University of Lincoln
Industrial Research Strategy:
2021-2026
Introduction: The University of Lincoln and industrial research

The development of the University of Lincoln is intricately linked to the economic and social landscape of Greater Lincolnshire. The University was established as a result of action by local leaders, across government and businesses, determined to boost economic growth. Given the significant barriers to growth and productivity that the region still faces it has been imperative for the University to focus on areas of comparative advantage as it has grown. Clusters of research and innovation activity have been developed that deliberately link to the strengths and needs of the surrounding area and key industries. These focuses are driving global collaboration with regions and sectors around the world with shared research challenges.

This grounding has shaped a distinctive approach: both in terms of the sectors and specialisms that are focussed upon; and the way in which research, innovation and translation are undertaken.

The university has grown rapidly over the past 20 years and its involvement in economic development right across the region has grown considerably:

- It has opened six new STEM schools (engineering, mathematics & physics, chemistry, pharmacy, geography and life sciences) since 2011 – all based on regional industrial collaboration around skills and innovation needs.
- Lincoln Medical School was established in 2019, which sits alongside the Lincoln International Institute for Rural Health. Again, these developments were built in response to local needs which are now being connected to similar localities globally.
- It has three campuses across the region, in Lincoln and in two more rural locations serving the needs of the agri-food industry
- It sponsors a Multi-Academy Trust which currently includes five schools in the south of the region both primary and secondary level
- In 2019 the University led a successful collaborative bid with employers and FE colleges from across the region to establish a Lincolnshire Institute of Technology.
- Senior staff are on all seven Boards responsible for developing Town Deals as well as the Local Enterprise Partnership Board and sub-Boards and the Lincoln Cultural Arts Partnership
- In the last ten years, Innovate UK funding going to the university has quadrupled and the University’s 2015/16 HEIF allocation per academic was higher than the Universities of Oxford, Cambridge, Manchester, King’s College London and Imperial College London.
- The University has appointed a number of Global Professors across key research themes and has established institutional-level research collaborations with LaTrobe and UCL.

The University’s growth trajectory is a story of incremental steps taken at pace with regional partners, supported by a range of funding injections. We pro-actively work with organisations across the region to increase economic growth and productivity as well as raise living standards. This includes the Greater Lincolnshire Local Enterprise Partnership, the Innovation Council, which the University established and leads, and all 7 of the region’s Towns Deal Boards. Working in this way critical to the delivery of joined up strategies and resources that are focussed on levelling up the region over the long-term. The issues supporting productivity and improved living standards are interlinked and our experience is that sustained, multi-faceted and co-created interventions are the way to deliver lasting impact. This cross-system approach is central to the consideration of an industrial research strategy.

---

1 The Government’s March Budget confirmed £1 billion of investment for a further 45 Town Deals across England including: Boston (£21.0m), Grimsby (£20.9m), Lincoln (£19m), Mablethorpe (£23.9m), Newark (£25m), Scunthorpe (£20.9m), Skegness (£24.5m)
Summary: Purpose, vision & objectives

Purpose
This Industrial Research Strategy is focussed on developing identified sector clusters where partnership, funding and industrial research opportunities are likely to grow over the next five years. It uses a broad definition of industrial to include partnerships with public, private and third-sector stakeholders. It does not cover the entirety of the university's research portfolio or the wider university approach to research. Indeed, the Strategy is intentionally highly targeted in order to:

• set direction
• build momentum
• scale up industrial partnerships
• increase industrial research income
• build critical mass in key areas of industrial research leading into REF 2027 / 28

Vision
Our vision is to deliver a sector and partnership centred eco-system that will generate future industrial research opportunities and long-lasting transformation in our place.

Industrial Research Clusters
To develop this strategy we have undertaken environmental scanning of policy, funding opportunities, and industry developments at a global, national and regional level as well as considering existing strengths and activities at the university. Following this analysis, six industrial research clusters have been identified:

Industrial Research Clusters

Clearly, there are many linkages across these areas and our expectation is that over time the opportunities for work across them would increase. The environment scanning is described in more detail in part one of the strategy, below. The clusters are considered at in part two.
Objectives

Building teams, knowledge and resource around these areas will enable a longer-term, embedded approach that goes beyond project-to-project, issue-by-issue company interactions as we build critical mass, trusted relationships and institutional memory. The following objectives set out the ways of working that can support a sector and partner centred eco-system and to drive momentum.

1. Co-creation will drive and shape our industrial research

Building trusted relationships is at the core of the strategy. Trusted relationships build over time beyond individual projects as partners realise they can depend on us to deliver and work with them to innovate and generate impactful outcomes. Co-creation goes beyond responding to a stakeholder’s research problem, it is a two-way engagement where challenge and development goes in both directions. Beyond co-creation endeavours with individual organisations, the focus on clusters provides an opportunity to do this at sector level, perhaps though industry boards or networks. Working in this permeable way will remove barriers to interaction both within the university and beyond it building towards an eco-system that brings together different groups and communities, technologies, and disciplines.

2. We will develop an eco-system approach centred on sector-led research challenges

A systems thinking approach recognises the need for multiple stakeholders to work together, since stakeholders in different parts of the system hold different parts of the solution. It is increasingly recognised the complex “wicked problems” require an inter-disciplinarity, but we should think about inter-activity as well. We have an opportunity to scale up our industrial research activity if we recognise the value of roles across the university. As Ottoline Leyser has highlighted “In reality, a huge network of people in a number of roles support researchers who are just as important to the scientific endeavour.” Teams should be built around the clusters centred on sector research challenges rather than disciplines. A mix of knowledge and skills from across the disciplines and including non-academic colleagues, knowledge exchange professionals and also generalists should be brought together to solve the problems of industry and bring ideas to market. This approach could help to achieve longer-term, scalable sustainable change.

3. We will increase our appetite for risk in order to create opportunity

Building trusted, long-term relationships with sector partners and using every asset across the eco-system will mean that we are able to tune into new areas of activity and industry challenges at an earlier stage such that we can shape future industrial research opportunities. In practice this means getting into the detail with stakeholders through early, repeated and open conversations. It is about understanding where the potential lies and identifying incremental steps to create longer-term benefit – the short-term benefit might not be immediately clear. This approach will be increasingly important given the considerable state of flux that R&D funding as well as local growth funding is in at the moment. When funding opportunities come, they will likely be short-turnaround and those that have already got projects and partners lined up will have an advantage. To a certain extent we have already been experiencing this in recent years. An appetite for risk is an important part of being able to operate in this way and should also link to an increased focus on identifying and supporting spin-out opportunities.
4. **We will apply the Global – Local: Local – Global ethos within the industrial research context**

Extending the eco-system through global collaborations is crucial to address some of the challenges our societies face, working across different jurisdictions, different institutions and different disciplines.\(^\text{iv}\) The University follows a ‘local to global’ principle of prioritising research and knowledge exchange that addresses the challenges of our communities and has global significance. Building connections to local places in other global locations has proved effective at supporting new innovation and thinking about how to tackle a range of cross-cutting issues that left-behind places around the world are facing.\(^\text{vii}\) Within the Industrial Research strategy this means that we will collaborate with global industrial partners alongside, our international research collaboration, to develop the knowledge base in specific sectors and geographies.

5. **We will realise the value of education within the research and innovation eco-system**

There are many ways in which education should play a role within this Industrial Research Strategy. Conversations around Education and skills are often the first point of contact with an industry partner, we should do more to build these partnerships out into the research and innovation space. Knowledge Transfer Partnerships can be a helpful tool towards this. Taking a sector-challenge focussed approach will likely mean that research, innovation and education solutions are all in the mix from a stakeholders perspective so there is value in bringing them together. Equally, the role of education to diffuse innovation should not be overlooked. As the Made Smarter Review identified, under-leveraged innovation assets is one of the reasons preventing the UK from adapting to the challenge of industrial digitalisation.\(^\text{viii}\) Universities can respond to this challenge not just by boosting the ‘Development’ part of Research and Development but also by feeding back into their own curriculum so that they are preparing students for the world that our research and innovation are creating.

6. **We will actively engage in levelling up agenda**

In his first speech as Prime Minister, Boris Johnson promised to ‘level up across Britain’ and ‘answer the plea of the forgotten people and the left-behind towns’ix. The IFS defines a left-behind area, in need of levelling up, as a place: “characterised by broad economic underperformance, which manifests itself in low pay and employment, leading to lower living standards in that area.”\(^\text{x}\) Tackling regional inequality is core to the University of Lincoln’s purpose and we have a role to play to work with Government to increase understanding of the underlying drivers that leave places behind, particularly for rural-coastal, dispersed economies. Alongside this we must continue to work with work with regional partners to support a sustained long-term strategy that will increase productivity and the supply of high skill jobs in the labour market. This includes our work to support the development of a regional innovation eco-system in order to increase opportunities for businesses with high-growth potential.

These objectives are further considered in relation to culture or ways of working required to deliver the strategy under section 3.

To monitor progress of the Industrial Research Strategy, the university has developed the following KPIs for 2021/22:

- 20% of all research bids submitted to be in relation to Industrial Research Clusters
- 10% of bids submitted to be cross-college
- 20.7% of papers to be co-authored with non-academic partners
- £622,000 contract research income with businesses
- £4,317,000 collaborative research income
Greater Lincolnshire LEP (2019) LEP Local Industrial Strategy evidence base


Ibid.


Ibid.

BEIS (2017) Made Smarter Review

Johnson, Boris (24 July 2019) First speech as Prime Minister