

# Chasing Unicorns

Innovation-led Growth in the Midlands

24<sup>th</sup> May  
2021



# Executive Summary

Whilst much has already been achieved in the transformation of the Midlands of England from a region with a reputation for poor productivity and low living standards to a modern, dynamic economy, many parts of the Midlands continue to struggle to evolve.

As the region seeks to build upon the Midlands Engine concept, fuelled by promises of an economic “levelling-up” from central government, the on-going coronavirus pandemic has, for many, highlighted the UK’s regional divide.

The imperative to ensure this recovery is effective, inclusive and for all is clear. It will take place in tandem with structural shifts already in-train as the world of work evolves. To tap into the opportunities provided by high-growth industries, and mitigate the impact on disrupted sectors, local leaders must be able to understand where the opportunities are, and which levers will give them the greatest chance of securing inclusive growth.

Data has been integral to the pandemic response, particularly at a local level. It will prove equally vital to the economic recovery, with the potential to enable tailored, granular policy interventions which take account of the mosaic makeup of the Midlands.

A key component of the recovery is the region’s ability to harness the growth opportunities presented by the innovation environment in the Midlands.

This report examines the underpinnings of innovation-led growth across the Midlands, evaluating the ecosystem that exists to support the creation and development of the companies that will anchor the future economic prosperity of the region.

A successful innovation environment is built on five key pillars - Innovation, Business, Workforce, Infrastructure and Funding.

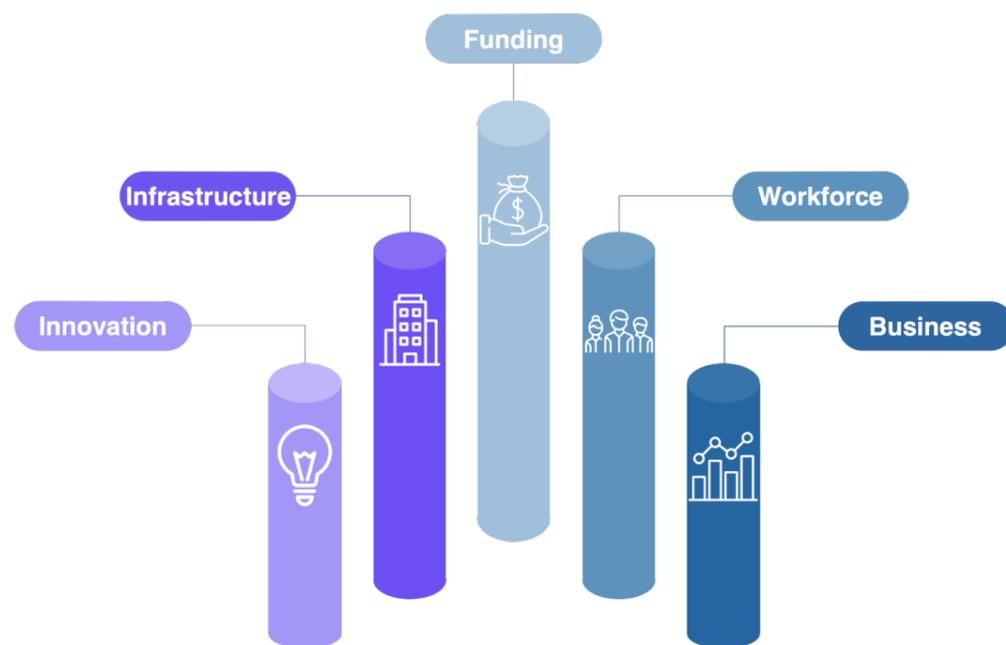


Figure 1 - 5 pillars of innovation led growth

In this report, we have outlined, by Local Authority, where the region is doing well in relation to these five pillars, as well as those areas where lessons can be learned and opportunities grasped.

There are significant opportunities for levelling-up across the Midlands by capitalising on the region’s successes. For any levelling-up agenda, it is not simply about raising standards in the Midlands compared to the rest of the country or even between East and West, but within all of the Midlands’ individual policy-making areas. The differences between Local Authorities that have been highlighted show that there is no single solution. Local and Combined Authorities need to play to their strengths but must also be prepared to take advantage of better practice amongst their neighbours in the region, partnering with similar areas to develop common solutions. This will not only serve to focus more resource into solving problems, but also to strengthen relationships across the region.

A range of attitudes and behaviours across the region need to change if the Midlands is to have any chance of levelling up its constituent parts.

- **Local and Combined Authorities need to recognise and accept their differences. Not all cities can or should be the same - just because one city has something doesn’t mean that the other Midlands cities also need to have one. What is more important is that the Midlands’ collective offering is effectively and efficiently co-ordinated and presented in such a way to attract business, research and workers to the region.**
- **Policy making across the Midlands needs to become more agile and responsive to take advantage of the growth opportunities that are available. Dynamically growing businesses need to be supported and nurtured to ensure that they achieve their full potential. Increasing the cohort of high-growth businesses will not only provide more opportunities for the local workforce but will improve the attractiveness of the Midlands for qualified and skilled workers from elsewhere in the UK.**
- **A higher level of performance monitoring needs to be applied across policy areas. It is not enough to simply report outputs, with the view, heard all too often, that, “It’s always been this way.” Decisive and effective interventions need to be made in response to under-performance to achieve positive change.**
- **A greater level of collaboration is required across the region - particularly in relation to innovation-led growth. Rather than expecting innovation to thrive in isolation, those groups that share cluster characteristics should work together to provide solutions for all and then test and propagate those solutions in other areas across the region. In particular, there has to be far greater levels of dissemination of best practice for the SME community with a focus on investment readiness and skills.**
- **The speed of translation of innovation needs to be increased and made more effective. This must be achieved without the layering of a multitude of different structures. It is essential that the complexity of the support network for growing businesses is reduced and simplified.**
- **Across the region and beyond, if there is to be any chance of the increased levels of research funding playing their part in establishing the country at the forefront of cutting-edge areas like aerospace, clean energy, automotive technologies and artificial intelligence, it must be supported by properly funded and promoted**

vocational training to produce the next generation of data analysts, lab technicians and robotics operators.

Based upon the analysis herein, we have identified ten specific recommendations that, if implemented, can help to transform the prospects for innovation-led growth across the Midlands of England.

1. Establish a Midlands Innovation Forum to streamline, co-ordinate and implement innovation policy for the Midlands.
2. Introduce policy targeting improved vocational training with a focus on skills required for new industries.
3. Expand existing business support programs to prepare companies for growth.
4. Propagate experience gained from success across the five pillars of innovation to support levelling-up across the region.
5. Incentivise the development of mixed-use, innovation-led infrastructure that benefits the community at large.
6. Refill the Midlands Engine Investment Fund with funds specifically targeted at dynamically growing businesses in the developing industry sectors aligned with the Grand Challenges with fund management incentives that reward greater risk taking.
7. Leverage existing tax reliefs to drive early-stage funding into regional businesses.
8. UK Government should raise capital allowances to incentivise growth in the Midlands' manufacturing businesses.
9. Use the planned overall increase in public funding of research to increase the proportion of funding for academic research that is specifically tied to industrial collaboration and commercialisation.
10. Provide incentives for venture capital and private equity funds to invest in businesses in the region.

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# Introduction

As the UK Government works to rebuild the national economy in the wake of the coronavirus pandemic, the concept of levelling-up has been put at the heart of its strategy. However, the focus on creating economic growth and opportunity outside of the economic powerhouse of London and the South East has yet to truly take hold in policy implementation with Whitehall officials reported to be uncertain as to how to put the concept into practice.<sup>1</sup>

In the Midlands, there is some tangible progress such as the re-opening of Birmingham rail stations but other plans, including increased devolution of funding and powers to regional mayors, have been delayed. Notably, the Prime Minister has appointed a Midlands MP, Neil O'Brien, as his levelling-up adviser to try and embed the concept within Whitehall.

The economic impact of the on-going coronavirus pandemic has, for many, highlighted the regional divide in the country between the South East and the rest. The response to the pandemic will be analysed and debated for years to come. Regional responses have been, generally, agile, informed by data, and aligned with the specific needs of communities. This has been crucial, as both the drivers behind the spread of the virus, and the impact it has on industries and communities, differ by geography.

In some cases they are nuanced, in others stark. The challenges facing Loughborough are distinct to those posed to Birmingham. Walsall and Worcester are only 35 miles apart, but the communities within them are likely to have had markedly different experiences of the pandemic. Covid has highlighted this variation, often in cruel fashion.

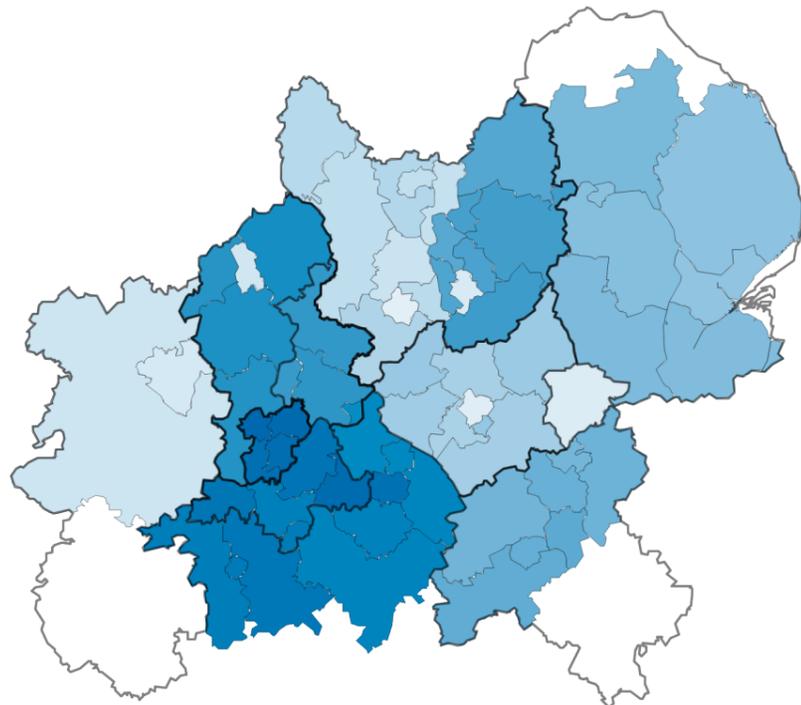


Figure 2 - Map of the Midlands highlighting LEP and Local Authority boundaries

The Government's pledge to 'build back better' and level up the UK includes funding and initiatives aimed at supporting the economic regeneration of left-behind, post-industrial towns. But individual towns and cities have their own distinct challenges, and their own strengths to play to. A one-size-fits-all approach to devolution policy will not deliver what advocates of a more balanced UK economy are calling for.

In the recovery from Covid-19, it is vital that both Whitehall and regional leaders create policy which accounts for this mosaic, both across the Midlands and within individual cities and Combined Authorities.

The ability to create flexible, hyper-local policies and initiatives is dependent on the ability to accurately quantify need and verifiably measure progress – both objectives that are dependent upon analysis of robust data.

Some towns and city regions will undoubtedly derive the most benefit from improvements in physical or digital infrastructure. But others have more deep-rooted issues to address, such as reducing NEETs (Not in Education, Employment, or Training) or tackling healthcare inequalities.

In many cases, multiple policy interventions will be necessary but with varying levels of importance placed on each. It is only through understanding the true local picture that it will be possible to deliver effective local interventions.

The imperative to ensure this recovery is effective, inclusive and for all could not be clearer. It will take place in tandem with structural shifts already in-train as the world of work evolves. To tap into the opportunities provided by high-growth industries, and mitigate the impact on disrupted sectors, local leaders must be able to understand where the opportunities are, and which levers will give them the greatest chance of securing inclusive growth.

In a post-Covid world, proximity to the City, or any city, may be less of a barrier than ever before. Harnessing the immense economic potential of digitally-driven ways of working could be transformative for the life chances of people living in coastal or rural areas; or indeed any location which has been overly reliant on industries ravaged by the pandemic, or affected by automation.

Data has been integral to the pandemic response, particularly at a local level. It will prove equally vital to the economic recovery, with the potential to enable tailored, granular policy interventions which take account of the mosaic makeup of the Midlands.

Sustainable economic growth is the holy grail for policy-makers worldwide. Securing that growth from the economic base that is a consequence of decades of local, regional and national policy that has rarely been consistent, let alone joined up, presents a huge challenge.

The impact of external factors, whether they be a global pandemic or simple, market-driven dynamics adds further complexity.

This report examines the underpinnings of innovation-led growth across the Midlands, evaluating the ecosystem that exists to support the creation and development of the companies that will anchor the future economic prosperity of the region.

Unicorns are high-growth, privately-held start-up companies with a valuation of more than \$1 billion. Typically active in dynamic industry sectors such as technology and life sciences, they are a key marker of a region's growth opportunities. However, of as much, if not more, importance are the rapidly scaling businesses that are in the next wave.

Scale-up businesses<sup>2</sup> contributed £1 trillion to the UK economy in 2018, employing 3.5 million people and with an average productivity that is 54% higher than their peers.<sup>3</sup> These are the businesses with the potential to become the next unicorn and this sector needs to be provided with the right environment to enable success.

London is widely accepted as leading the way in innovation-led growth in the UK. In social terms, the Midlands can be viewed as a facsimile of London but over much larger distances.

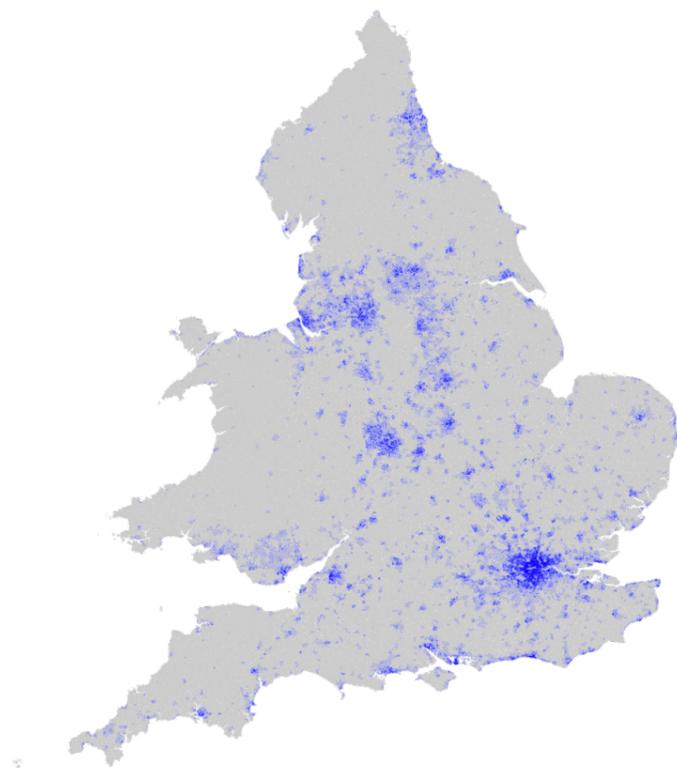


Figure 3 - Map of England population density

The impact of this geographic spread on the knowledge and innovation supply chain is that the flow of ideas, talent and, therefore, opportunity and growth is generally slower in the regions compared to London. As a result, innovation policy must take account of the spatial differences.

A successful innovation environment is built on five key pillars - Innovation, Business, Workforce, Infrastructure and Funding.

In this report, we will look to identify, by Local Authority, where the Midlands is doing well in relation to these five pillars, as well as those areas where lessons can be learned and opportunities grasped.

There are significant opportunities for levelling-up across the Midlands by capitalising on the region's successes. The report will highlight differences between Local Authorities to show that there is no single solution.<sup>4</sup> Local and Combined Authorities need to play to their strengths but must also be prepared to take advantage of better practice amongst their neighbours in the region, partnering with similar areas to develop common solutions. This will not only serve to focus more resource into solving problems, but also to strengthen relationships across the Midlands as a whole, something which has all too often been missing.

# Drivers of Future Growth

Growth driven by innovation offers the possibility for the Midlands to position itself at the forefront of sectors that are critical to national and global sustainability going forward. In looking at the innovation potential of the region, it is important to assess the impact of business-led innovation as well as the research being undertaken across the Midlands' academic institutions. By harnessing both of these outputs, the Midlands can take advantage of the opportunities being generated by its technological base to deliver sustainable growth and, in the process, achieve some of the levelling-up that is so necessary across the region.

But if the Midlands is to be successful in creating a multitude of market-led, dynamic new businesses with the potential to become the unicorns of the future, it has to deliver the right environment that will nurture and nourish those companies and support the translation of innovation.

The five pillars that underpin this environment (fig. 4) are:

- **Innovation** - producing the ideas around which companies can be formed
- **Business base** - supporting the existing economy with the capabilities to capitalise on emerging opportunities
- **Workforce** - ensuring that there is an available pool of skilled talent across the region to sustain business creation and growth
- **Infrastructure** - providing the best environment for businesses to thrive to the benefit of the community at large and enabling the development of co-operative ecosystems that support business growth
- **Funding** - delivering the lifeblood that allows companies to execute on future strategies.

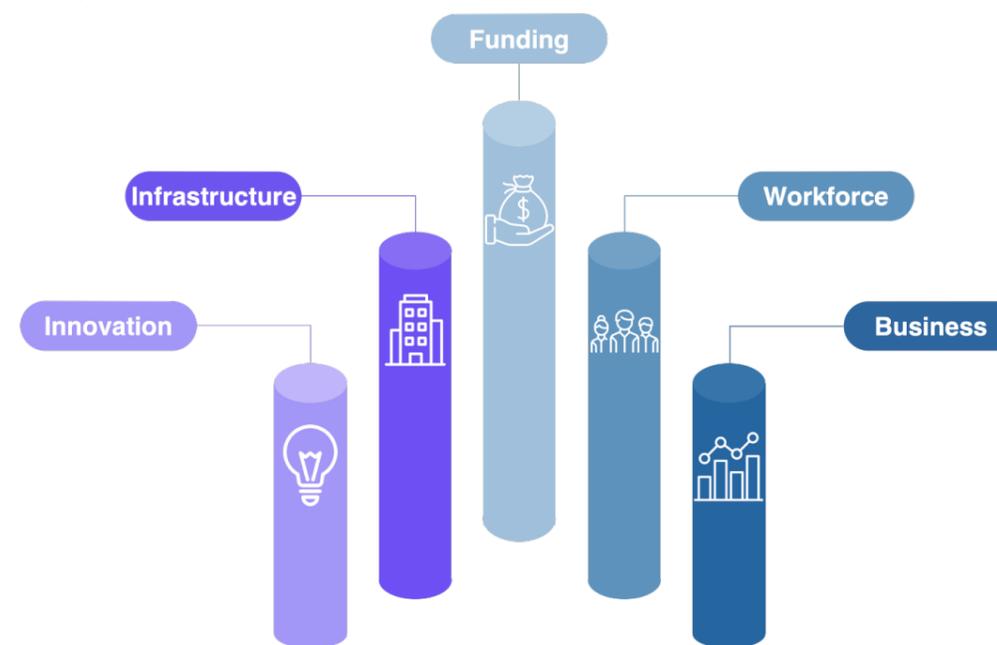


Figure 4 - 5 pillars of innovation led growth

Whilst the component parts will be common, different geographies and sectors will face different challenges. Access to funding for businesses in Leicester is not the same as it is in Birmingham. The pool of talent in Shropshire is dissimilar to that in Nottinghamshire. These distinct breakages in the supply chain must be resolved if the ambition of delivering growth is to be achieved.

The diversity of capability that exists means that there are opportunities to establish growing enterprises across the Midlands. The challenge for policy makers will be to put the right levels of support in place to enable unicorns to thrive across the region - not simply in major centres of population.

## INNOVATION

The UK Government has highlighted the critical importance of research and development to economic and social recovery from the pandemic. Their goal is to strengthen science, research and innovation across the UK, making them central to tackling major challenges and taking advantage of opportunities that arise with an aspiration to make Britain the best place in the world to be a researcher, inventor or innovator.

“Our commitment to increasing UK investment in R&D to 2.4% of GDP by 2027 and to increase public funding for R&D to £22 billion per year by 2024/25 will allow us to make major strides towards this goal. We will use this investment to raise domestic and international business investment into UK R&D, increasing economic productivity and prosperity through new products, services and jobs and helping to transform our public services. Across the UK government and the devolved administrations, working with businesses, academia, charities and wider society across the UK, we will tackle some of our biggest societal challenges, advancing our understanding of the world and translating that delivering benefits to people, communities and places around the UK and globally.”

*UK Research and Development Roadmap<sup>5</sup>*

### UK INDUSTRIAL STRATEGY GRAND CHALLENGES

The societal challenges described in the UK Research and Development Roadmap are enshrined in the UK Government’s Industrial Strategy,<sup>6</sup> which is built around three core concepts:

- Grand Challenges
- Local Industrial Strategies
- Sector Deals

The Grand Challenges are intended to position the UK at the forefront of the industries of the future. The Grand Challenges include:

- 
**Artificial Intelligence and Data:** “We will put the UK at the forefront of the AI and data revolution.”
- 
**Ageing Society:** “We will harness the power of innovation to help meet the needs of an ageing society.”
- 
**Clean Growth:** “We will maximise the advantages for UK industry from the global shift to clean growth.”
- 
**Future of Mobility:** “We will become a world leader in the way people, goods and services move.”

As it seeks to deliver against these challenges, the Government has identified a series of discrete missions, each focusing on a specific problem, with the intention of fostering collaboration between Government, businesses and organisations across the country.<sup>7</sup>



## Artificial Intelligence and Data

**Mission: Use data, Artificial Intelligence and innovation to transform the prevention, early diagnosis and treatment of chronic diseases by 2030**

Using AI and data, there is an opportunity to accelerate medical research in early diagnosis, leading to better prevention and treatment of disease. Within 15 years better use of AI and data could result in over 50,000 more people each year having their cancers diagnosed at an early rather than late stage. This would mean around 20,000 fewer people dying within 5 years of their diagnosis compared to today.

This mission aims to put the UK at the forefront of the use of AI and data in early diagnosis, innovation, prevention and treatment. The mission builds on the £210 million of funding announced for the Data to Early Diagnostics and Precision Medicine Industrial Strategy Challenge Fund.



## Ageing Society

**Mission: Ensure that people can enjoy at least 5 extra healthy, independent years of life by 2035, while narrowing the gap between the experience of the richest and poorest**

We are living longer lives because of medical advances, better drugs, healthier lifestyles, and safer workplaces. A girl born in the UK today has a 1 in 3 chance of living to 100, and the chance of living to 100 will double in the next 50 years. Given this trend, it's time to radically rethink how we respond, at each stage in life, to the way that we support our families and communities, as well as the way that we approach work, finances, health and care, and housing.

This mission aims to ensure that people can enjoy at least 5 extra healthy, independent years of life by 2035, while narrowing the gap between the experience of the richest and poorest.



## Clean Growth

**Mission: At least halve the energy use of new buildings by 2030**

Heating and powering buildings accounts for 40% of our total energy usage in the UK. By making our buildings more energy efficient and embracing smart technologies, we can cut household energy bills, reduce demand for energy, and boost economic growth while meeting our targets for carbon reduction.

For homes this will mean halving the total use of energy compared to today's standards for new build. This will include a building's use of energy for heating and cooling and appliances, but not transport. The mission is backed by £170 million of public money through the Transforming Construction Industrial Strategy Challenge Fund. This is matched by £250 million of private sector investment, meaning over £400 million will be invested in new construction products, technologies and techniques.

**Mission: Establish the world's first net-zero carbon industrial cluster by 2040 and 4 low-carbon clusters by 2030**

This mission will further establish the UK's position at the forefront of the global shift to Clean Growth by developing world-leading expertise in green manufacturing products, and the technologies and services required to produce them. The mission aims to attract inward investment, new business and employment opportunities.

It will support the cost-effective decarbonisation of our industrial sector, which accounts for around a quarter of all UK GHG emissions.

The mission is backed by £170 million public investment through the Industrial Strategy Challenge Fund.



## Future of Mobility

**Mission: Put the UK at the forefront of the design and manufacturing of zero emission vehicles, with all new cars and vans effectively zero emission by 2040**

How we get around is going to change significantly in the future. New technologies, such as zero emission vehicles and self-driving cars, are improving transport to make it safer, cleaner and better connected.

This mission aims to put the UK at the forefront of the design and manufacture of zero emission vehicles and sets an ambition for all new cars and vans to be effectively zero emission by 2040. This will help improve the air we breathe, support the shift to clean growth, and help the UK seize new economic opportunities.

The mission will support innovation in clean ways of powering vehicles, including £1 billion over 10 years for development of low carbon powertrains through the Advanced Propulsion Centre, and £246 million for the Faraday Battery Challenge to develop safe, cost-effective and high-performance batteries for electric vehicles.

## LOCAL INDUSTRIAL STRATEGIES

In response to the Government's Industrial Strategy, LEP's and Combined Authorities across the UK have been challenged to produce their own Local Industrial Strategies to describe how they will contribute to the national plan. With regard to innovation activity, they have been specifically tasked with identifying how they will address the various Grand Challenges as they fit with local capabilities, expertise and opportunities.

A review of those Local Industrial Strategies that have been published shows a mixed picture with a combination of aspirational statements and strong examples of programs matched to the Grand Challenges. There are broad-based programs such as the West Midlands Digital Roadmap that aims to realise the ambitions of the West Midlands CA's Local Industrial Strategy, build on the successes of their 5G testbed, and tackle the issue of digital exclusion. Similarly, there are several initiatives looking to exploit the potential of the HS2 rail development. Further examples include:

### Ageing

- The Centre for Ageing Better has selected Greater Lincolnshire as its strategic rural partner with an overarching goal of 1 million more people aged 50-69 in fulfilling work by 2022.

### AI & Digital

- Proposals are being developed by Southeast Midlands for the UK's first STEM-skills focussed university in Milton Keynes (MK:U) to complement an Institute of Technology at Bletchley Park and existing local university expertise ensuring the provision of digital and STEM skills to drive AI and Data technologies.

### Clean Growth

- Greater Lincolnshire will continue to support the expansion of the offshore wind supply chain, supported by the Offshore Renewable Energy Catapult and unlocking the potential for cluster development outlined in the Offshore Wind Sector Deal.

### Future of Mobility

- The West Midlands has received £332m of the government's £2.25bn Transforming Cities Fund. This will support the extension of the West Midlands' Metro System.

## SECTOR DEALS

Sector Deals are partnerships between the government and industry on sector-specific issues that aim to create significant opportunities to boost productivity, employment, innovation and skills. Ten sectors have been identified:

- **Aerospace**
- **Artificial Intelligence**
- **Automotive**
- **Construction**
- **Creative Industries**
- **Life Sciences (2 deals)**
- **Nuclear**
- **Offshore Wind**
- **Rail**
- **Tourism**

Each deal has a range of targets and commitments from both the sector concerned and government aimed at delivering widespread benefits to the UK economy. In implementing each deal, the Government is seeking to cover the whole of the UK. However, that ambition is clearly limited by existing regional capabilities in any given sector. For example, the biggest impact from the Automotive sector deal is being seen across the Midlands. The region is similarly well placed to benefit from other deals with Offshore Wind, Aerospace and Rail all engaged with businesses and innovators across the Midlands.

## PUBLIC FUNDING OF RESEARCH

Expenditure on research and development across the UK is driven by businesses, funding 68% of R&D activity according to the most recent data (2018<sup>8</sup>).

Regional breakdown of expenditure on R&D in the UK by sector of performance, 2018					
Current Prices					
	£ million				
	Government & UKRI	Higher Education	Business	Private Non-Profit	Total
<b>United Kingdom</b>	<b>2,460</b>	<b>8,740</b>	<b>25,048</b>	<b>823</b>	<b>37,072</b>
East Midlands	90	348	1,769	2	2,209
West Midlands	74	455	2,744	12	3,285
East of England	279	927	5,141	251	6,598
London	569	2,058	2,906	353	5,886
South East	643	1,262	5,031	93	7,029

Table 1 - Gross Expenditure on R&D by UK NUTS1 Region (ONS)

The disbursement of public research funding is undertaken by UKRI, which brings together the seven disciplinary research councils, Research England and the UK's innovation agency, Innovate UK. UKRI's mission is, "to convene, catalyse and invest in close collaboration with others to build a thriving, inclusive research and innovation system that connects discovery to prosperity and public good."

Funding is competitively awarded and, whilst the Midlands receives a healthy amount, it lags behind the North (50% lower), whilst the majority goes to London, the South East and East of England (Table 1).

“clearly significant concentrations of activity, funding, skilled people and more mature ecosystems in some of the more prosperous parts of the UK – most notably in London, the South East and the East of England.”

UKRI

This shortfall in public funding compared to the North is compensated for by higher levels of business funding for research in the Midlands which attracts 75% more research funding from industry. The consequence is that both regions are roughly similar in overall research funding.

In assessing the Midlands' innovation performance, we have analysed data relating to UKRI grant awards from 2015 to 2020.<sup>9</sup>

## PUBLICLY FUNDED RESEARCH IN INDUSTRY

Innovate UK is the agency within UKRI which is focused on driving productivity and economic growth by supporting businesses to develop and realise the potential of new ideas, including those from the UK's research base.

Since being established in 2007, Innovate UK has invested more than £2.2 billion to help businesses across the country to innovate. This has spanned more than 11,000 projects that have generated up to £16 billion in Gross Value Added for the UK economy and 70,000 jobs.<sup>10</sup>

Innovate UK funding has been disbursed across the Midlands with a total of £1,393.6m spread over 3,185 grants between 2015 and 2020 (inclusive).<sup>11</sup> Of this money, £548.0m has been provided directly to businesses to fund R&D projects leveraging a further £541.9m of R&D spend.

Over this period, our analysis (fig. 5) shows that the Midlands has received around 20% of total Innovate UK funding compared to 47% for London, the South East and East of England combined. The ratio is worse, 15%/56%, when direct funding to businesses is analysed (as opposed to Innovate funding to academic partners, Catapults and the like).

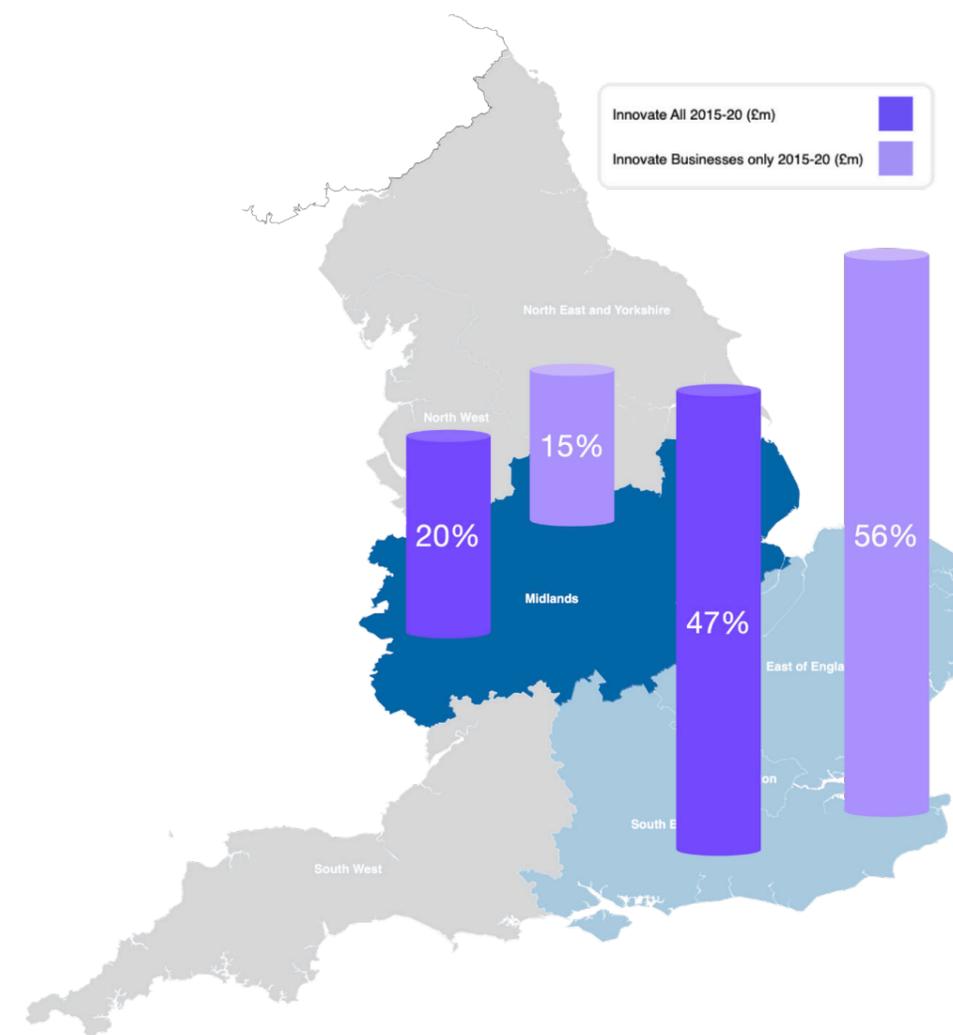


Figure 5 - Comparative levels of Innovate UK funding

Topic modelling and subsequent cluster analysis of research activities funded by Innovate UK in the Midlands shows that Local Authorities fall into 3 distinct clusters which display similar areas of expertise (fig. 6).

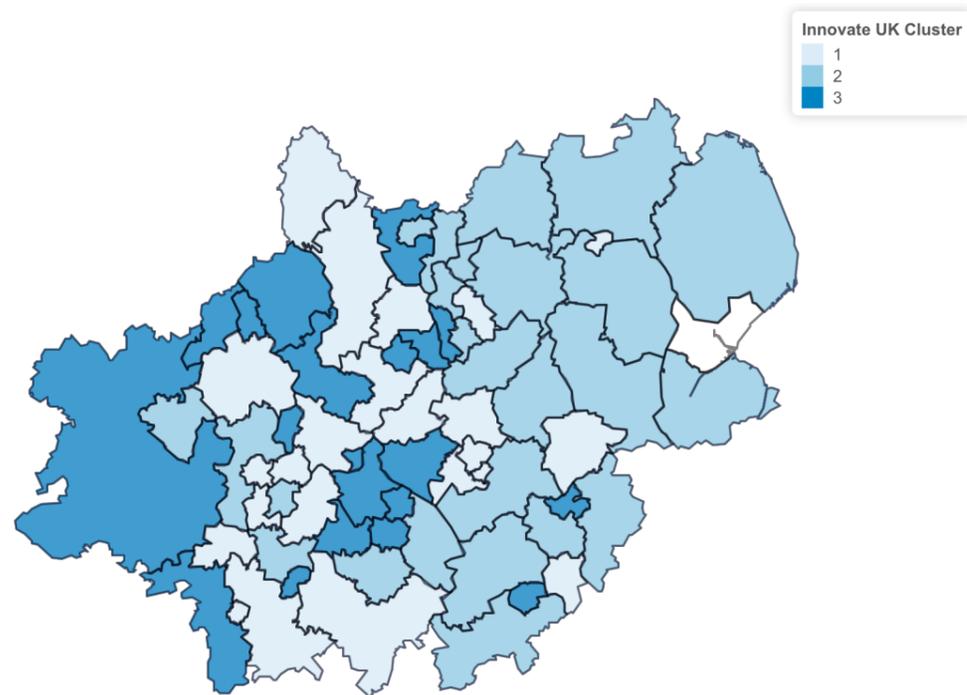


Figure 6 - Clustering of Industrial Expertise by Local Authority

Solihull is the most successful Local Authority for securing Innovate UK funding with a total of £664m across the period, followed by Coventry (£227m) and Rugby (£101m). Whilst it should be noted that some of these figures are skewed by funding to Catapults and other large centres, it simply highlights the requirement for that funding to be effectively translated into business growth support.

Top 5 Local Authorities by total Innovate grant value	
Description	Total
Solihull	664
Coventry	227
Rugby	101
Birmingham	75
Nottingham	71

Table 2 - Top 5 Local Authorities by total Innovate UK grant value

IDM's analysis of this funding in relation to the Grand Challenges<sup>12</sup> (fig. 7) shows a mixed picture when considering the strengths of Midlands' businesses in these sectors. Given that these funding awards are disbursed through a competitive process, it is encouraging to see a slightly higher success rate for awards supporting Clean Growth & Infrastructure and Manufacturing, Materials & Mobility where the Midlands has secured, respectively, 23% and 30% of Innovate UK funding awards by value - an increase on its success rate of 20% for Innovate UK awards as a whole.

The picture in the other Grand Challenge sectors is not as bright. For grants awarded for projects in Ageing Society, Health & Nutrition, the Midlands' share was only 5%. However, for AI & Data Economy grants, the Midlands secured a lowly 4% of funds. This compares with the 82% of these funds that were awarded to businesses in the Golden triangle.

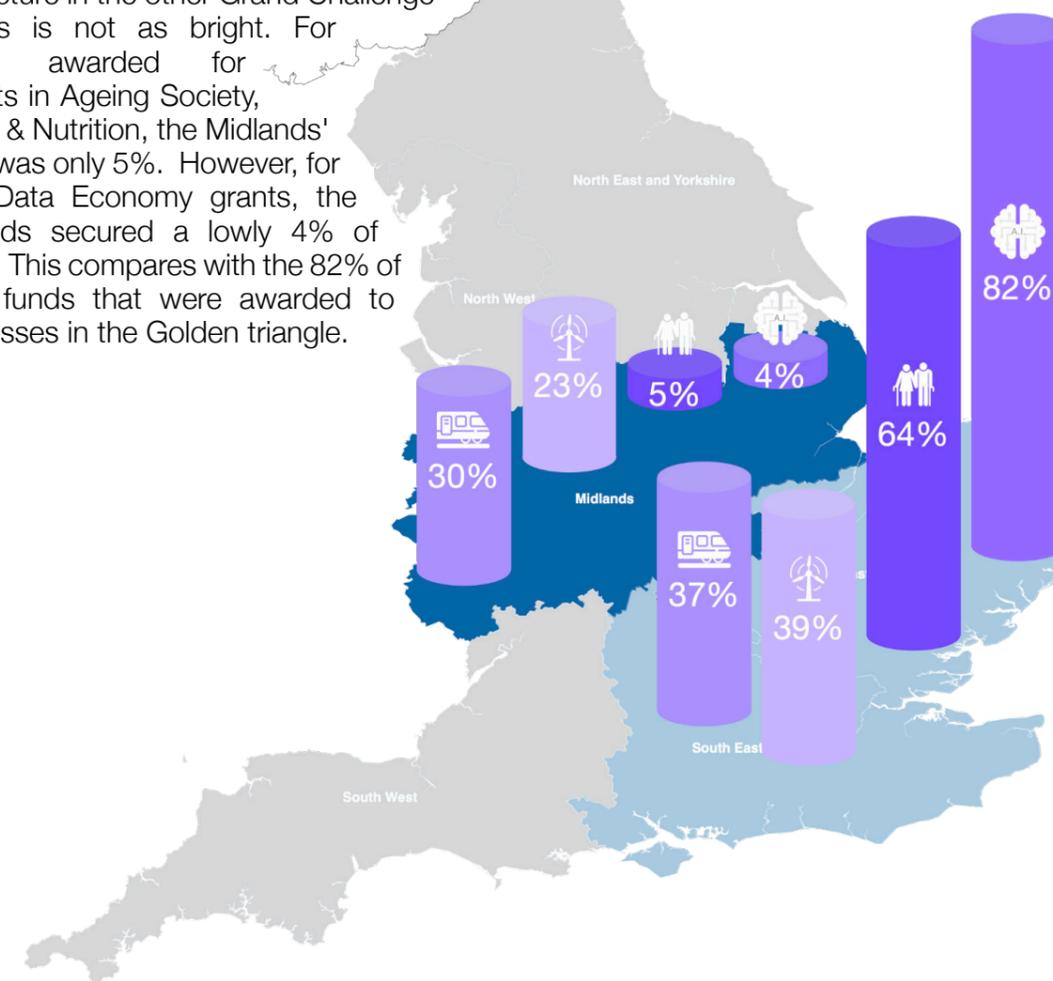


Figure 7 - Relative Innovate UK funding levels to Grand Challenges

It is accepted that the Midlands has high quality businesses that serve the AI & Data Economy sector and, as mentioned above, the West Midlands Combined Authority has its Digital Roadmap as a key plank of its Local Industrial Strategy. However, if the Midlands is to compete effectively across all four Grand Challenges, it has to take the lessons from other sectors, such as Clean Growth, and use these to improve its ability to secure R&D funding that will support the growth of these businesses.

## PUBLICLY FUNDED RESEARCH IN ACADEMIC INSTITUTIONS

As in the business sector, academic institutions across the Midlands support a range of capabilities and research fields. However, analysis of research grant awards deploying Topic Modelling allows us to profile institutions and identify those Local Authorities with similar areas of expertise (fig. 8).

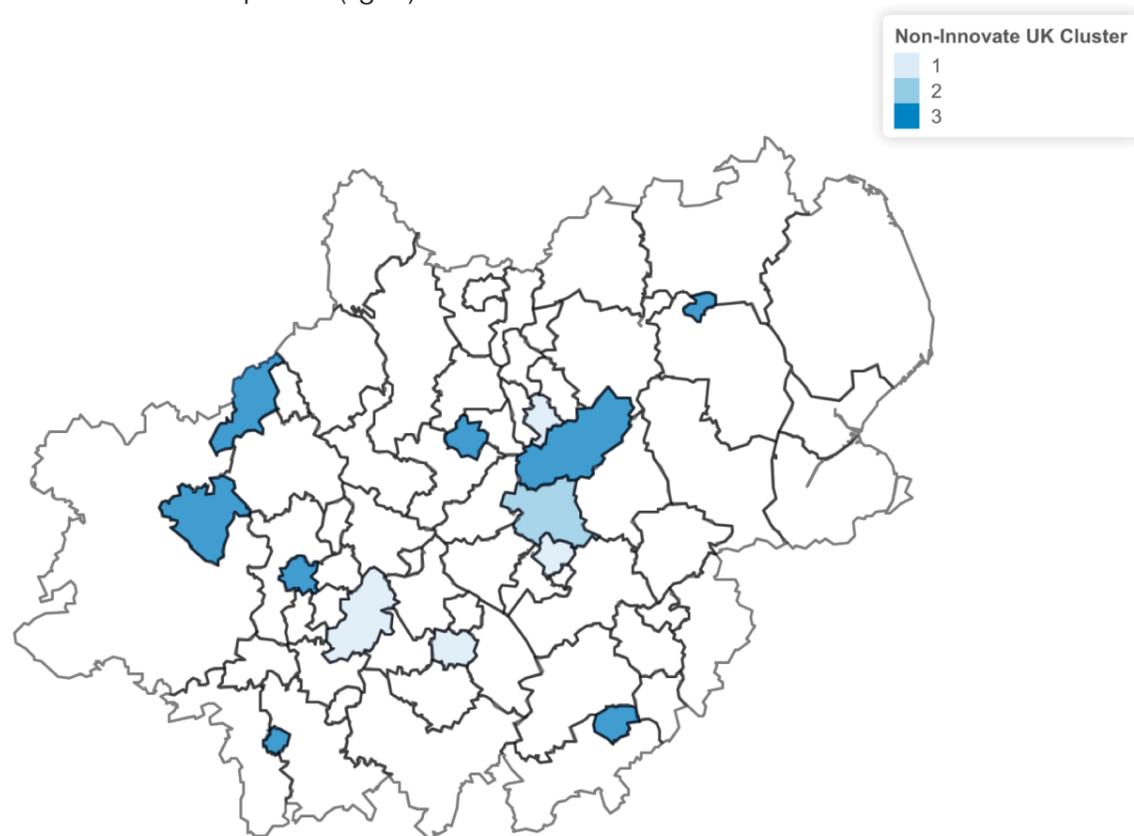


Figure 8 - Clustering of academic expertise by Local Authority

Generation of sustainable business opportunities from the innovation base relies on the ability of institutions to effectively translate public research funding into commercial opportunity. This process is far from straightforward - not all research ideas bear fruit and some of those that do, only do so after multiple iterations. Therefore, to develop a contextualised picture of this capability across the region's institutions, we have analysed performance against each of the activities that lead to commercialisation.

- Transfer of Knowledge
- Dissemination of Knowledge
- Protection of Intellectual Property
- Commercial Exploitation

As a comparator, data for both Oxford and Cambridge have been included since they are regularly held up as examples of best practice in research translation.

## Transfer of Knowledge

Knowledge transfer for publicly funded research principally arises from collaboration activity associated with that work. Collaborations can be with other academics, industry, charities or other groups (such as hospitals or other parts of the public sector). Looking across collaborative activity for Midlands Local Authorities from 2014-2020 (fig. 9), academic collaborations typically range from 35% to 55% of activity. Amongst the most active authorities, 53% of Birmingham's collaborations are with other academics and only 21% of engagements are with industry. By comparison, Nottingham is collaborating with the private sector 27% of the time while Leicester is as high as 29%. Almost a third of Charnwood's collaborations are with industry, albeit that their total number of collaborations is less than a quarter of the most active Local Authorities.

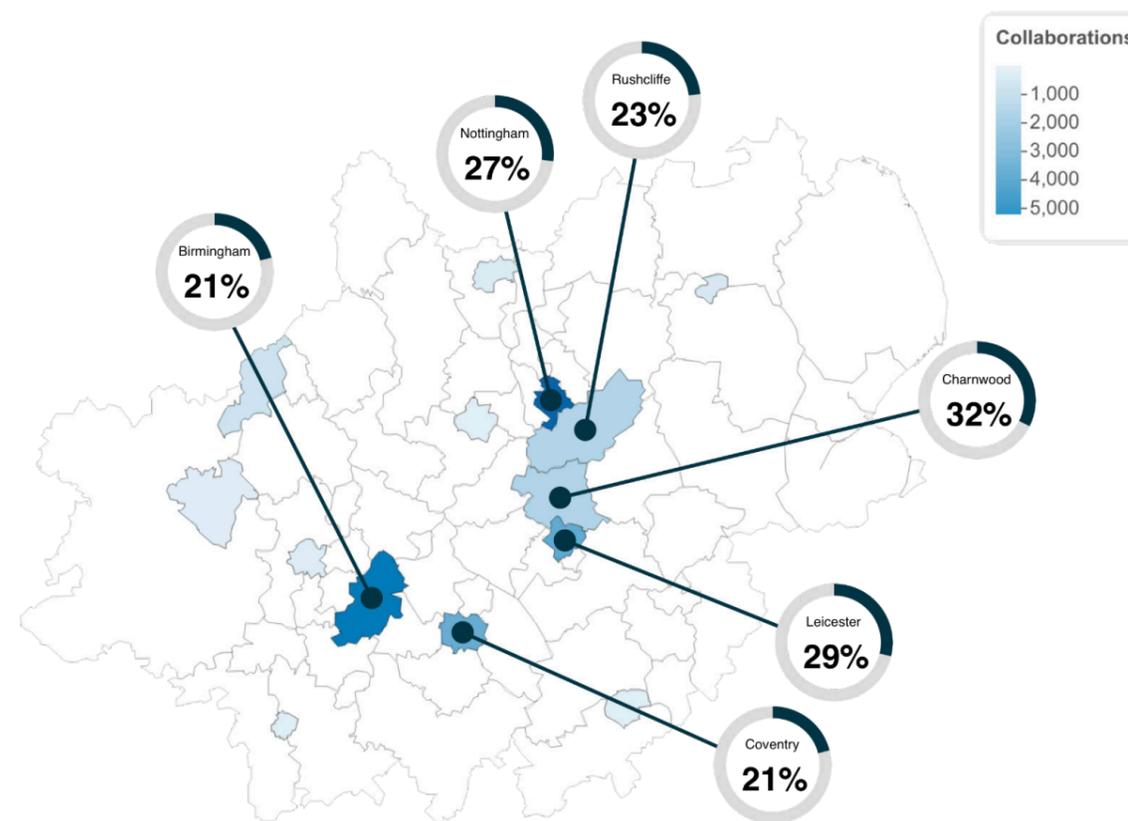


Figure 9 - Academic collaboration activity by Local Authority. Numbers highlighted show the proportion of collaborations with industry

## Dissemination of Knowledge

Dissemination of research generated knowledge happens most frequently through publication activity in peer-reviewed journals. Across the period studied, not surprisingly given the range and breadth of their research activities, Oxford and Cambridge engaged in the highest level of dissemination activity with each involved in over 6,000 examples (fig. 10).

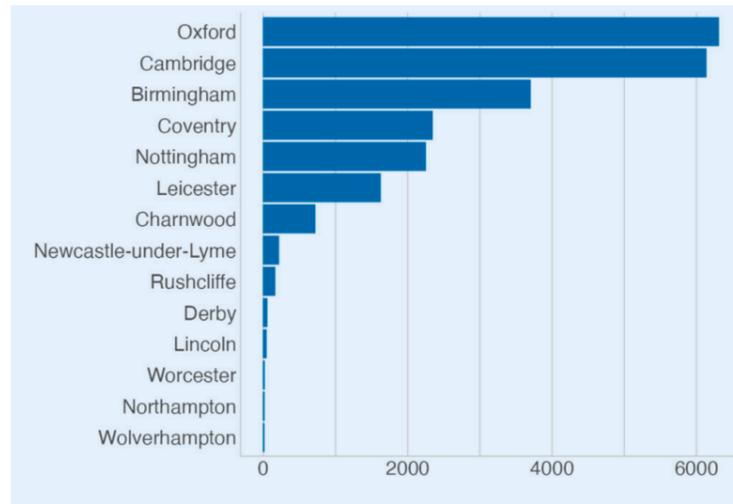


Figure 10 - Dissemination activity by Local Authority

## Protection of Intellectual Property

Whilst not all intellectual property can or, indeed, should be formally protected through, for example, filing a patent, such activity is a key measure of translation and commercialisation. Patents, copyright and trade marks enable the potential generation of value from licensing and underpin spinout activity.

Across the region, Nottingham leads the way with the highest number of intellectual property protections related to grants awarded between 2015 and 2020 (fig. 11). However, their activity is less than half that of Oxford and around two-thirds that of Cambridge over the same period.

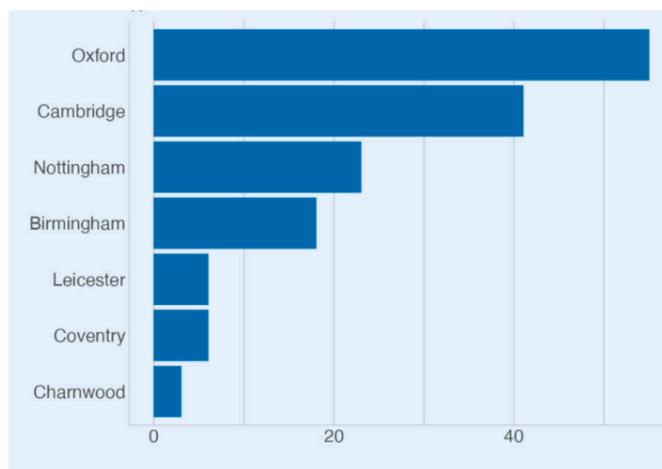


Figure 11 - IP protection activity by Local Authority

## Commercial Exploitation

The commercial exploitation of intellectual property originating from publicly funded research falls into two main areas - licensing and creation of spinout businesses.

Licensing (primarily to commercial entities) clearly has the potential to create value as the licensee exploits the technology but, whilst the license will secure a commercial return for the licensor, the bulk of the value creation is less likely to happen locally since the licensee can be located anywhere.

The creation of spinout businesses, on the other hand, is more likely to result in local growth as such businesses tend to be located close to the institution where they are born.

Our research into spinout activity from Midlands HEIs has found that there is no definitive and accurate list available within the public domain, or through paid-for services. Indeed our own analysis (data not shown) has found that such lists can contain contentious assignments of spinouts to HEIs, where companies are tagged as spinouts of a particular University when, in fact, their origin lies elsewhere. Whilst this is necessarily a result of erroneous reporting by HEIs, and is more likely to be reflective of the poor quality of available data sets, we still looked at how we could establish a verifiable and more accurate measure of spinout activity that reflects the relative activity and cost of such activities to the tax payer.

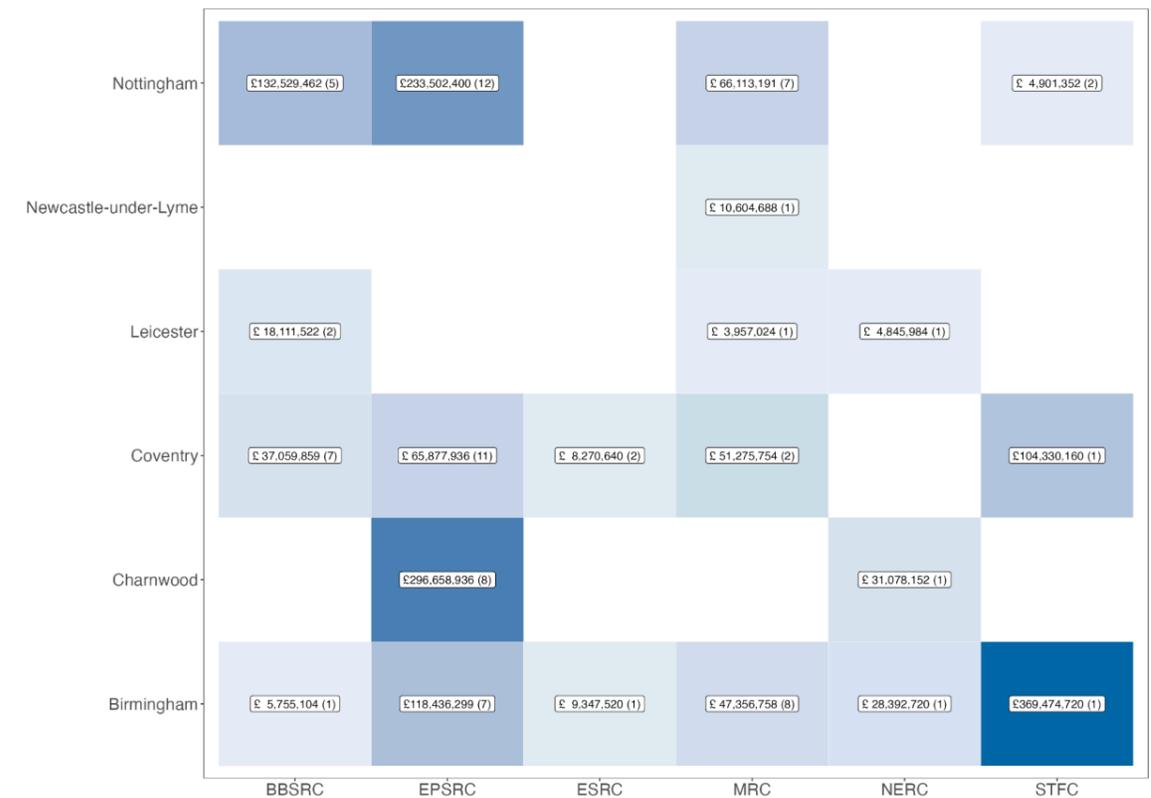


Figure 12 - Mean Value of Grant Awarded per Spinout Created, listed by Local Authority. Value in parentheses is the number of spinouts.

In order to achieve this, we looked at UKRI funding that has been explicitly linked to a spin out via grant awards to HEIs in the Midlands (fig. 12). Whilst one may argue that it will be incomplete, what it does represent is a bona fide source of data from which a direct relationship between an input (grant funding) and output (spinout creation) can be measured. All things being equal, it is likely that this will hold for all spinouts, and thereby provide a measure of the cost of spinout creation in each economy. It is also worth noting, that we recognise that spinouts in different sectors will cost more, e.g. establishing a tech business with a secured patent portfolio will be more costly than for a software service business. Additionally, in this analysis, we are not looking at where the spinouts are currently located, simply where they originated. This serves as an objective measure of the spinout creation performance of HEIs in Local Authority areas across the Midlands.

### Translation Index

Looking at the performance, by Local Authority, in translating grant funding to measured outputs, we can assign a capability index. It should be noted that this is focused on identifying those geographies where best practice, across the region, could be accessed and is based on the objective measures that institutions are reporting to UKRI, in order to give the Midlands the greatest opportunity to improve its overall capabilities in commercialisation of academic research. As a comparator, data for both Oxford and Cambridge have been included since they are regularly held up as examples of best practice in research translation.



Figure 13 - Local Authority cluster membership for Translation Index

Cluster analysis of these results allows us to identify those Local Authorities with similar activities, producing 2 clusters (fig. 13). The characteristics of the cluster members are described in fig 14.

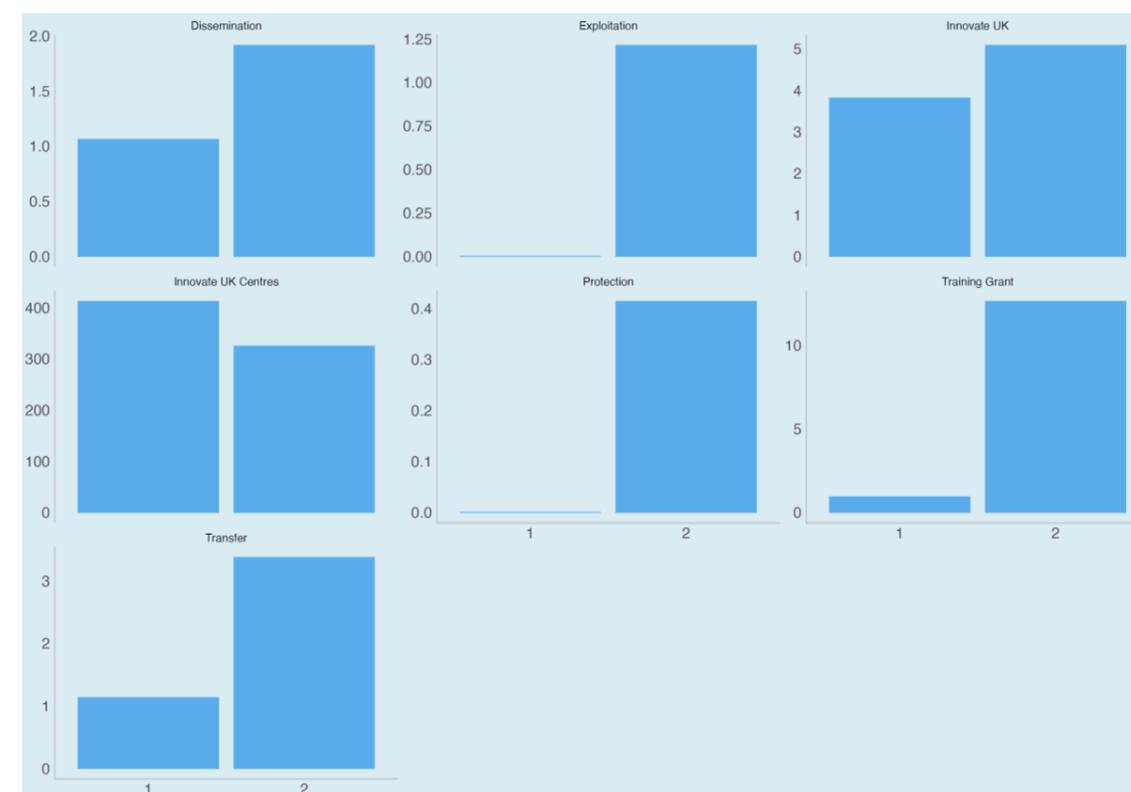


Figure 14 - Common characteristics of Translation Index cluster members

Cluster 1 contains primarily those Local Authorities whose main funding is from innovate UK.

Cluster 2 includes the larger research-intensive universities such as Oxford, Cambridge, Nottingham, Warwick (based in Coventry) and Birmingham.

Figure 15 provides a comparative analysis of research and innovation outputs covering the phases of transfer, dissemination, protection and exploitation. The profiles are derived from the mean numbers of outputs (i.e. collaborations, publications, patents and spin-outs) per £100,000 of associated grant funding.



Figure 15 - IDM Innovation Translation Index by Local Authority

The analysis above indicates where fair comparisons in performance should be made between peer groups of areas that have similar activities. Looking at cluster 2, which has the main impact on research-driven innovation we see that, reassuringly, key Midlands universities such as Nottingham and Birmingham, have very comparable translation profiles to Oxford and Cambridge.

## BUSINESS

Using IDM's proprietary Business Premises Database, which monitors the operating locations of companies as opposed to their registered office address, the diversity of business activity across the Midlands Local Authorities is clear to see. There are around 620,000 active business locations across the region and fig. 16 displays the mix of sectors by Local Authority.



Figure 16 - Business distribution by industry and Local Authority

Taking this business landscape as a baseline, one key point that is immediately apparent is the difference in business make-up between component Local Authorities that constitute larger policy making bodies such as LEPs and Combined Authorities.

For example, there are distinct differences in the business mix of operating companies in West Midlands CA with Coventry, Sandwell and Walsall having distinct profiles that highlight the different business mix in those local economies.

Innovation-driven growth is particularly dependent on business activities in several key sectors such as Professional, Scientific & Technical, Manufacturing, Information & Communication and Human Health. The importance of those sectors locally can be measured by looking at the relative percentage of employment for each sector by Local Authority (fig. 17).

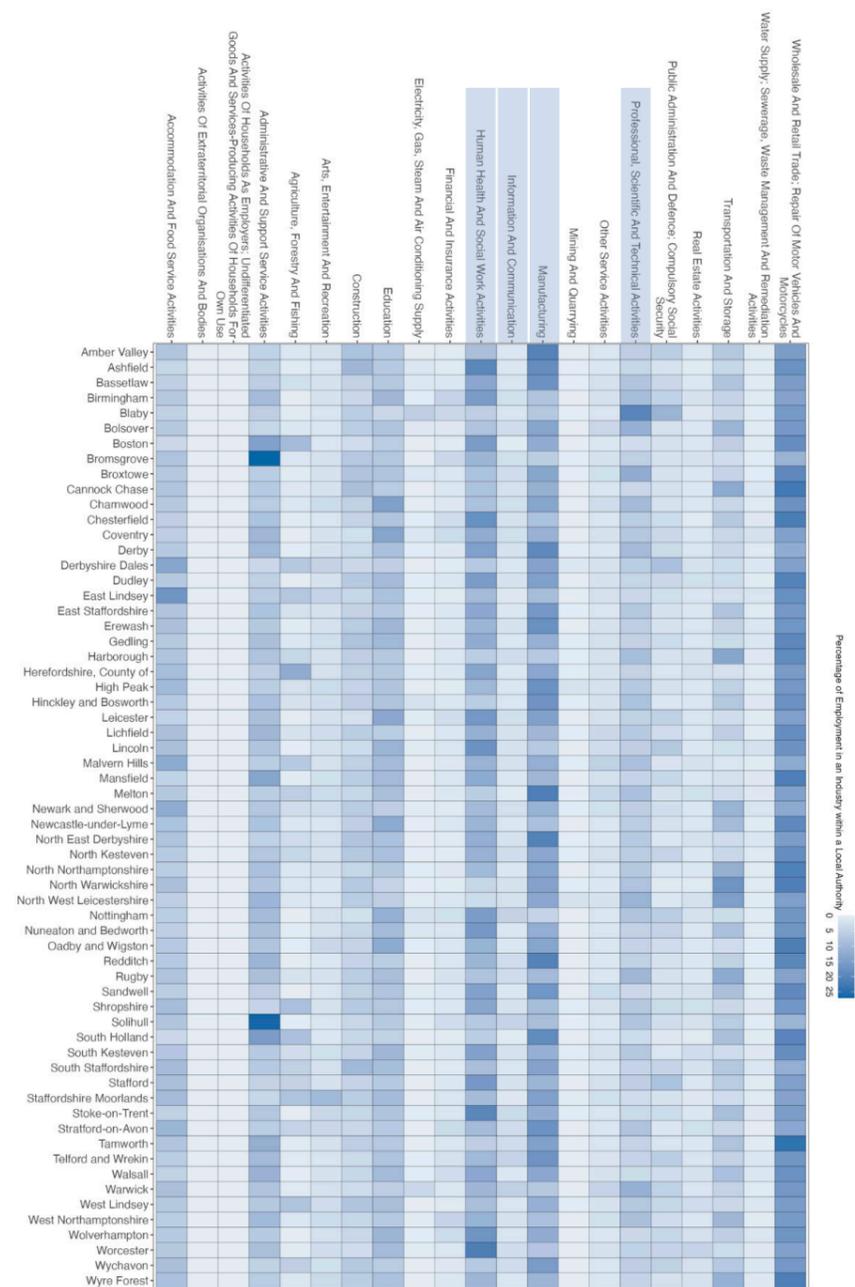


Figure 17 - Relative percentage of employment by industry and Local Authority

Turning to the resilience of the business base, comparison of business creation rates for 2020 with the yearly average for the period from 2015-2019 by sector and Local Authority (fig. 18) highlights those areas that have been most heavily impacted by the coronavirus pandemic. Once again, this shows the differentiated experience of Local Authorities within larger policy-making bodies. For example, by this measure, Birmingham's business base has been particularly resilient, whereas other Local Authorities within West Midlands CA such as Dudley and Sandwell have seen a reduction in new businesses across a range of sectors.

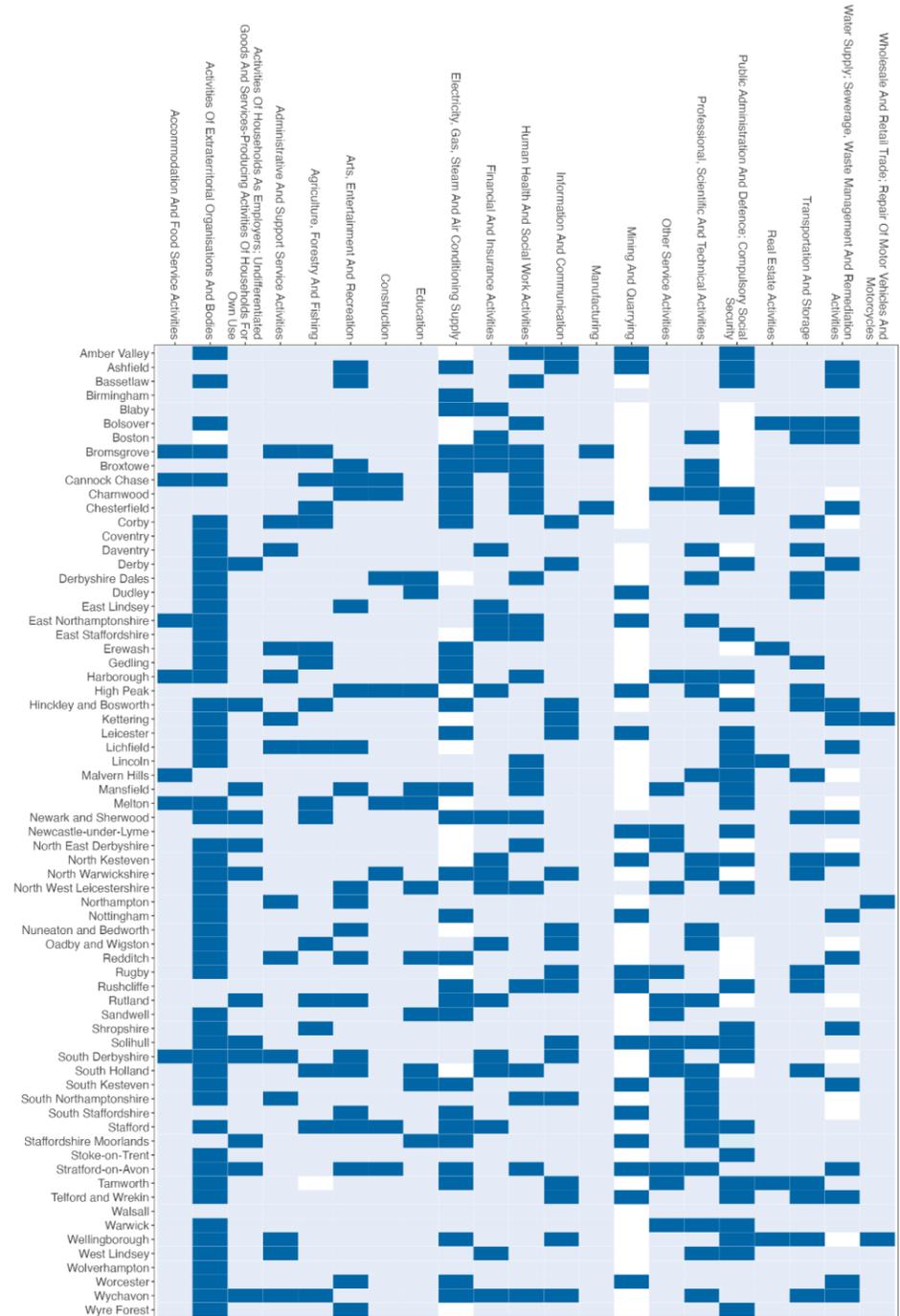


Figure 18 - Mean annual year on year change in startup activity 2015-2019 compared to 2020 (dark blue tiles indicate decreasing numbers of businesses, pale blue indicates increasing numbers, white indicates no data)

As well as looking at how many new businesses are being formed, it is also important to consider those businesses that are being lost each year in order to understand the net gain in companies.

Data for the Midlands as a whole, shows that numbers of companies experiencing an administration or liquidation event has been on an increasing trend since 2016. However, there was a significant increase in these numbers during 2020 (fig. 19). These numbers will not yet reflect the full impact of the UK Government's pandemic intervention measures as a number of companies that would otherwise have gone under will have survived through Government support. Indeed, there has been a sharp drop in the number of solvent company dissolutions which may reflect business owners keeping companies alive in order to access pandemic intervention schemes.

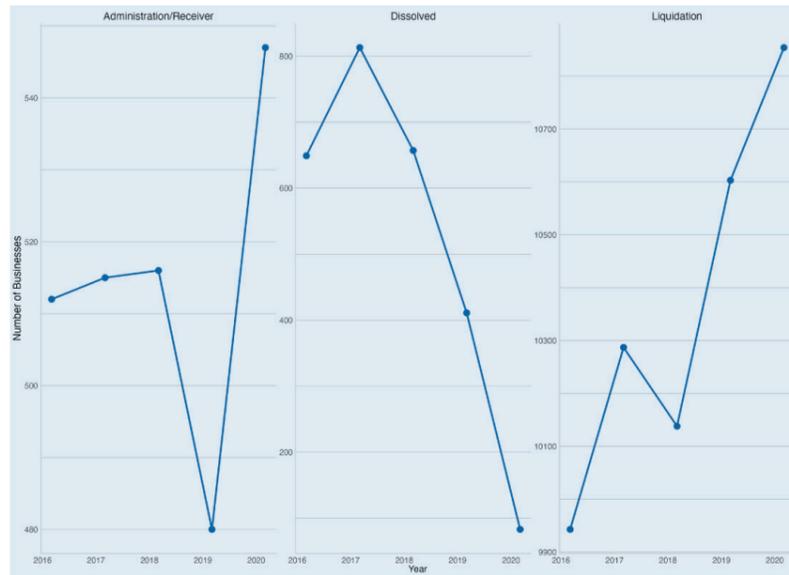


Figure 19 - Trends in activities leading to business death

Looking across the region by Local Authority and sector, and comparing 2020 with the mean rate of company death (fig. 20), the impact of the economic slowdown is clear with authorities such as Coventry, Newcastle-under-Lyme and Rushcliffe showing increasing company deaths across key sectors such as Information & Communication, Professional, Scientific & Technical and Manufacturing. By comparison, cities such as Birmingham and Nottingham have shown good levels of resilience.

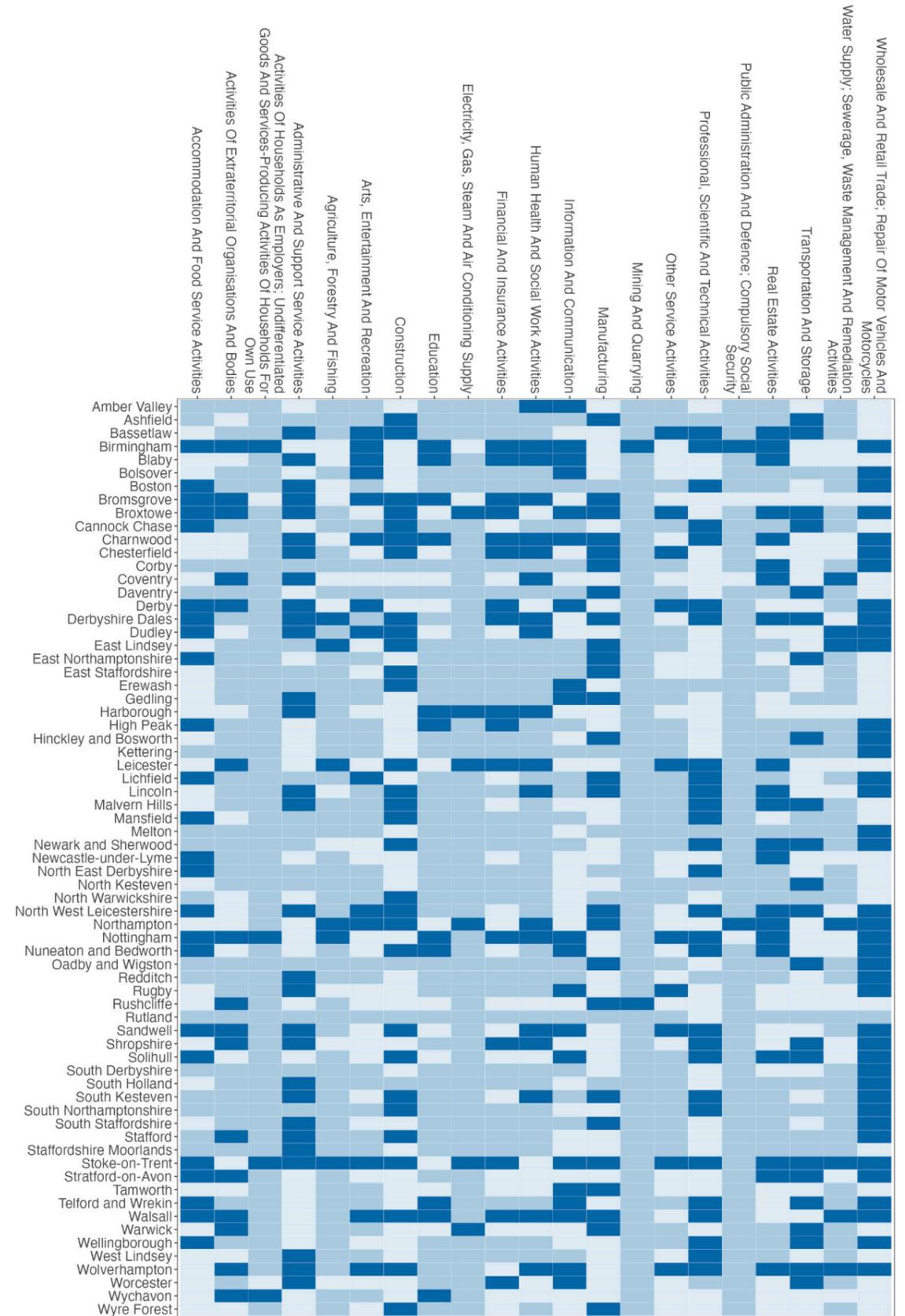


Figure 20 - Mean year-on-year change in business death (light blue indicates increasing number of businesses closing, dark blue is decreasing and mid-blue is no change)

The net impact of business creation and death together can be seen in fig. 21 with those Local Authorities in the highest deciles having the most robust business economies.

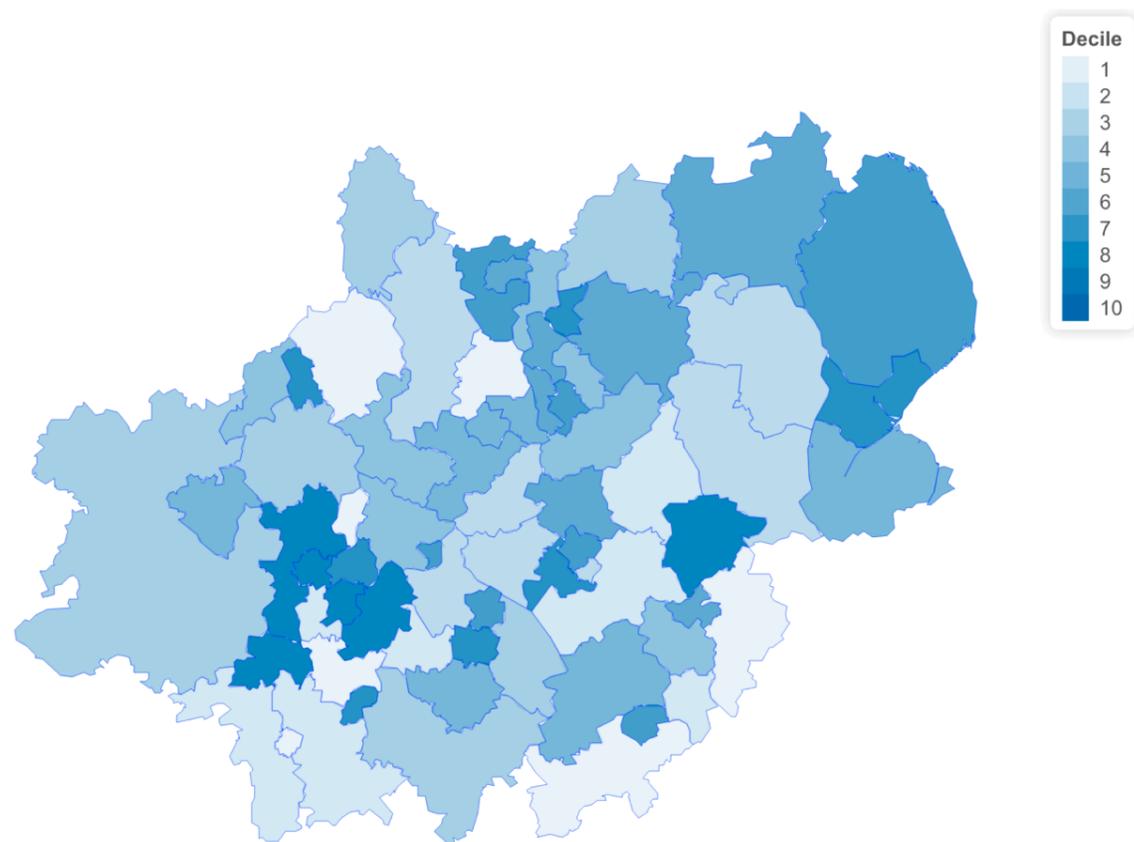


Figure 21 - Net business growth/death ratio by Local Authority

The sectors that represent key areas for innovation-driven growth, such as Professional, Scientific & Technical, Manufacturing, Information & Communication and Human Health have all been impacted over the last 12 months. As the economy recovers, it is critical that the business base in these areas is restocked with the right companies, positioned to take advantage of growth opportunities aligned to emerging new industries.

## WORKFORCE

### EMPLOYMENT AND UNEMPLOYMENT

The most recent data (2020) indicates that there are 5.08m people employed full-time, part-time or as registered business owners across the Midlands (table 3). This number has been steadily rising over the last few years and represents an overall increase of 3.9% since 2015. Not surprisingly, this number represents a fall of 2.7% from its peak of 5.23m in 2019.

As described above, there are significant variances in employment by industry sector across the diverse range of Local Authorities in the Midlands. Involvement with key sectors that can be growth accelerators tends to be focused around large centres of employment such as manufacturing infrastructure and major science parks.

Chart of annual total employment	
Year	Employment in the Midlands
2015	4,895,522
2016	5,004,852
2017	5,019,736
2018	5,052,806
2019	5,231,708
2020	5,085,402

Table 3 - Annual employment in the Midlands (Source: ONS)

### Top 5 LAs by number employed



#### Information & Communication

1. Birmingham
2. Nottingham
3. Solihull
4. Warwick
5. Leicester



#### Manufacturing

1. Birmingham
2. Derby
3. Leicester
4. North Northamptonshire
5. Sandwell



#### Professional, Scientific & Technical

1. Birmingham
2. West Northamptonshire
3. Nottingham
4. Derby
5. Blaby

## Top 5 LAs by % employed



As described above, rates of employment through 2020 have clearly been impacted by the pandemic and shaped by the UK Government's response. The Coronavirus Job Retention Scheme (CJRS) was established by the Government early in the pandemic to mitigate the consequences of the subsequent economic slowdown on companies' ability to continue employing staff by enabling them to place employees on furlough, paid for by the state. Looking at the usage profile for the scheme, the Midlands has seen take-up broadly in line with the national average. A more detailed analysis (fig. 22) shows that there have been some areas, particularly those with tourism-driven economies such as East Lindsey and the Derbyshire Dales, where use of the scheme has consistently been higher than average.

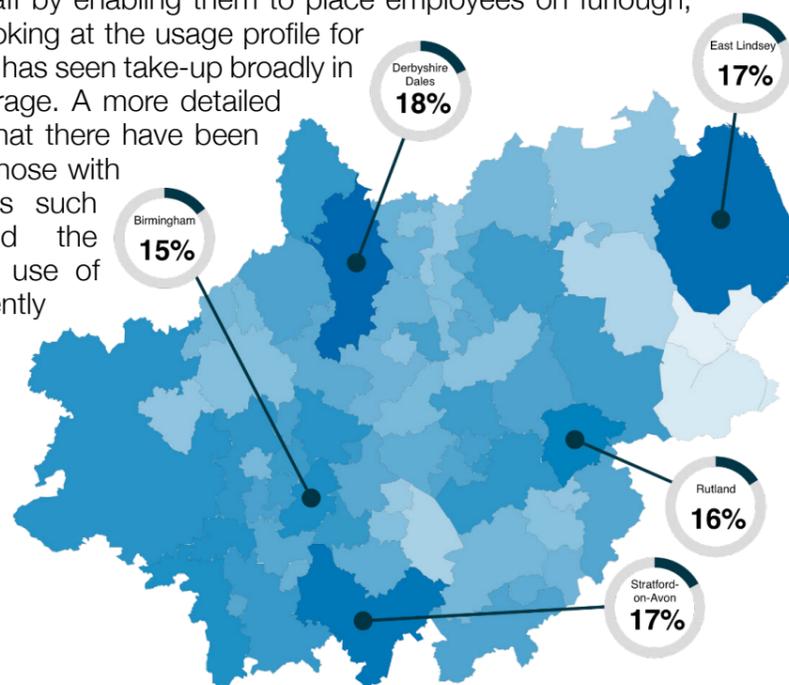


Figure 22 - Local Authorities making most use of CJRS (Source: HMRC)

Looking across sectors (fig. 23), there is, typically, a consistency in the approach of businesses to furloughing staff, independent of Local Authority boundaries and local policy.

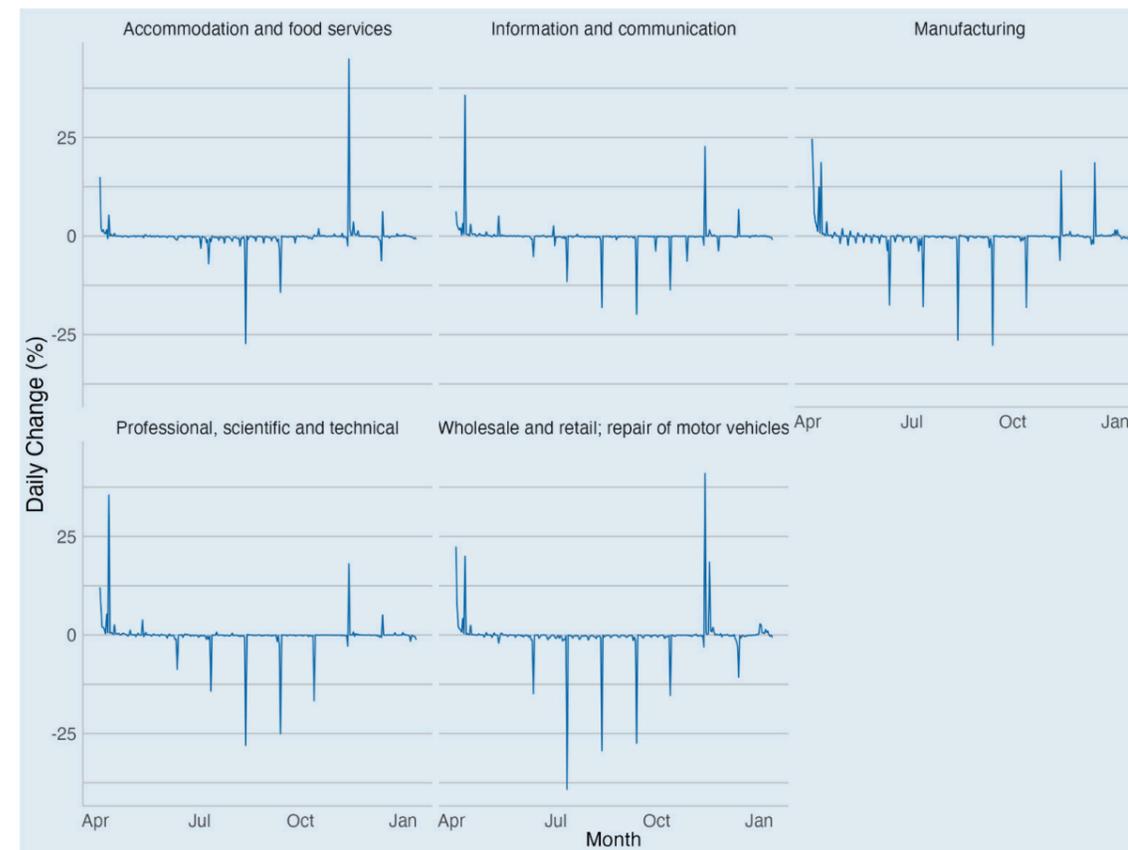


Figure 23 - Profile of CJRS take-up by sectors by week (Source: HMRC)

The effectiveness of CJRS furloughing means that the full consequences of the pandemic on employment metrics as a measure of local pandemic impact has yet to be seen. Many jobs, that would otherwise have been lost, have been protected by the scheme. Whilst the most recent figures put national unemployment levels at 1.67m (4.9%) for the December 2020 to February 2021 period,<sup>13</sup> most economic commentators are forecasting a significant rise once the CJRS comes to an end. Official estimates indicate that as many as 2.2 million (6.5%) will be unemployed by the end of 2021.<sup>14</sup> Whilst this is lower than earlier estimates, following the extension of the CJRS until September 2021 in the recent budget, this represents an increase of 490,000 over this year.

However, the most recent data for unemployment (March 2021), as measured by numbers of benefits claimants, shows that there have been significant increases in claimant numbers across the Midlands with the overall rate rising by 3.3% of residents aged 16-64 in the East Midlands and 4.2% in the West Midlands over the last 12 months. This compares with a national increase from 3.8% by the same measure.

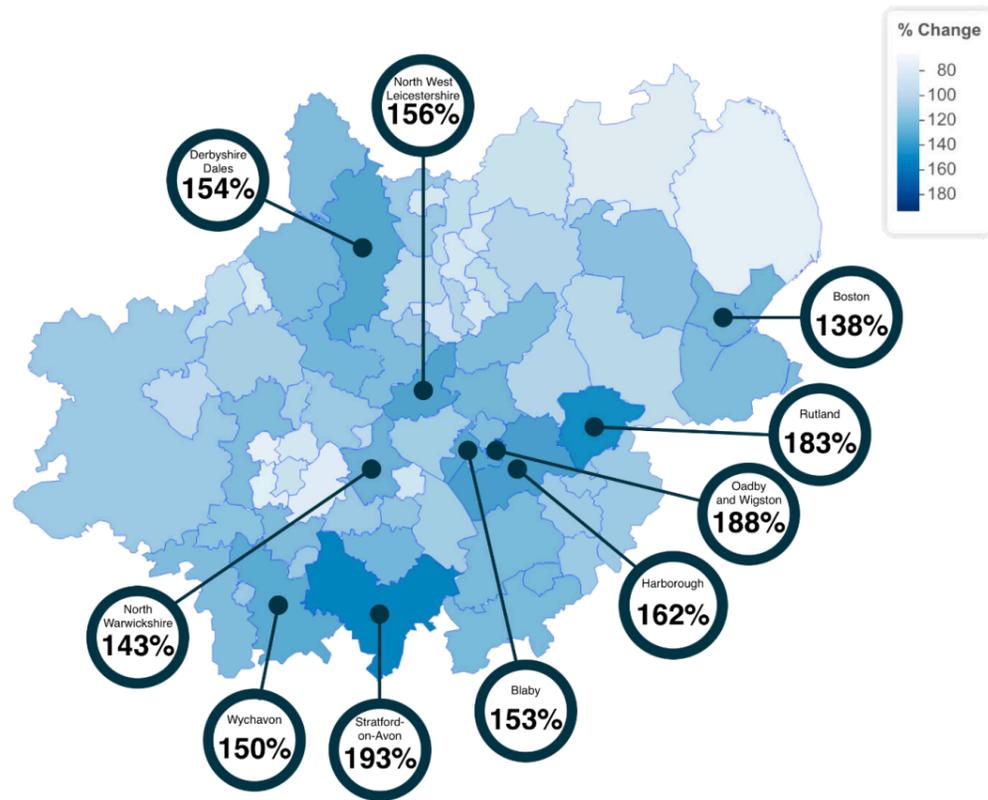


Figure 24 - Local Authority areas with greatest increase in unemployment benefits claimants as proportion of 16+ population (Source: ONS)

Figure 24 highlights the year-on-year changes by Local Authority in claimants as a proportion of the population aged 16+. This shows that several Local Authorities across the region are seeing major impacts on their communities with significant numbers of people locally being affected. Of concern, is that areas such as Stratford-on-Avon are already showing large increases in benefits claimants whilst, at the same time, making higher than average use of the CJRS.

## WORKFORCE OF THE FUTURE

Developing the quality of the Midlands workforce to ensure that advantage can be taken of growth opportunities in potentially new sectors and industries, will be based upon a steady flow of technically and academically qualified students. Feeding the workforce with skilled employees across the spectrum requires us to improve the prospects for students at the lower end of the range and raising the quality of students at the higher end. This starts with secondary education and ensuring that students are properly prepared for entry to the workforce or further study.

## SECONDARY EDUCATION

The proportion of 16-24 year olds Not in Education, Employment or Training (NEET) is a key measure of success for the secondary education system. Historically, levels of NEETs have generally been similar to the national average across the regions of the Midlands with the East Midlands fairing slightly better than the West.

In the most recent 2019 ONS Labour Force Survey, using data from DfE (fig. 25), the East Midlands averaged 11.98% across the year and the West Midlands 12.82%. This compared to the national average for England of 11.92%.

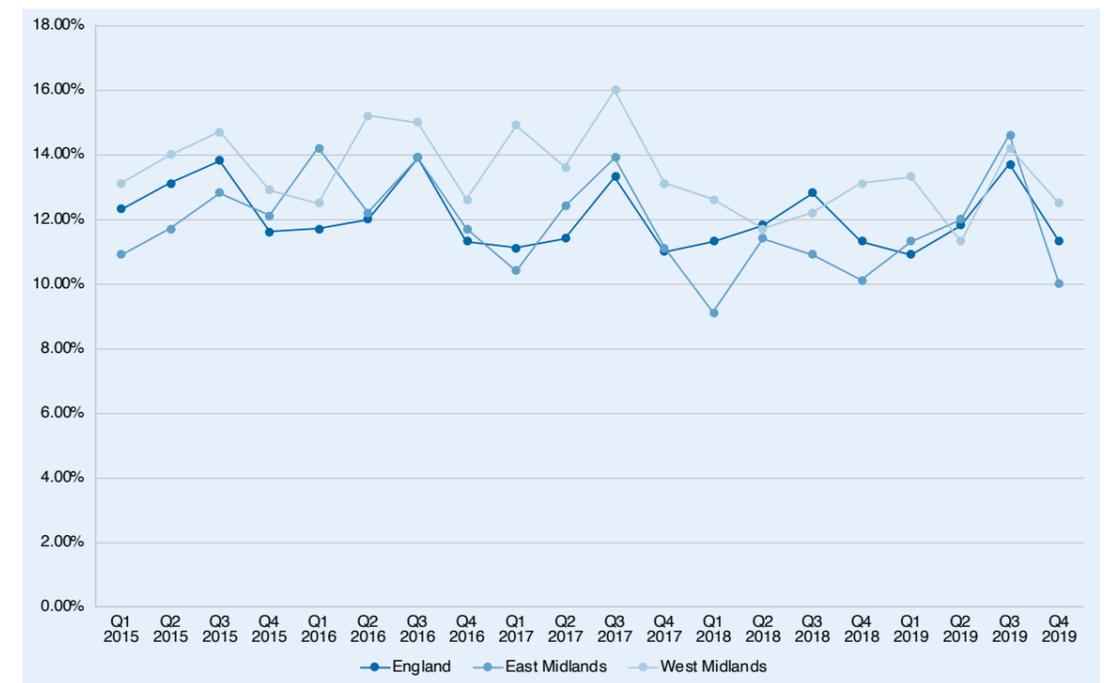


Figure 25 - NEETs trend by region (Source: DfE)

Looking at schools' output data in more detail, the performance of Local Authorities across the Midlands gives significant cause for concern. Fig 26 shows Progress 8 outputs at Key Stage 4 (GCSE) across the region. Progress 8 is a measure that aims to capture the progress a pupil makes from the end of primary school to the end of secondary school. It is a type of value added measure, which means that pupils' results are compared to the actual achievements of other pupils with similar prior attainment.

Taking the data for 2019 (2020's results were impacted by the move to Centre assessed Grades as a result of the pandemic), more than 60% of Local Authorities across the Midlands reported Mean Progress 8 scores that were below the national average for England.

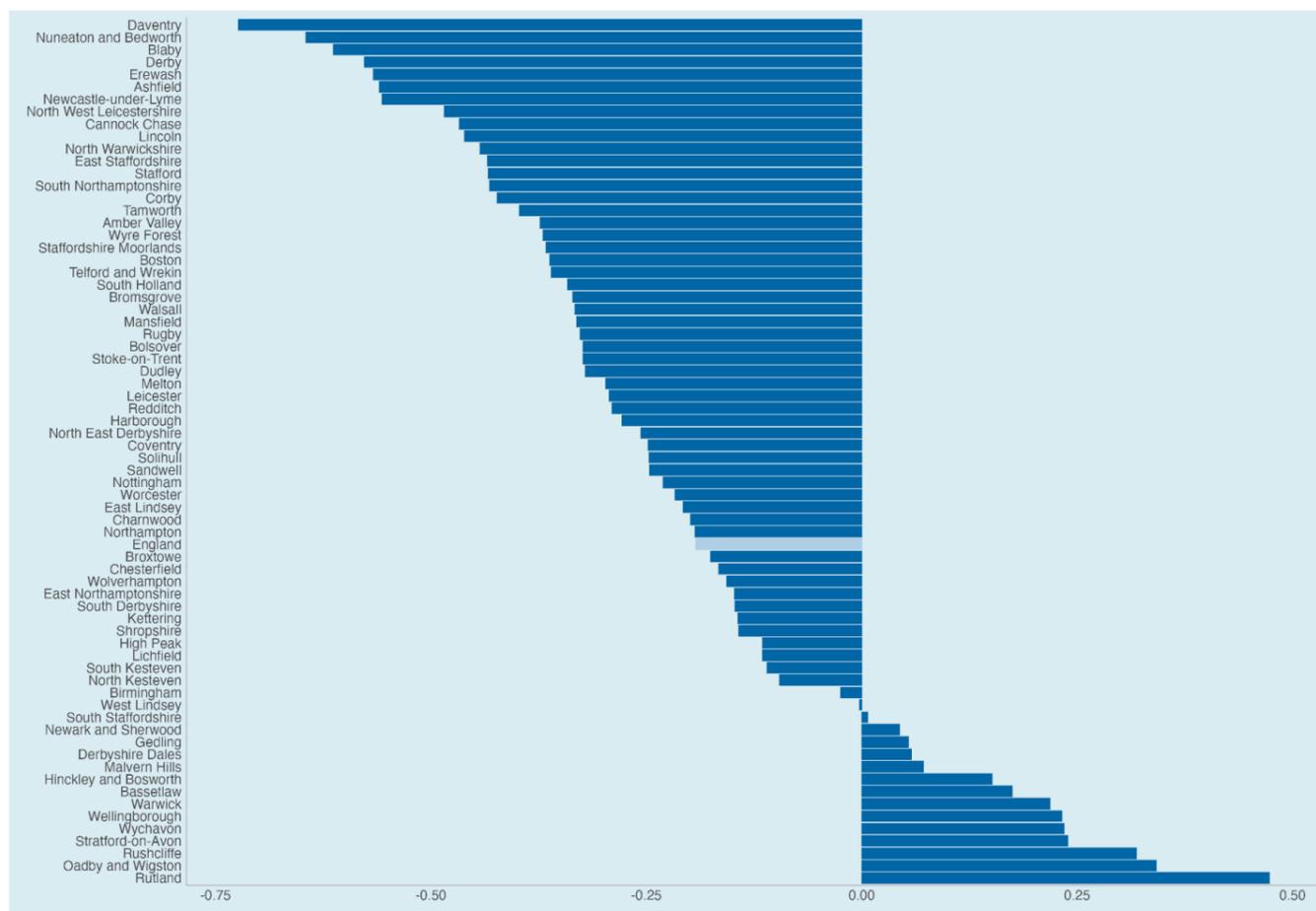


Figure 26 - Mean Progress 8 by Local Authority (2019) (Source: DfE)

The picture for Attainment 8 - a measure of students' achievement across a range of 8 subjects - is similarly poor with 57% of Local Authorities reporting figures below the national average (fig. 27).

Clearly, there are notable exceptions in these numbers and many will point to local socio-economic factors in explanation of poor performance. However, this is not always an explanation. For example, Daventry has one of the worst Progress 8/Attainment 8 performances in the Midlands, whilst Hinckley and Bosworth is one of the best performing Local Authorities. Index of Multiple Deprivation data<sup>15</sup> puts both areas in the same decile when looking at the seven domains of deprivation.

The simple truth is that, if it is to improve the quality of its workforce going forwards, the Midlands needs to improve the quality of its education provision. As areas like Hinckley and Bosworth have shown, this is achievable and Local Authorities should seek to identify and implement best practices from successful peers to ensure that the Midlands' young people get the best educational opportunities available.

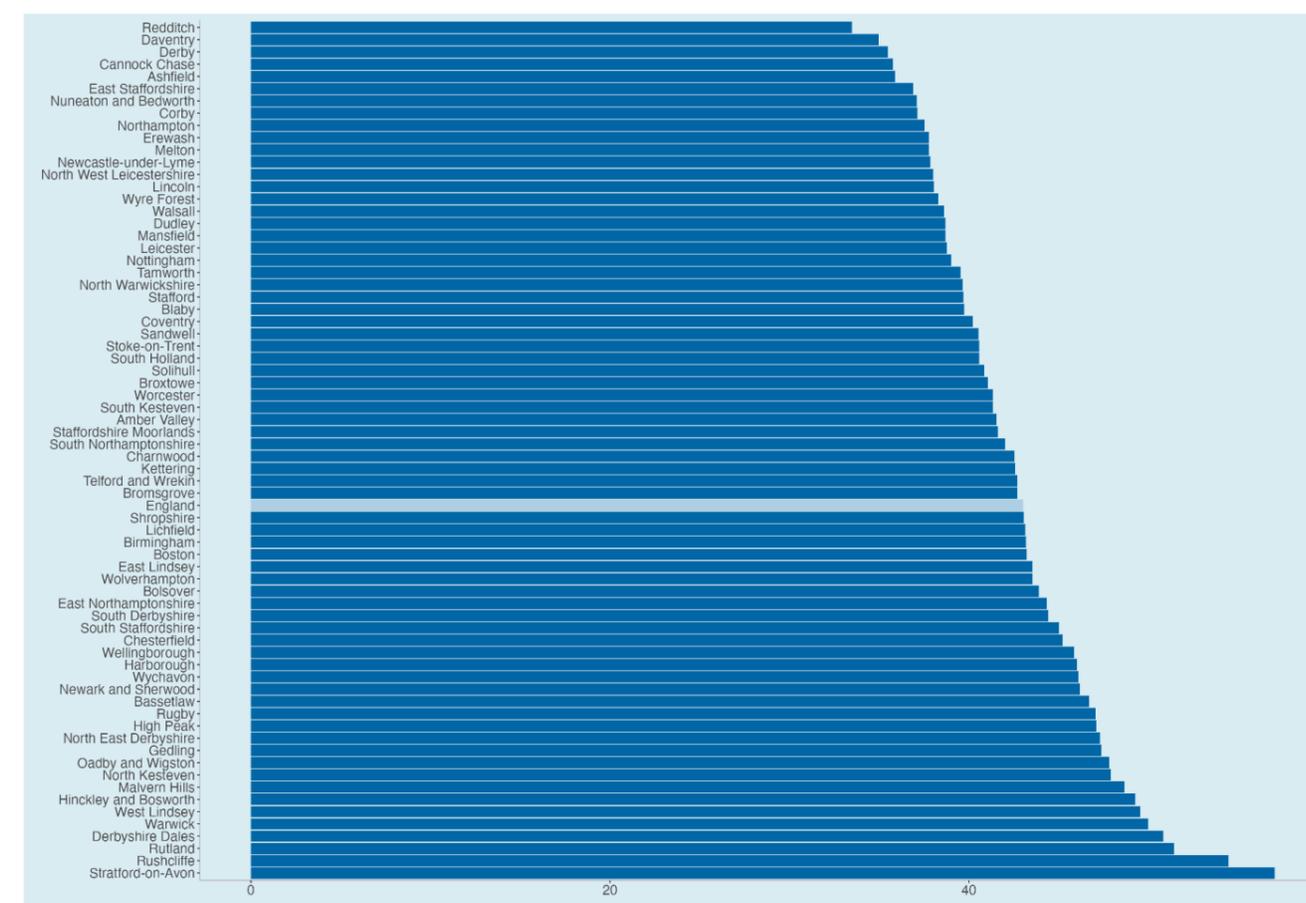


Figure 27 - Mean Attainment 8 by Local Authority (2019) (Source: DfE)

## HIGHER EDUCATION

Students are attracted to the Midlands' academic institutions from all over the world (fig. 28). However, only 16% of those students are home grown in the region and have chosen to stay in the Midlands to study. Of the remainder, 63% come to the Midlands from elsewhere in the UK with a further 21% from overseas.

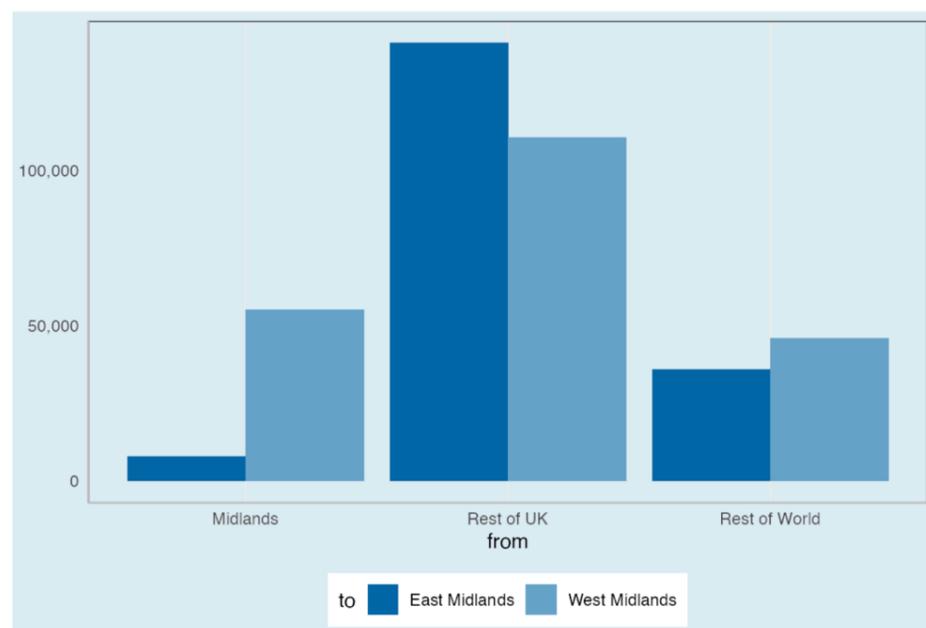


Figure 28 - Origin of students studying in the Midlands (Source: HESA)

With regard to subjects of study for students (fig. 29), 43% are studying in what could be regarded as innovation intensive subject areas, namely, medicine and life sciences, mathematical and physical sciences and engineering and technology. As one would expect, the three Russell Group universities in the region, Birmingham, Nottingham and Warwick, are among the main contributors in these subject areas.

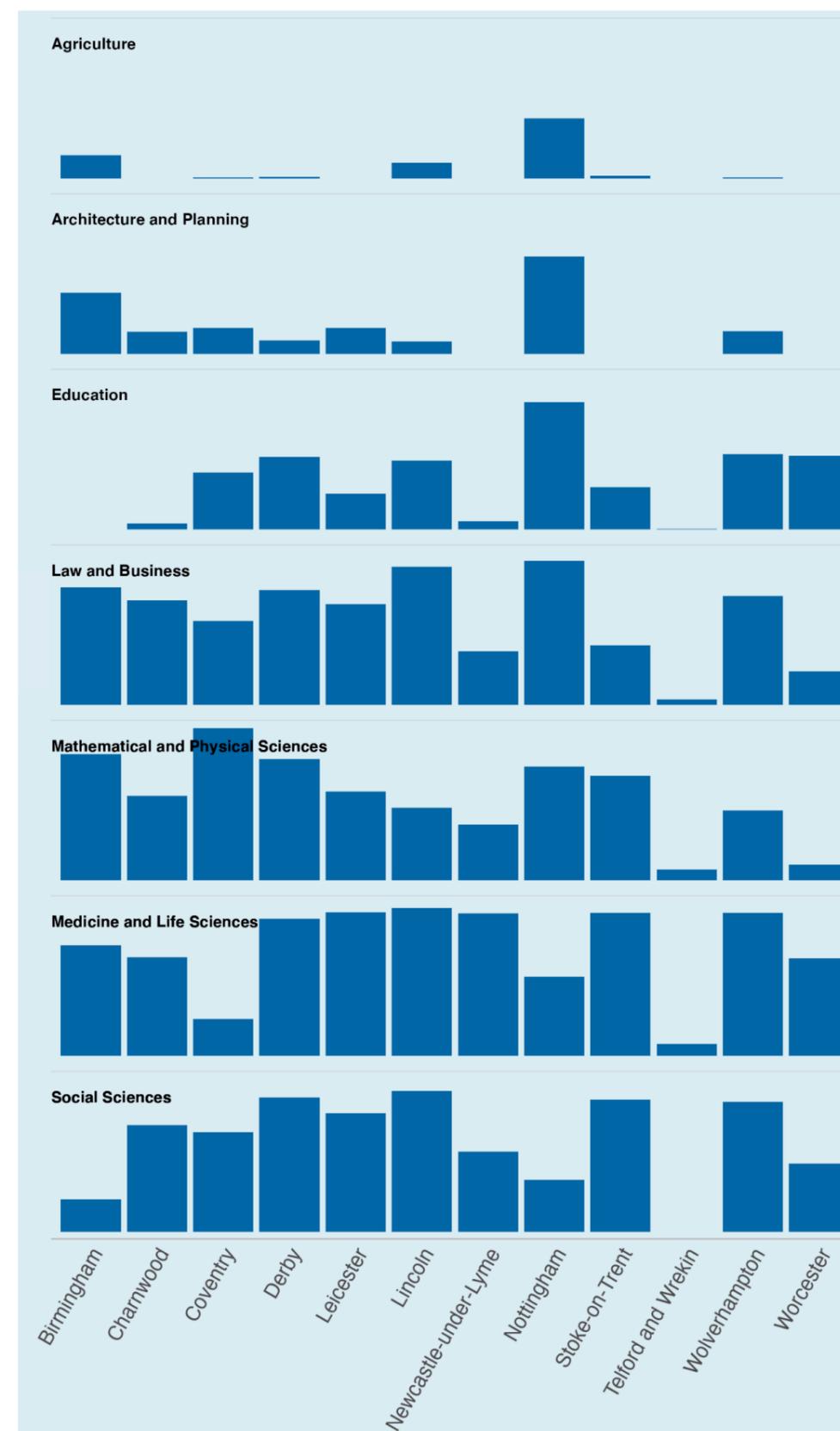


Figure 29 - Student subject of study by Local Authority (Source: HESA)

The ability to retain high quality graduates in the Midlands after their studies is a key contributor to growth and development of the workforce to support new innovation opportunities. Historically, the Midlands has generally fared well in keeping hold of its graduates relative to the rest of the UK. Interestingly, a recent survey by Knight Frank and UCAS<sup>16</sup> indicated a significant difference between Birmingham and Nottingham, with double the number of students surveyed indicating an intention to remain in Birmingham post-graduation (fig. 30).

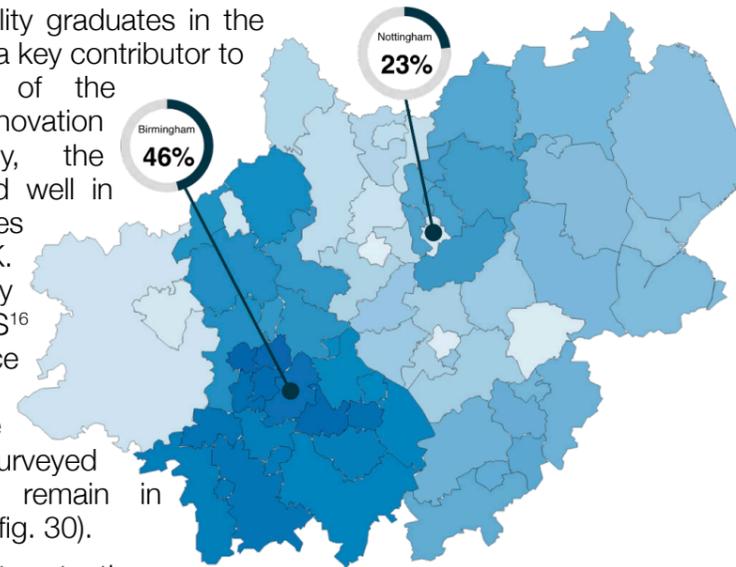


Figure 30 - Graduate retention rates across Midlands cities (Source: Knight Frank/UCAS)

Looking beyond local graduate retention, of more importance is the ability to retain talent across the region as a whole. Analysis of data from the most recent HESA Graduate Outcomes study<sup>17</sup> shows that 52% of students that study in the Midlands are working in the Midlands 5 years after graduation. Whilst this may appear to compare reasonably favourably with London, which retains 65% of its students, a total of 88% of London graduates remain in the Golden triangle of London, the South East and East of England. Of greater concern is that only 5% of graduates who studied in London, the South East or East of England end up working in the Midlands 5 years later (fig. 31).

This would imply that the Midlands is still not generating significant levels of opportunities that will attract graduates to the region and simply highlights the need to produce higher levels of growth aligned to dynamic industries. In short, the Midlands is not competing effectively for the best talent that the UK has to offer. If the region is to grow, it requires more talent, and history indicates that this will be difficult to secure.

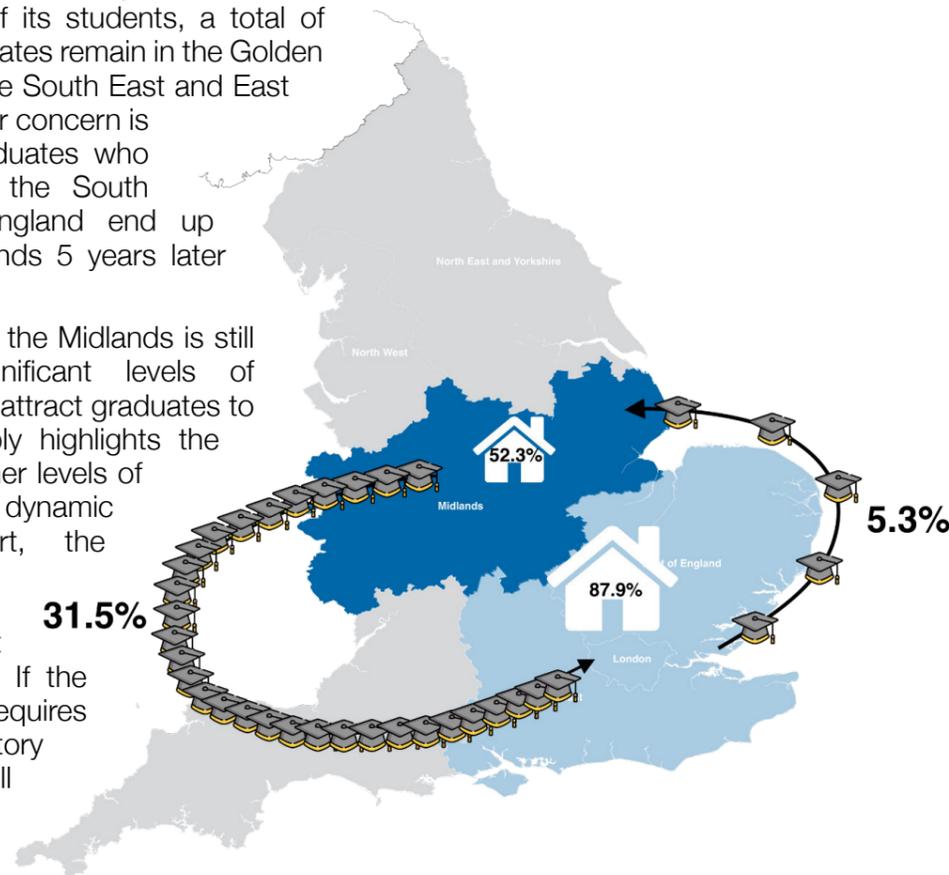


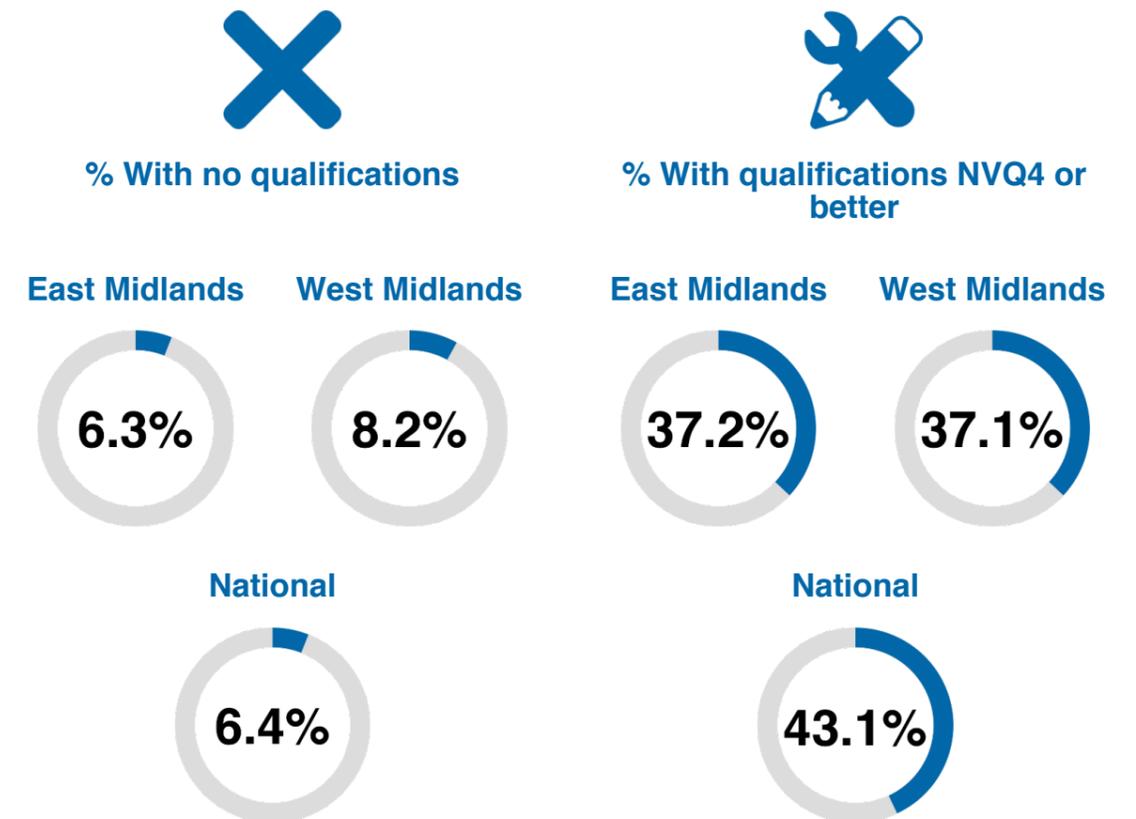
Figure 31 - 5-year graduate retention rates by region (Source: HESA)

## VOCATIONAL EDUCATION

Academic education and research in the UK is generally viewed as being world class. By contrast vocational training, is very much seen as a poor relation. However, this area, just as much as academic strength, is critical for success if we are to drive growth built on knowledge-led innovation. Companies require skilled workers at all levels, not just graduates, if they are to be successful.

Vocational training has received more cuts than any other form of education during the last decade. The annual mismatch in funding is stark and highlighted by the 2019 Augar Review,<sup>18</sup> which states that 1.2 million undergraduates in higher education are supported by £8 billion of government funding, while just £2 billion is allocated to almost double that number of adult further education learners (2.2 million).

In the Midlands, the need to overhaul the approach to vocational training is particularly pressing. The region has a low proportion of highly skilled people; around 15% below the national average.<sup>19</sup> The West Midlands CA's policy to engage businesses more meaningfully in shaping further education (FE), to ensure a future workforce has the correct skills, is undoubtedly a step in the right direction, but more needs to be done.



It is an approach echoed by the Department for Education, in its long-awaited Skills for Jobs<sup>20</sup> white paper published in January 2021, which looks to place more responsibility on employers. Again, whilst welcome, given the scale and critical nature of ensuring that the UK has the right skills to thrive, the £65m strategic development fund devoted to improving FE-business collaboration represents only a small step.

# INFRASTRUCTURE

## INNOVATION FACILITIES

There is a rich tapestry of innovation facilities distributed across the Midlands supporting life sciences, technology, manufacturing and engineering with 19% of the UK's incubators and 12% of the country's accelerators.<sup>21</sup> Remarkably, 60% of the UK's accelerators are sited in London, the South east and East of England.

Region	Incubators		Accelerators	
	Number	% of UK Total	Number	% of UK Total
Midlands	39	19%	19	12%
London, South East and East	78	38%	96	60%
North	36	17%	23	14%

Table 4 - Incubator/Accelerator numbers by region (Source: BEIS)

Further innovation space continues to come on stream across the region with a move away from the standard science park model towards integrated innovation districts. For example, Birmingham Health Innovation Campus is being developed “in the heart of a critical cluster of health excellence.”<sup>22</sup> With links to the University Hospitals Birmingham NHS Trust, Birmingham Women's and Children's NHS Trust, Birmingham Health Partners and the University of Birmingham, the development has the intention of becoming a world leading healthcare technologies campus offering high quality innovation facilities for businesses working in medtech, precision medicine, diagnostics and digital healthcare.

As the design of innovation facilities evolves, the establishment of Living Labs is becoming more common. Living Labs are a developing concept based around user-centred, open innovation environments that integrate public, private and people stakeholder groups where users are fully engaged in the research and innovation process. Going one step further than innovation districts, the concept promotes an environment with a high degree of interaction and knowledge flow extending beyond the physical boundaries of any Innovation Zone, into the surrounding area, engaging a wider and more diverse stakeholder group. Not only does this foster and encourage business growth, but it provides wider benefits to the community at large.

A Living Lab needs people to stimulate multiple levels of interactions between stakeholder groups and, as such, is not something that can be simply constructed as a building. They address key issues affecting communities and their development, ranging from infrastructure to the environment, and education to public services and, ultimately, generate the critical mass to establish a ‘way of working and a way of living’.

A search of the web will yield various views and examples of Living Labs that are currently operating and designated as such. These range from groups of Universities working together to promote skills development, transfer of knowledge and sharing of research

efforts with an aim to support the development of communities; to focused University efforts towards supporting a change in society and the way it is assembled; to entire campuses that focus on turning ideas into new commercial ventures with the aim of improving the health and well-being of residents and the economy.

At the heart of such examples is a clear focus on priorities to establish a working environment (physical and people focused) that addresses challenges to improve the lives of all members of a community.

In looking to support new industries that feed into the Grand Challenges, Living Labs can provide an effective model that will not only benefit stakeholders, but encourage businesses to relocate to take advantage of the innovation and growth opportunities that Living Labs represent.

There are a number of examples of this approach across the region with the work of the Energy Research Accelerator being of particular note.<sup>23</sup> A key feature of the ERA programme has been the integration of large-scale demonstration of energy systems and energy technologies and they have identified a number of different living labs and demonstrators that they are working to support. These include university campuses, community, energy parks, city and rural networks and transport hubs.

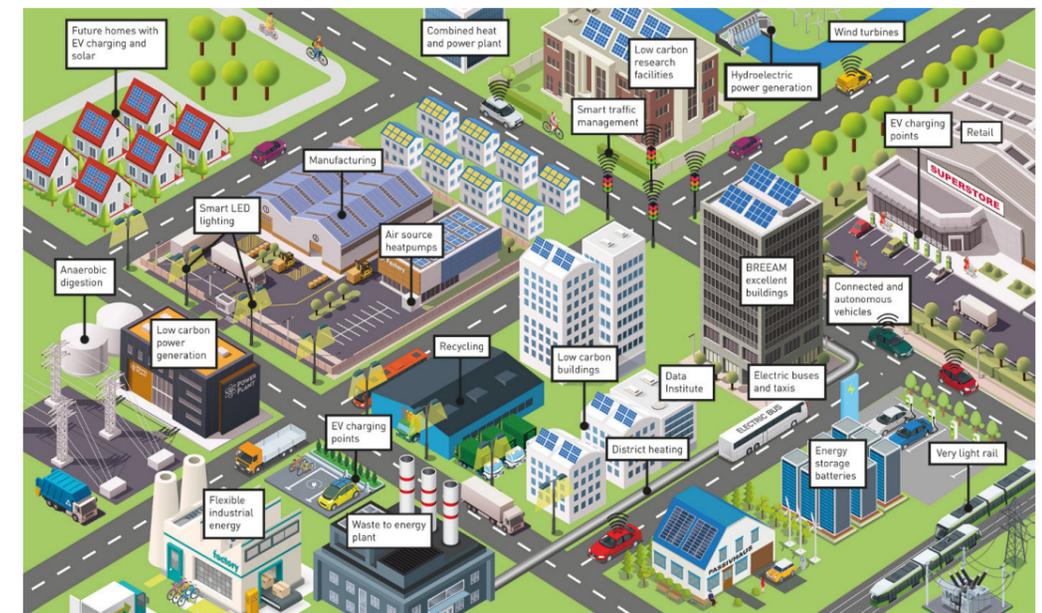


Figure 32 - Schematic of Living Lab approach in Coventry Innovation Zone

Historically, one of the main challenges for Local Authorities across the UK has been provision of grow-on space for successful businesses. Understandably, individual Local Authorities are keen to retain companies within their boundaries but, as sub-regional entities, there is only so much that they can do to meet the growth needs of dynamic business success stories. This would be improved by a regional approach that seeks to ensure that, if a company cannot expand within the local area that it was incubated, that company is accommodated elsewhere in the Midlands.

## REPURPOSING

The growth of effective clusters is a key component of innovation policy. The UK tends to take a parochial view of clusters, which are typically viewed on a small geographic scale. Whilst local interactions and collaborations are undoubtedly a good thing, there are opportunities for the Midlands to foster such interactions across the region rather than having component geographies vying with each other.

There are many examples where large, established companies exit facilities (and, potentially, the region) due to changes of strategy or business. These have the potential to be catastrophic for individual Local Authorities and a workforce that has taken years, if not decades, to build and skill.

One example has been the redevelopment of the former Longbridge MG Rover site which employed 6,000 people. The recent announcement from West Midlands CA of funding for the West Works site at Longbridge,<sup>24</sup> is set to complete the transformation of the entire site with up to 4,000 new homes, 2m sq.ft. of commercial development and 10,000 jobs being created. Crucially, new businesses in tech, science, manufacturing, and R&D industries have moved onto the site, while the existing innovation centre continues to grow.

Similar opportunities will continually arise due to the changing nature of business - the announcement by GKN Automotive of the planned closure of its site at Erdington, Birmingham amongst the most recent examples. Policy should be developed to ensure that these are captured for the benefit of the Midlands as whole. This will require the use of all of the region's capabilities to support redevelopment/reuse in order that both skilled workforce capabilities are retained and growth is secured.

## FUNDING

Amongst the biggest challenges in funding innovation - and particularly translation - are funders' appetites for risk and their willingness to be patient whilst supporting companies as they grow. This challenge is not unique to the UK's regions, but it is there where it is felt most acutely, as compared to London and the Southeast.

Successive UK Governments have sought to use the tax system to incentivise investment into early innovation through schemes such as the Enterprise Investment Scheme (EIS) and its sister Seed Enterprise Incentive Scheme (SEIS), and this enlightened approach is welcome. However, they have generally deployed too short term an outlook.

Moreover, EIS and SEIS funding highlight the discrepancy in funding with London, the SouthEast and East of England accounting for 76% of the £1.99bn of EIS/SEIS funding raised by companies in 2018/19.<sup>25</sup> By comparison, the Midlands only secured around one twentieth of that amount. The average raise under EIS for Midlands companies was £352,000, compared to £504,000 for London, the South East and East. The average amounts raised under SEIS were £72,000 and £85,000 respectively.

Region	EIS			SEIS		
	No. Companies	Amount Raised (£m)	% of UK Total Raised	No. Companies	Amount Raised (£m)	% of UK Total Raised
East Midlands	90	31	1.7%	40	3	1.8%
West Midlands	120	43	2.4%	70	5	3.1%
East	340	193	10.6%	125	11	6.7%
London	1,850	893	49.0%	960	83	50.9%
South East	650	300	16.4%	330	27	16.6%
<b>Total</b>	<b>3,905</b>	<b>1,824</b>		<b>1,985</b>	<b>163</b>	

Table 5 - EIS/SEIS investment by region (2019) (Source: HMRC)

The UK, never mind the Midlands, has never had an end-to-end solution for innovation funding. Interventions have generally been early and confounded by the inability or reluctance of fund managers to identify potential winners early and stick with them. This is largely due to the model by which fund managers are judged and, crucially, remunerated, which provides no incentive for them to take any level of significant risk. As a result, fund managers generally spread their funds widely in small amounts rather than make fewer, more selective but meaningful, large investments. This approach starves companies of true development capital in an environment where there are currently few significant alternatives.

One of the key funds specifically targeted at the Midlands is the Midlands Engine Investment Fund (MEIF). A collaboration between the British Business Bank and ten Local Enterprise Partnerships (LEPs) in the West Midlands and East and South East Midlands, the fund is investing more than £250m between 2017 and 2022. Funding is drawn from several sources including the UK Government, the European Investment Bank, the British Business Bank and the European Regional Development Fund and the

9 LEPs that are part of the Midlands Engine as well as the South East Midlands LEP.

The most recent evaluation of MEIF's progress<sup>26</sup> highlighted two particular challenges associated with businesses across the region.

Firstly, a lack of investment readiness in companies, including “a lack of financial literacy and experience, limited awareness of options and an inability to present propositions” was described as a significant and persistent issue. This needs to be addressed urgently or it will be a major barrier to innovation-led growth.

Secondly, as discussed in the Workforce section above, skills were identified by stakeholders and fund managers as a key barrier hindering the progress/growth of businesses in the MEIF programme and across the region more generally.

Recent data on UK equity funding in the regions, undertaken in 2019 by the UK Government Department for Business, Energy and Industrial Strategy (BEIS) confirmed the pre-eminence of London, the South East and East of England, highlighting that they received 67% of all equity deals and 75% of all invested funds in the UK over the period studies (2011-2017)<sup>27</sup> with the three regions receiving higher proportions of investments than would be anticipated based upon their respective numbers of high growth firms (HGFs) and small and medium-sized enterprises (SMEs).

Despite the impact of the pandemic, Venture Capital funding in the UK still grew slightly in 2020, increasing from \$14.8bn to \$15.0bn (fig. 33).<sup>28</sup>

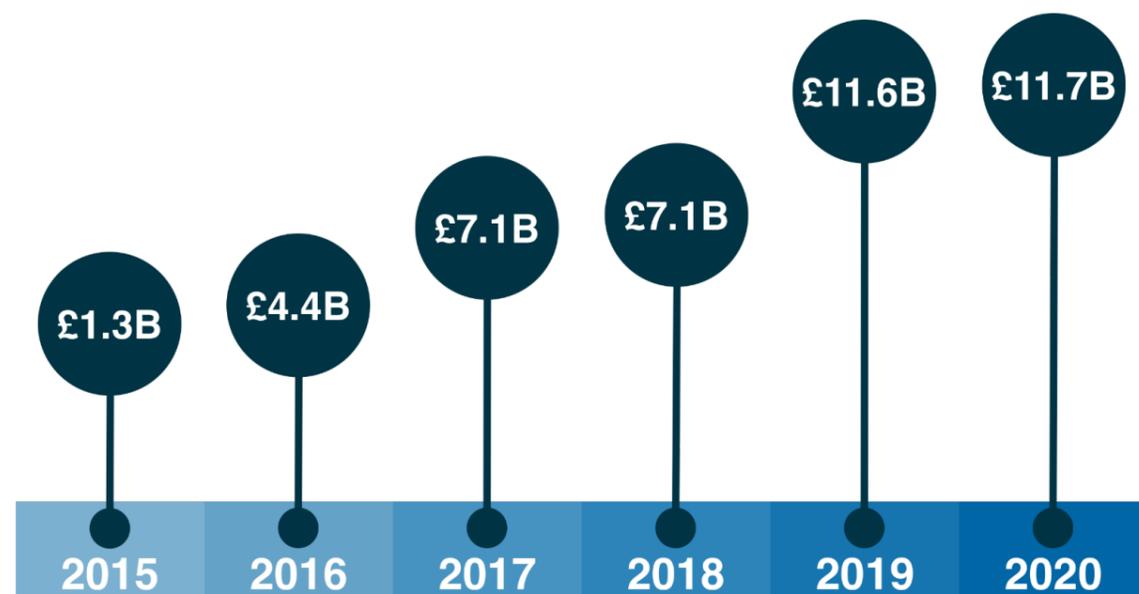


Figure 33 - UK Venture Capital Investment by year (Source: Technation/Dealroom.co)

However, as described in table 6, the Midlands' share of that investment pales when compared to Oxford and Cambridge, let alone London.

Chart of the venture capital investment by city/hub 2019 and 2020 (£ M)

Venture capital investment by city/hub	2019	2020	% Change
London	8,378	8,102	-3 ↓
Oxford	106	414	294 ↑
Cambridge	388	206	-47 ↓
Birmingham	33	8	-76 ↓

Table 6 - Venture Capital Investment in key UK cities (Source: Technation/Dealroom.co)

Sectors relevant to the Grand Challenges were key beneficiaries of this funding with 86% of funds raised being focused on tech, healthcare, transportation and energy (fig. 34).

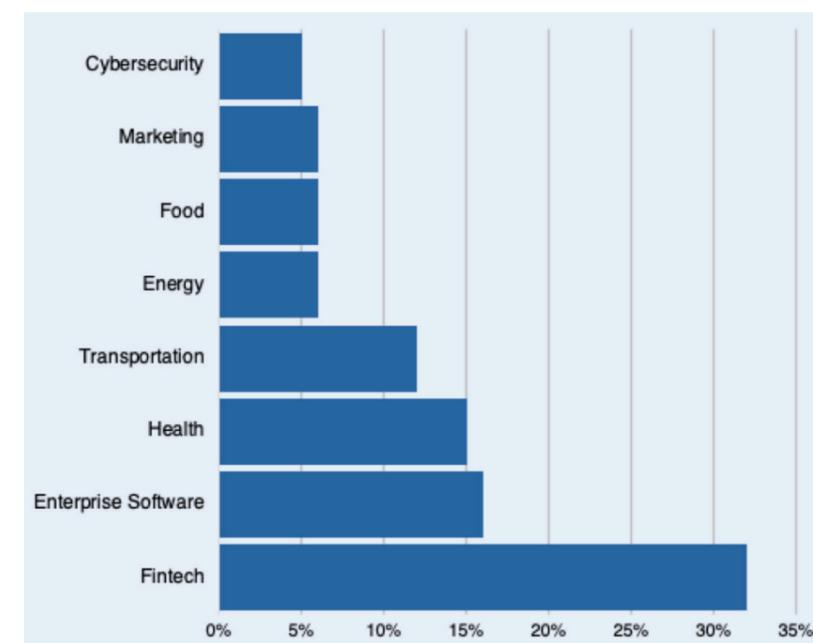


Figure 34 - UK Venture Capital investment by sector (2020) (Source: Technation/Dealroom.co)

Comparing access to public and private sector funding, a major disconnect is apparent (table 7). Of the £37.1bn Gross Expenditure on R&D (GERD) across the UK in 2018, the most recent period reported, 15% was in the Midlands compared to 53% in London, the South East and East (the so-called Golden Triangle). Innovate UK funding to business between 2015 and 2020 is also close to this ratio. However, private funding is heavily skewed in favour of the Golden Triangle with almost 20 times as much EIS/SEIS funding heading there in 2018. The picture is even worse for VC investment with the Midlands only securing 1% of the UK's funding in 2018 compared to 84% to the Golden Triangle. This had improved slightly by 2020 with 3% of funding coming to the Midlands but this was still a mere fraction of the investment flowing to the Golden Triangle. Given the MEIF review's comments on investment readiness of the region's businesses, this is hardly surprising.

GERD, Innovate, EIS/SEIS, VC funding by region		
	Midlands	Golden Triangle
GERD 2018	15%	53%
Innovate Businesses only 2015-20	15%	56%
EIS/SEIS 2018/19	4%	76%
VC 2018	1%	84%
VC 2020	3%	86%

Table 7 - Relative share of GERD, Innovate, EIS/SEIS, VC funding for Midlands v Golden Triangle

Structurally, there are two major issues around private sector funding of innovation in the Midlands.

Firstly, there is clearly not enough money flowing to the Midlands to support the R&D activity that is happening there.

Secondly, the businesses across the region are ill-equipped to access and exploit the funding that is available.

If we are to truly level up in the UK regions, there needs to be equivalent opportunity of funding and growth for businesses. An eco-system needs to be created in the Midlands that provides the right environment for businesses to develop and thrive. Initiatives such as the recent launch of the ScaleUp Accelerator in the West Midlands<sup>29</sup> are a start, but much more needs to be done.

Supported by end-to-end funding that is targeted at key industry sectors, that funding needs to not only support businesses early in their life cycle, but provide follow-on funding that leverages agreed relationships with selected Venture Capital funds who are focused on those key sectors. Executed correctly, this will not only improve the growth potential for local businesses, but will attract businesses from outside the region and support the development of true clusters for the key industrial sectors that will be at the core of growth in the Midlands going forward.

## Conclusions and Recommendations

The data in this report highlights a number of key challenges that need to be addressed if the Midlands is to improve its ability to deliver innovation-led growth consistently across the region. This requires both changes in behaviours across the region as well as support and intervention from UK Government.

For any levelling-up agenda, it is not simply about raising standards in the Midlands compared to the rest of the country, but within the Midlands' individual policy-making areas.

A range of attitudes and behaviours across the region need to change if the Midlands is to have any chance of levelling up its constituent parts.

Local and Combined Authorities need to recognise and accept their differences. Not all cities can or should be the same - just because one city has something doesn't mean that the other Midlands cities also need to have one. What is more important is that the Midlands' collective offering is effectively and efficiently co-ordinated and presented in such a way to attract business, research and workers to the region.

Policy making across the Midlands needs to become more agile and responsive to take advantage of the growth opportunities that are available. Dynamically growing businesses need to be supported and nurtured to ensure that they achieve their full potential. Increasing the cohort of high-growth businesses will not only provide more opportunities for the local workforce but will improve the attractiveness of the Midlands for qualified and skilled workers from elsewhere in the UK.

A higher level of performance monitoring needs to be applied across policy areas. It is not enough to simply report outputs, with the view, heard all too often, that, "It's always been this way." Decisive and effective interventions need to be made in response to under-performance to achieve positive change.

A greater level of collaboration is required across the region - particularly in relation to innovation-led growth. Rather than expecting innovation to thrive in isolation, those groups that share cluster characteristics should work together to provide solutions for all and then test and propagate those solutions in other areas across the region. In particular, there has to be far greater levels of dissemination of best practice for the SME community with a focus on investment readiness and skills.

The speed of translation of innovation needs to be increased and made more effective. This must be achieved without the layering of a multitude of different structures. It is essential that the complexity of the support network for growing businesses is reduced and simplified.

Across the region and beyond, if there is to be any chance of the increased levels of research funding playing their part in establishing the country at the forefront of cutting-edge areas like aerospace, clean energy, automotive technologies and artificial intelligence, it must be supported by properly funded and promoted vocational training to produce the next generation of data analysts, lab technicians and robotics operators.

It is only by providing businesses with a skilled workforce and young people with rewarding, secure vocationally-based careers that the Midlands and the wider UK will be competitive in the critical industries of the future.

## Recommendations

- 1** Establish a Midlands Innovation Forum to streamline, co-ordinate and implement innovation policy for the Midlands.
- 2** Introduce policy targeting improved vocational training with a focus on skills required for new industries.
- 3** Expand existing business support programs to prepare companies for growth.
- 4** Propagate experience gained from success across the five pillars of innovation to support levelling-up across the region.
- 5** Incentivise the development of mixed-use, innovation-led infrastructure that benefits the community at large.
- 6** Refill MEIF with funds specifically targeted at industry sectors tied to Grand Challenges and reward greater risk taking by fund managers.
- 7** Leverage existing tax reliefs to drive early-stage funding into regional businesses.
- 8** UK Government should raise capital allowances to incentivise growth in the Midlands' manufacturing businesses.
- 9** Increase the proportion of publicly funded research specifically tied to industrial collaboration and commercialisation.
- 10** Provide incentives for venture capital and private equity funds to invest in businesses in the region.

# Methodology

## Data Sources

The data were sourced principally from:

- Impact Data Metrics proprietary place-based datasets. These include the IDM Business Premises database, which is generated from multiple data sources and provides an accurate picture of operational (not registered) addresses for businesses. Examples of businesses provided herein are sourced from original desk research undertaken by IDM.
- The UK Office for National Statistics (ONS).
- UKRI Research Grants - analysis is based on listed unique UKRI grant records with a start date between 2015 and 2020 inclusive and which have an award or expenditure value ascribed to them. This represents 59.2% all grants in the period.

Data analysed and presented within this report includes public sector information licensed under the Open Government Licence v3.0.

## Topic modelling and Cluster Analysis

The topic modelling analysis within this report was undertaken by creating a corpus of text for each local authority area, which was then processed (by removing numbers, punctuations, and a variety of common terms such as limited in company names, names of places, etc.) to generate a document term matrix. This enabled a review of word frequencies to be undertaken to identify an optimal number of topics for the text used by employing Latent Dirichlet Analysis (LDA).

Outputs were assessed by looking at the coherence score for each model and determining the number of topics that were sufficient to describe the diversity of the subject matter. Using the model that was generated, the top terms for each of the topics was extracted. The model was then used to generate assignments of topic prevalence to the original data for each of the Local Authority areas.

A similarity grouping was generated using hierarchical clustering to aid visualisation. Using these data, a cut-off value at which all 71 LAs were represented in the topic analysis was developed, summarised and plotted.

Outside of Topic Modelling, K-Means clustering was also employed.

In presenting cluster characteristics, error bars were removed for simplicity of presentation.

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# About Impact Data Metrics Ltd

Impact Data Metrics Ltd ("IDM") is a knowledge and insight generator which supports clients in making better, more informed decisions.

IDM deploys its proprietary AI and machine-learning technologies to ingest, clean, organise and integrate data to allow knowledge generation to take place. We have collated billions of public and semi-public data records which we have refined and structured to answer key questions across Economic Development, Property, Healthcare and Research & Innovation. Adding editorial expertise to the analysis of these proprietary datasets allows us to generate real-time knowledge and insights.

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