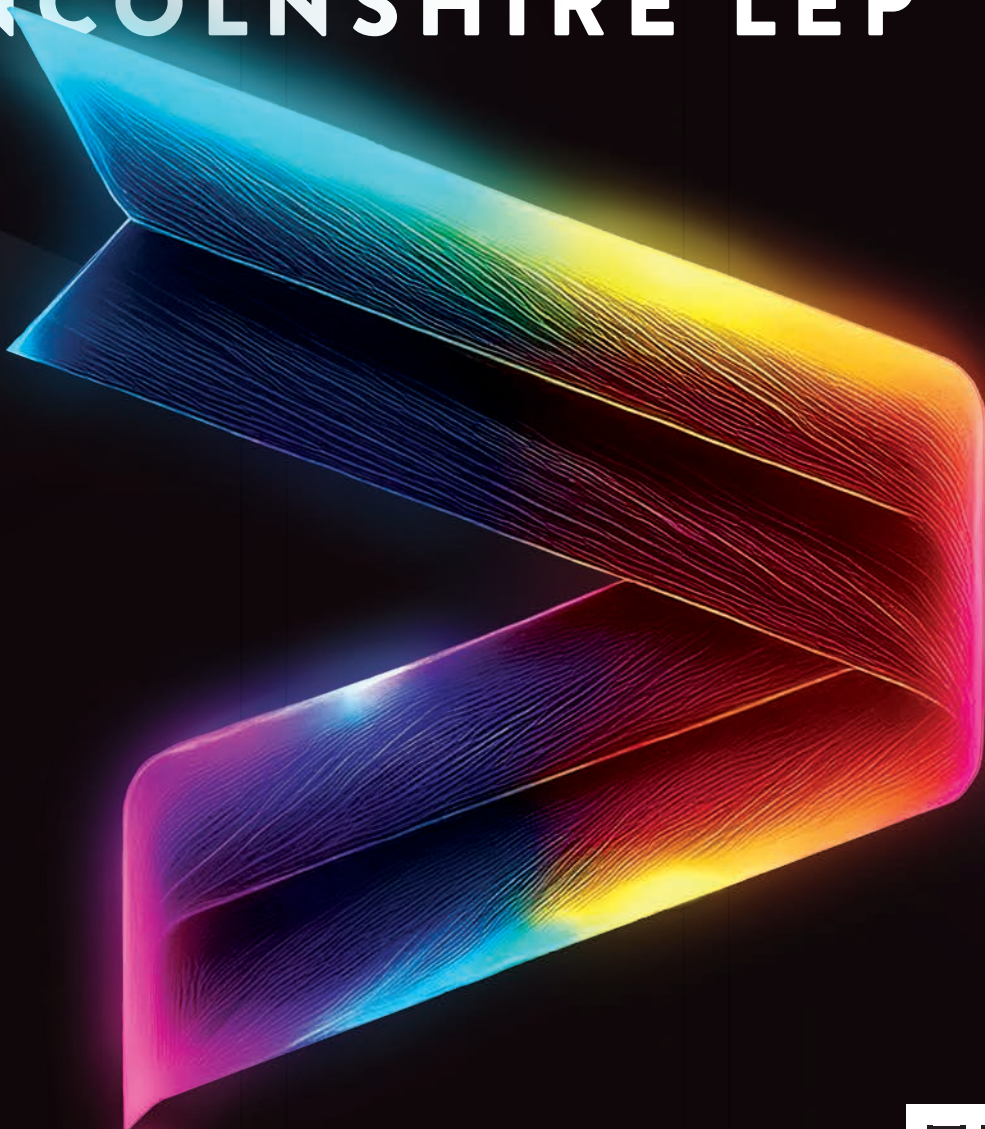
- > Business investment in R&D within Greater Lincolnshire.
- > Productivity (GVA per job) in our priority sectors.
- > Share of Innovate UK funding being deployed within Greater Lincolnshire
- > The number of good, well-paying innovation oriented jobs within Greater Lincolnshire



HOW CHANGE WILL HAPPEN

We will only deliver the change outlined in this routemap – meeting ambitious objectives and supporting a step change in R&D intensity - by mobilising around opportunities for radical and disruptive innovation with the support of a wide range of private, public and institutional partners. We want to encourage local, regional and national partners to actively shape, involve themselves with, and steer Greater Lincolnshire's opportunity. We want to hear from businesses who are already innovating, who can strengthen our work with their experience, and those who want to do more.

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