



MIDLANDS ENGINE

STATE OF THE REGION EXECUTIVE SUMMARY 2023

Contents

Foreword 03

STRATEGIC DRIVERS FOR THE MIDLANDS ECONOMY

Increasing productivity	06
Macro economy	06
Economic forecasts	07
Productivity	08
Midlands Economic Summit	08
Enterprises	09
Labour market	09
Qualifications	10
InterAct	11
Innovating across sectors	12
Traditional sector composition	12
Clusters	13
Innovation	14
Universities as drivers of trade and investment	15
Building infrastructure for growth	16
Digital	16
Transport	17
Midlands Rail Hub	18
Increasing global and investment	19
Trade in goods	19
Investment	20
Midlands Investment Portfolio	20

KEY SECTORS

Green growth	22
Net zero transport technologies cluster	23
Offshore wind cluster	23
The Midlands Forest Network	24
Advanced manufacturing	25
Automotive cluster	25
Rail cluster	26
Ceramics, metals and materials cluster	26
De-carbonising the Midlands aerospace cluster	27
Food and agri-tech	28
Food and agri-tech clusters	28
Food white paper	29
Med-tech and life sciences	30
Health and life sciences cluster	30
Data-driven healthcare innovation	31
Mental Health and productivity pilot	31
New market opportunities	32
Hydrogen	32
Smart energy	32
Quantum technologies	33
Artificial intelligence	33
Nuclear	34
Nuclear Fusion STEP	34
Megatrends	35



Scan the QR code to view the full report or [click here](#)



Sir John Peace Midlands Engine Chairman

Foreword

Unlocking transformational opportunities in the resilient, resourceful Midlands

The annual Midlands Engine Partnership State of the Region reports have become much-anticipated and vital sources of reliable information for all those involved in supporting economic growth in the Midlands – and this fourth instalment is no exception.

Produced as always by our Observatory, the 2023 report drills down into data across all aspects of the economy, providing a clear, evidence-based picture of how the Midlands is performing.

What has become apparent with the passing of each year since the seismic shock of the pandemic is that there is no single, swift solution that will snap the region, the UK, or indeed, the global community, back to the way things used to be. As our recent publication [Megatrends in the Midlands](#) showed, huge changes in technology, climate, geopolitical tensions and demography are already impacting all aspects of life and business.

The insights and statistics in this year's report attest to the resilience and resourcefulness our region has shown in recent years.

However, the data once again illustrates the issue Midlands Engine partners have been focused on for years. Our region needs concerted public and private sector investment in areas including skills for the future, digital and physical infrastructure, green innovation and advanced technologies, and greater access to finance for businesses to expand and export.

This is how the gaps in productivity, skills, employment and GVA will be closed. This is how inclusive, sustainable economic growth for the region will be achieved, unlocking transformational opportunities for today's and tomorrow's generations. ▲

SIR JOHN PEACE





STRATEGIC DRIVERS FOR THE MIDLANDS ECONOMY

Leaders and businesses from across the region, in close consultation with government, have identified four strategic drivers as the cross-cutting factors that are essential for the Midlands economy to thrive.

Increasing productivity

Unlocking inclusive economic growth, enhanced business competitiveness, private sector investment and local job creation.

Macro-economy

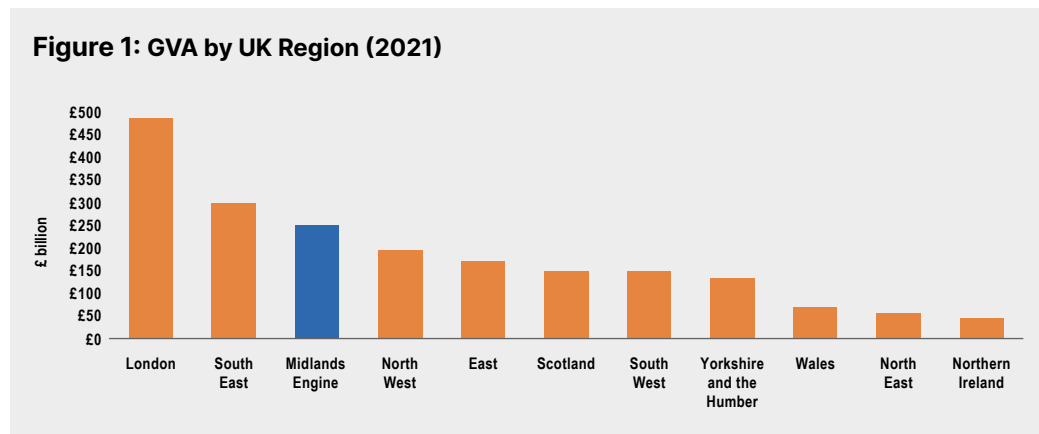
Up until 2019, the Midlands saw a **steady increase in Gross Domestic Product (GDP)** year-on-year, with a **growth of 44.8%** between 2009 and 2019. The Covid-19 pandemic dented GDP in the Midlands, with a 5.3% decline between 2019 and 2020 (softened by the East Midlands), compared to 5.8% decline across the UK. Since 2020, GDP had shown signs of a recovery as the Midlands GDP increased by 8.1%, with the UK increasing by 7.9%¹. However, as reported in the next part of this report, forecasts show the high cost of living and weaker consumer spending has potentially heavily impacted the Midland regions in 2022.

In 2021, the Gross Value Added (GVA) produced by the Midlands Engine area was higher than any other UK region outside of London and the South East and accounted for 12.4% of the UK total.

The latest figures show that in 2021, the Midlands Engine **total GVA was £252.6bn**. Since 2020, this is an increase of 7.4% (+£17.5bn)² compared to an increase of 7.2% UK-wide. Although the West Midlands on average across the past 3 years had the slowest growth rates across the regions (+1.3%, UK +2.1%).

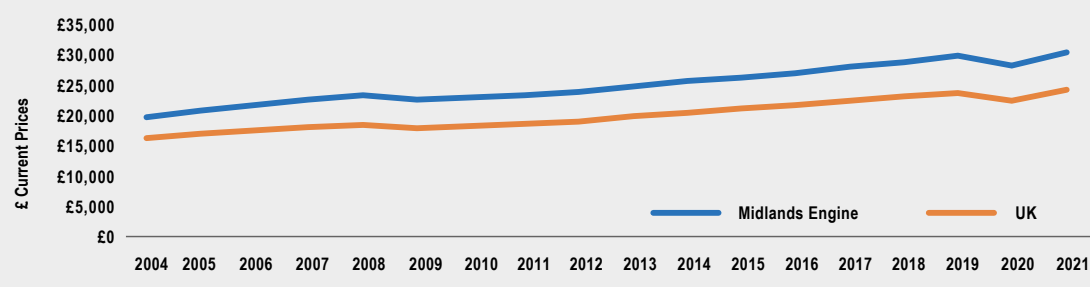
Following national trends, the Midlands Engine **GVA per head increased from £22,603 in 2020 to £24,346 in 2021**. Since 2020, this has increased by 7.7% with the UK increasing by 7.3%. Despite this growth, a gap to the UK persists and there was a **shortfall of £6,097** to the UK figure (£30,443)³.

Figure 1: GVA by UK Region (2021)



1. Office for National Statistics (ONS), Regional Gross Domestic Product (GDP): all International Territorial Level (ITL) regions, May 2023
 2. ONS, Regional Gross Value Added (balanced) by industry: local authorities by ITL1 region, May 2023
 3. ONS, Regional Gross Value Added (balanced) by industry: local authorities by ITL1 region, May 2023 and ONS, Population Estimates, June 2022

Figure 2: GVA per Head Trends



Economic forecasts

To a certain extent, business activity and economic confidence have recovered in the UK in 2023, aided by falling inflation and economic growth – albeit small. **The UK is set to avoid a recession** according to the [Office for Budget Responsibility](#) and [International Monetary Fund](#), while many other forecasters have predicted the same while upgrading growth prospects.

However, key barometers of performance – including via the [British Chambers of Commerce](#) and [EY](#) – highlight the **persistent fragility of the UK economy, driven by spiralling interest rates and still higher-than-usual prices**. Reflected through the continually high and problematic cost of living and doing business, the economy remains in a precarious position.

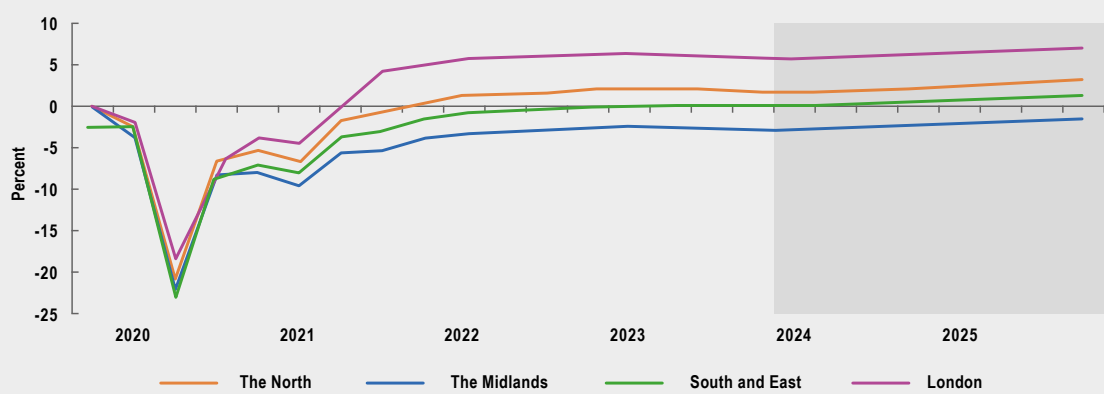
Recent economic forecasts for the UK suggest sluggish growth for 2023 and 2024, with GDP growth expected at 0.5% and 0.4% respectively based on an average of forecasts. The consensus is that the UK will avoid recession though, supported by a forecasted fall of inflation (CPI) to around 2.5% in 2024 ([HM Treasury](#)).

According to the latest economic forecasts (Autumn 2023) from the [National Institute of Economic and Social Research \(NIESR\)](#), low economic growth is predicted for all devolved nations and English regions, with the Midlands not returning to pre-pandemic levels of GVA until 2025. **Only the West Midlands and the non-metropolitan parts of the South East are projected to have lower output at the end of 2024 than the end of 2019.**

NIESR also predict that **the Midlands will continue to lag behind other regions with regard to employment** (potentially reaching its pre-pandemic level in late 2025) while also forecasting the Midlands to experience the most significant drop in productivity between the fourth quarters of 2019 and 2025.

This is likely to be in part due to the **Midlands' reliance on more exposed and affected sectors** such as manufacturing and the disproportionate impact on these sectors of the major shocks in recent years.

Figure 3: Regional GVA relative to the fourth quarter of 2019



Source: NIESR, Autumn 2023

Productivity

The Midlands Engine had a **productivity gap of £86.3bn** in 2021. The productivity gap has increased over the year by nearly £4bn (+4.8%) and was back to similar figures seen before the pandemic hit. Looking at the long-term trend, when compared to three years ago, the productivity gap has increased by £6.2bn (+7.8%) and when compared to five years ago, it has increased by £11.6bn (+15.6%).

The Midlands Engine unsmoothed **GVA per hour worked⁴ decreased from £33.97 in 2020 to £33.80 in 2021** (-0.5%, -£0.17). The UK GVA per hour worked decreased from £39 in 2020 to £38.68 in 2021 (-0.8%, -£0.32). There was still a shortfall of £4.88 to the UK figure.

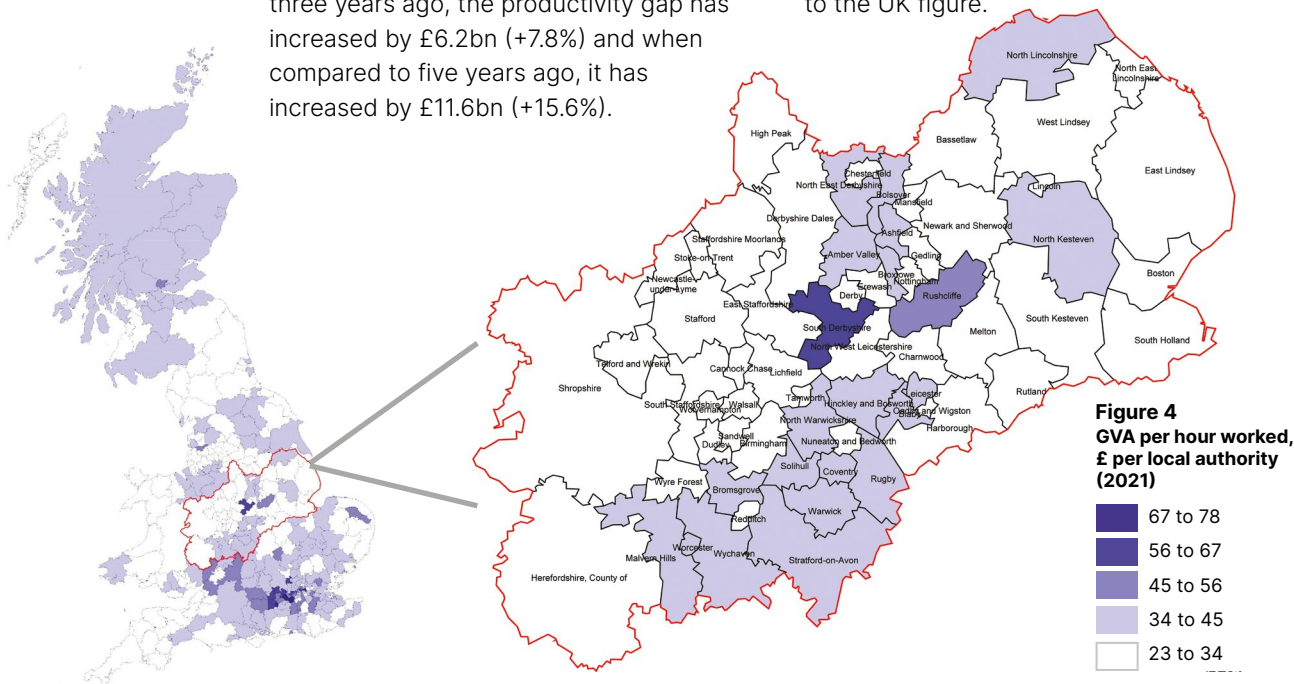


Figure 4
GVA per hour worked,
£ per local authority
(2021)

- 67 to 78
- 56 to 67
- 45 to 56
- 34 to 45
- 23 to 34

PARTNERSHIP IN ACTION

Midlands Economic Summit

Context

The inaugural Midlands Economic Summit, held on 7 June 2023 at the Vox Conference Centre, Birmingham, was the largest Midlands-wide business forum ever held in the region.

Detail

Through a diverse series of panels and interviews, participants at the summit raised and discussed questions around some of the most pressing issues for the region, including: closing the region’s productivity gap; accelerating innovation and technology adoption to secure critical supply chains; and attracting more foreign direct investment into the region.

Impact

Bringing together over 400 business, government, academic and third-sector leaders from the East and West Midlands, the event aimed to celebrate and continue building a shared pan-regional vision.



The Midlands Economic Summit hosted brilliant speakers focussing on the biggest economic region outside London.

The panels provided insights including: the urgency of the net zero transition; the need to be agile; collaborative working; the power of partnerships and the benefits of building a collective voice as we look to build on the success of the region this far. I’m a proud Midlander and am excited to build on this foundation as we look to host the Summit again in 2024.



**NINDER JOHAL – CEO OF NACHURAL
AND LEAD ORGANISER OF THE SUMMIT**

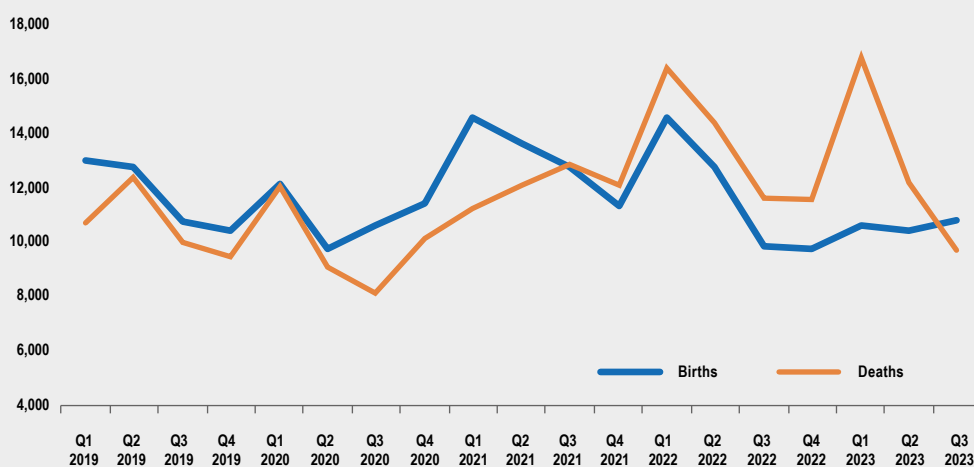
4. ONS, Subregional productivity in the UK, June 2023

Enterprises

In 2022, there were **404,955 enterprises**⁵ in the Midlands Engine area. This was a decrease of 0.7% (-2,870) which follows the national trend (-0.5%) since 2021. Also, in 2022, there were **48,395 enterprise births** in the Midlands Engine area. This was a decrease of 10.4% (-5,620) compared to a decrease of 7.4% UK-wide since 2021.

More up-to-date experimental data⁶ shows that, for the first time since Q2 2021, there are **more enterprise creations than closures (in Q3 2023)**. Quarter-on-quarter analysis highlights that enterprise births in the Midlands Engine increased by 9.6% (while deaths fell by 20.4%). Comparing Q3 2023 to the same quarter in the year before, enterprise births increased by 3.6% (deaths fell by 16.5%).

Figure 5: Trends in Midlands Engine business births and deaths



Labour market

In the year ending June 2023, the **employment rate in the Midlands Engine area was 74.3%**, compared to 75.5% for the UK overall. When compared to the year ending June 2022, the Midlands Engine area **matched the UK growth rate of 0.1 percentage points (pp)**.

For the Midlands Engine area **to reach national proportions requires an additional 77,705 working age residents to be employed**⁷.

For economic inactivity, the Midlands Engine rate was 22.4% compared to 21.5% for the UK overall in the year ending June 2023.

Since the year ending June 2022, for the Midlands Engine area, this decreased by 0.2pp while the UK increased by 0.1pp.

However, there was a 2.0pp increase across the Midlands Engine in those classed as sick (primarily long-term sick).

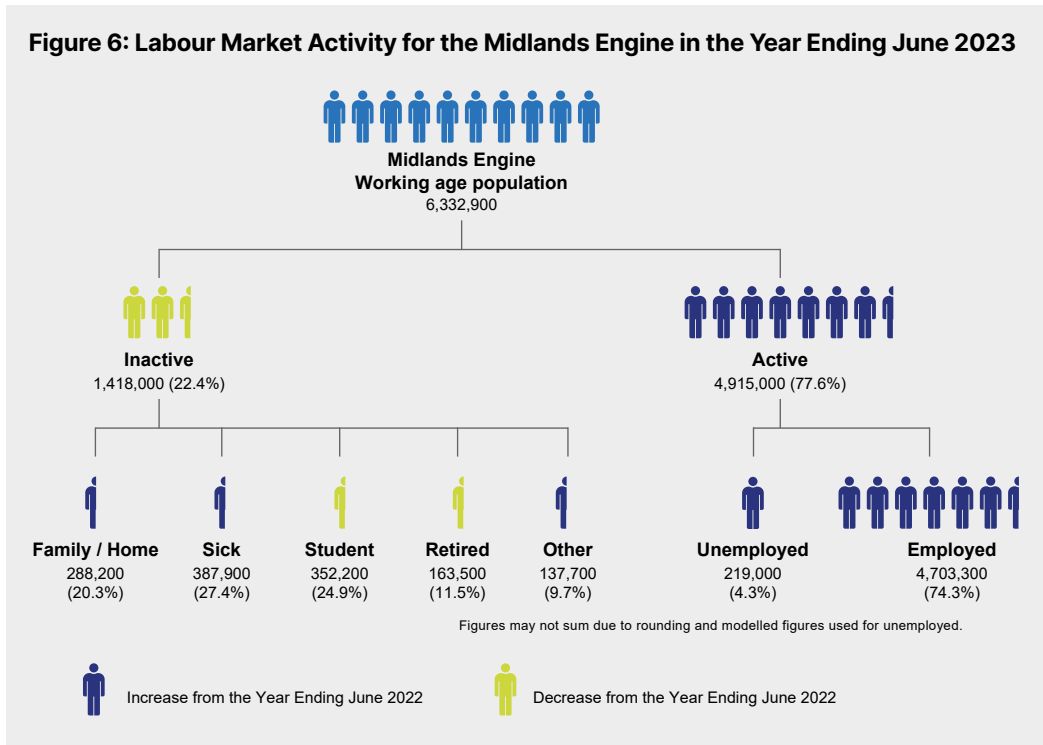
There are approximately **272,000 people claiming benefits looking for work**. This equates to 3.2% of the population aged 16 years and over, with the national rate at 2.8%. Youth claimants (aged 16-24) also remain above the national average (Midlands Engine rate of 4.6% compared to 3.9% nationally).

5. ONS Business Demography, November 2023

6. Experimental Statistics are official statistics from the ONS which are still in their testing phase and are not yet fully developed. Hence, they have a wider potential of uncertainty and should be taken with some caution.

7. ONS, Annual Population Survey, October 2023

Figure 6: Labour Market Activity for the Midlands Engine in the Year Ending June 2023



Over the course of 2022, job postings and vacancies rose to record levels. However, the **latest indicators suggest that the demand for labour across the Midlands Engine area has begun to cool off.**

This is reflected in the latest job postings data, which shows that the **number of job postings across the area has decreased by 7.5% year-on-year** and in real-terms from 134,579 to 128,854 in the last 6 months.

Despite employer demand contracting, the number of people seeking work wanting a job remains strong – 0.2pp above the same comparable period last year.

Qualifications

In 2022, for the Midlands Engine area, **39.3% (nearly 2.4m) of the working age population had RQF4+ qualifications⁸.** This was below the UK-wide average of 45.5%, meaning there was **a shortfall of 373,936 people.**

In the Midlands Engine area, approximately **7.7% (461k) of working age residents had no qualifications.** This was above the UK-wide average of 7.0%.

This would imply that those wanting a job are increasing their efforts to find work but finding suitable work in a narrowing jobs market remains a challenge.

By comparing the sectors with high posting rates to the roles that job seekers are most interested in, the data suggests **a mismatch between the jobs available in the Midlands and the ones for which people want to apply for.**

To match the UK proportion, approximately **41,931 residents would need to gain a qualification.**

Average **full-time annual earnings⁹ for Midlands Engine residents were £36,421** in April 2022. This is an increase of 6.6% (+£2,261) compared to the UK increase of 5.0% since April 2021. In 2022, residents in the Midlands Engine earned £3,545 less than the UK-wide figure (£39,966); meaning resident earnings stood at 91% of the UK average.

8. ONS, Annual population Survey, August 2023. Please note: no qualifications are based of 59 local authorities due to data availability.
 9. ONS, Annual Survey of Hours and Earnings (ASHE), October 2022

PARTNERSHIP IN ACTION

InterAct

Context

The InterAct Network is a collaborative effort to address the human issues faced by employers resulting from the diffusion of new technologies in industry.

As part of the project, InterAct is examining the 'Future of Digital Manufacturing Ecosystems' through a research team based out of Loughborough Business School. This team aims to work with multi-stakeholder groups to identify a joint vision for the UK manufacturing industry and develop digital roadmaps to support this transformation by 2040.

Detail

Phase 1 of the project took place in 2022 and focused on scenario development for the vision. This involved a series of expert interviews and workshops which led to the creation of future scenarios and digital roadmaps.

Phase 2 focused on conceiving 'Midlands as a factory' with a specific focus on manufacturing ecosystems in food and medical technology supply chains – two clear areas of priority for the region. This phase included further co-design workshops with key Midlands-based stakeholders and a guide on how to share this knowledge with other regions.

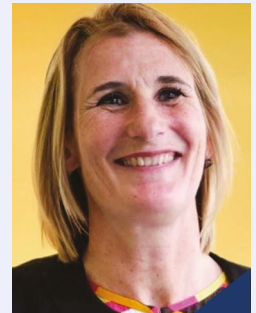
Impact

Phase 3 in 2024 will look at deep-dive case studies on three Midlands firms to create a blueprint for building sustainable and responsible manufacturing supply chains. It is predicted that the resulting impact will be an increase in productivity, sustainability, resilience and human wellbeing in Midlands manufacturing firms and across the UK more generally.



Advanced manufacturing plays a pivotal role in the Midlands economy, with particular strength in the food supply chain, which generated £32bn of Gross Value Added (GVA) to the regional economy. The med-tech and life sciences sector contributes an additional £6bn GVA.

At InterAct, we're committed to working with businesses to help shape and co-develop our research to achieve the greatest benefits for regional and UK wide manufacturing. By focusing our case study on the Midlands, we have a unique opportunity to support the thriving industrial base here and enable them to establish future systems of digital manufacturing – creating more resilient and prosperous supply chains which will enhance the productivity of the region and provide a blueprint for wider applicability to the rest of the country.



**PROFESSOR JAN GODSELL – DEAN OF LOUGHBOROUGH BUSINESS SCHOOL,
LOUGHBOROUGH UNIVERSITY**

Innovating across sectors

Understanding and tackling barriers to support businesses to access finance, skills development and collaborative opportunities.

Traditional sector composition

When it comes to traditional sectors the **Midlands has some clear strengths**. This is reflected mostly by looking at the proportions of GVA, enterprises and jobs in key sectors compared to the national average¹⁰.

Out of 10 defined sectors, the Midlands Engine has a higher than the national proportion in **7 sectors for GVA, 6 sectors for enterprises and 5 sectors for jobs** (these are shaded in green in the table below).

Figure 7: Defined sectoral composition

	Midlands Engine GVA % of total	UK GVA % of total	Midlands Engine enterprises % of total	UK enterprises % of total	Midlands Engine jobs % of total	England jobs % of total
Advanced manufacturing	16.1%	9.8%	6.5%	5.0%	11.7%	7.5%
Business, professional & financial services	26.7%	35.3%	29.2%	32.1%	19.6%	23.5%
Construction	7.0%	6.5%	15.4%	15.7%	7.0%	7.2%
Creative, design and digital	4.2%	6.5%	4.7%	6.9%	2.8%	4.8%
Energy and low carbon Activities	5.3%	4.5%	6.0%	5.8%	2.2%	1.7%
Healthcare and life sciences	9.5%	8.4%	4.2%	4.0%	14.0%	13.2%
Public sector inc. education	12.1%	11.5%	2.1%	2.0%	12.5%	12.9%
Retail	11.9%	10.6%	16.6%	14.7%	15.0%	14.0%
Transport technologies & logistics	3.9%	3.1%	6.8%	4.7%	6.3%	5.1%
Visitor economy	3.4%	3.7%	8.4%	9.1%	8.9%	10.2%

¹⁰ ONS, Regional Gross Value Added (balanced) by industry: local authorities by ITL1 region, May 2023, ONS, UK Business Counts, September 2023 and ONS Business Register and Employment Survey, October 2023

Clusters

Exploring the Investment Potential of Midlands Clusters analysed a series of clusters in the Midlands Engine region. 23 Cluster Snapshots have **now been published**, including data and analysis presenting their investment potential, as well as insight and recommendations drawn from industry roundtables and business engagement.

The work has highlighted the following clusters:

Six Midlands 'super-clusters'

The key sectors where the Midlands Engine region has world-leading economic strengths and innovation assets distributed across the area

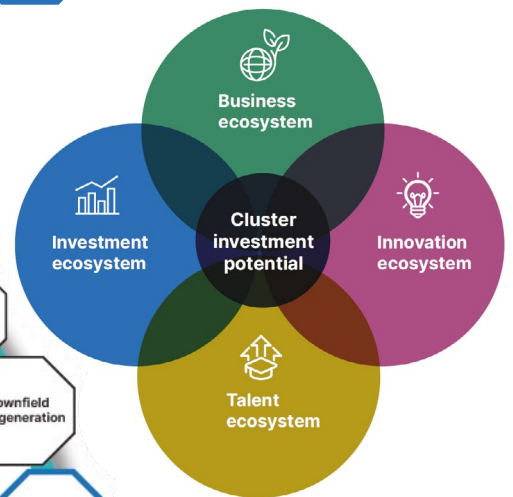
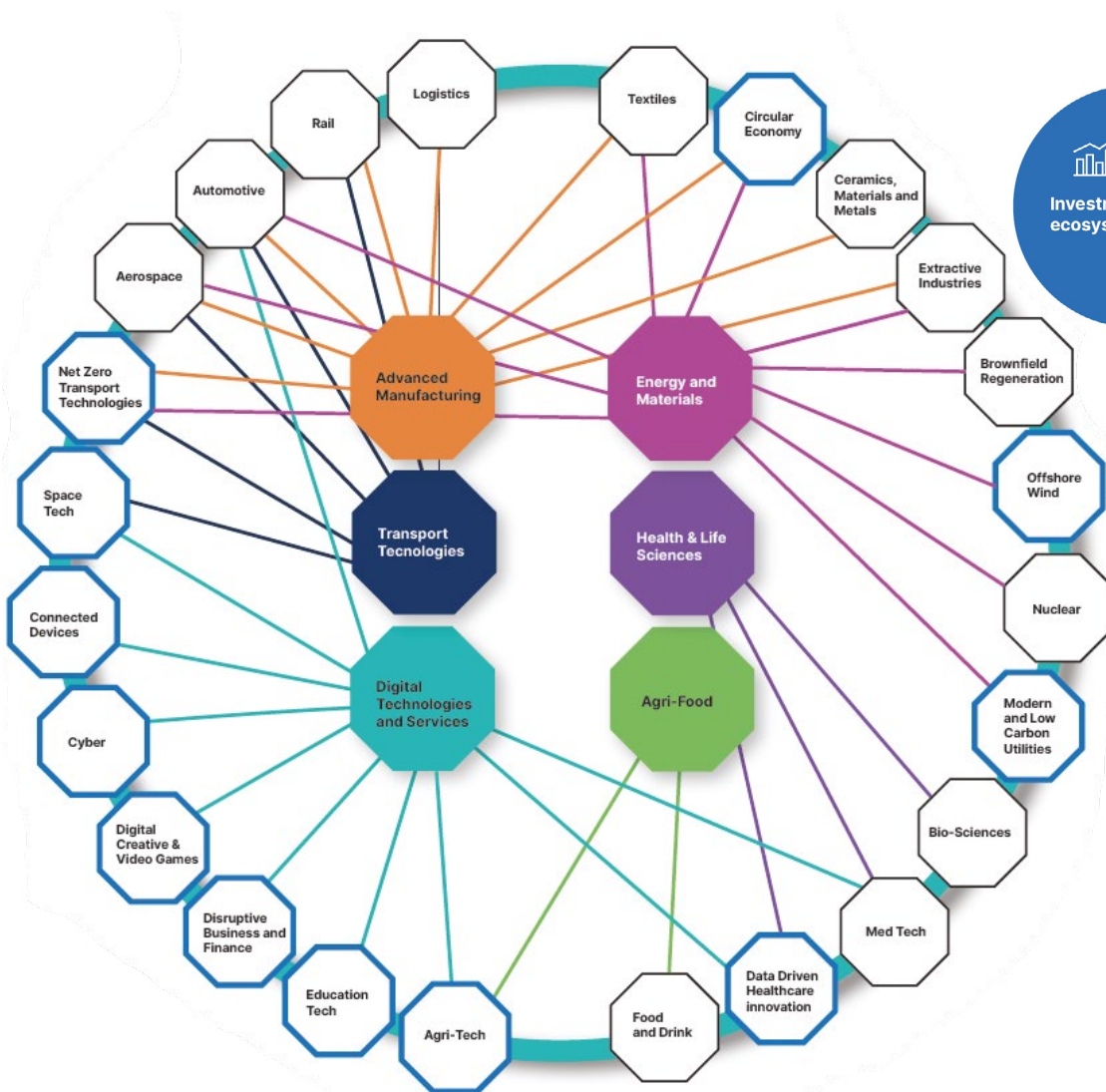
At least ten Midlands 'established clusters'

Significant concentrations of economic activity in multiple locations, linked to sectors of long-established industrial strength

At least 14 Midlands 'new economy clusters'

Multiple concentrations of economic activity identified by partners which includes emerging knowledge, technology and innovation-intensive sectors

Key



The insight demonstrates the excellent opportunities available to the Midlands, particularly in new, innovative and high technology growth.

The work is being taken further with partners, using the findings and analytical framework to help understand cluster growth and how they can be articulated as investment opportunities.

Figure 8: The different types of clusters in the Midlands

Innovation

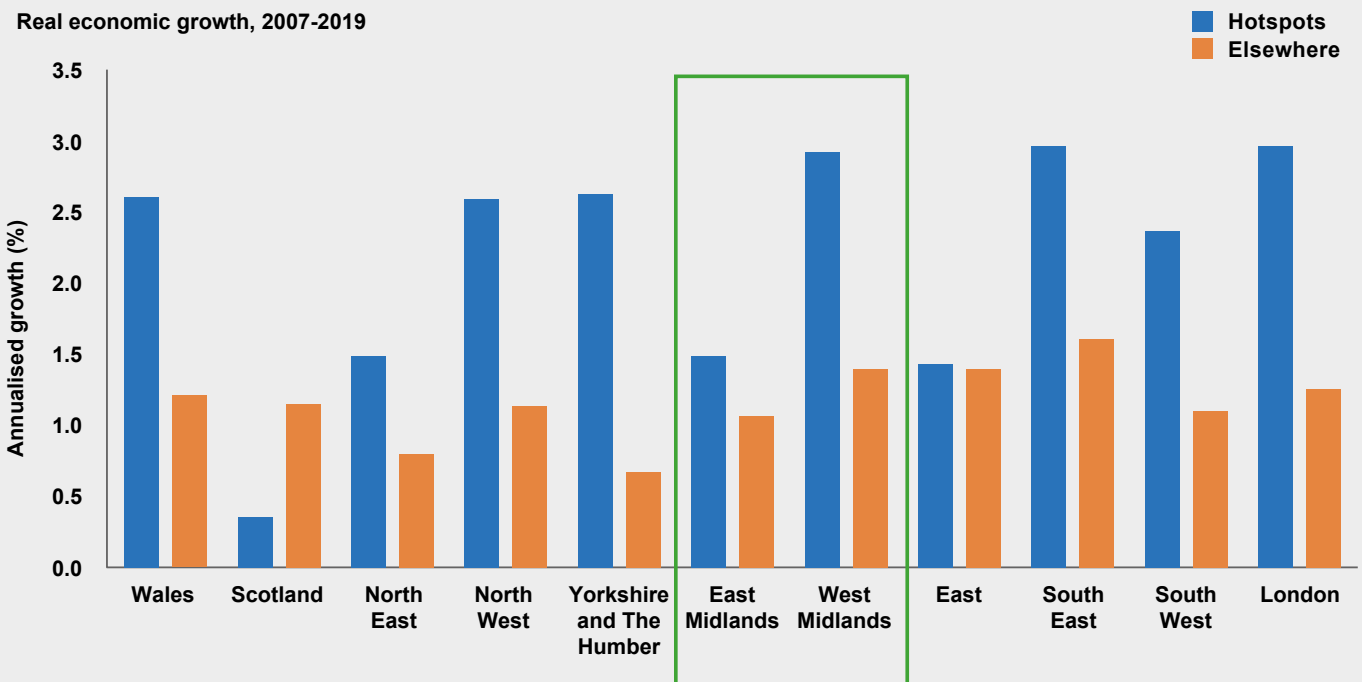
The Midlands appears to have a generally more innovative business base than the national average, linked to key sectors and supported by the strong enabling infrastructure of universities and other centres such as Catapults. Current volatility and economic shocks are destabilising but also provide further impetus for innovative activities.

This reflects that there are world class R&D assets in the Midlands that act as innovation anchors, as reported in long-standing evidence from the Independent Economic Review and Science and Innovation Audit. Innovate UK funding to the region has increased in recent years and is particularly strong in the wider context of all research and innovation funding: in 2020/21 Midlands regions received 29% of all Innovate UK spend nationally.

A new study by Centre for Cities, *Innovation hotspots: clustering the new economy*, has mapped 344 nationally significant hotspots of innovative firms across the UK. The report identifies over 30 hotspot locations in the Midlands Engine geography, around 9% of the UK total. Within this there are particular concentrations of hotspots and larger hotspots in Birmingham, Nottingham, Leicester, Coventry and Warwick, as well as others in more rural areas such as Herefordshire and Wyre Forest.

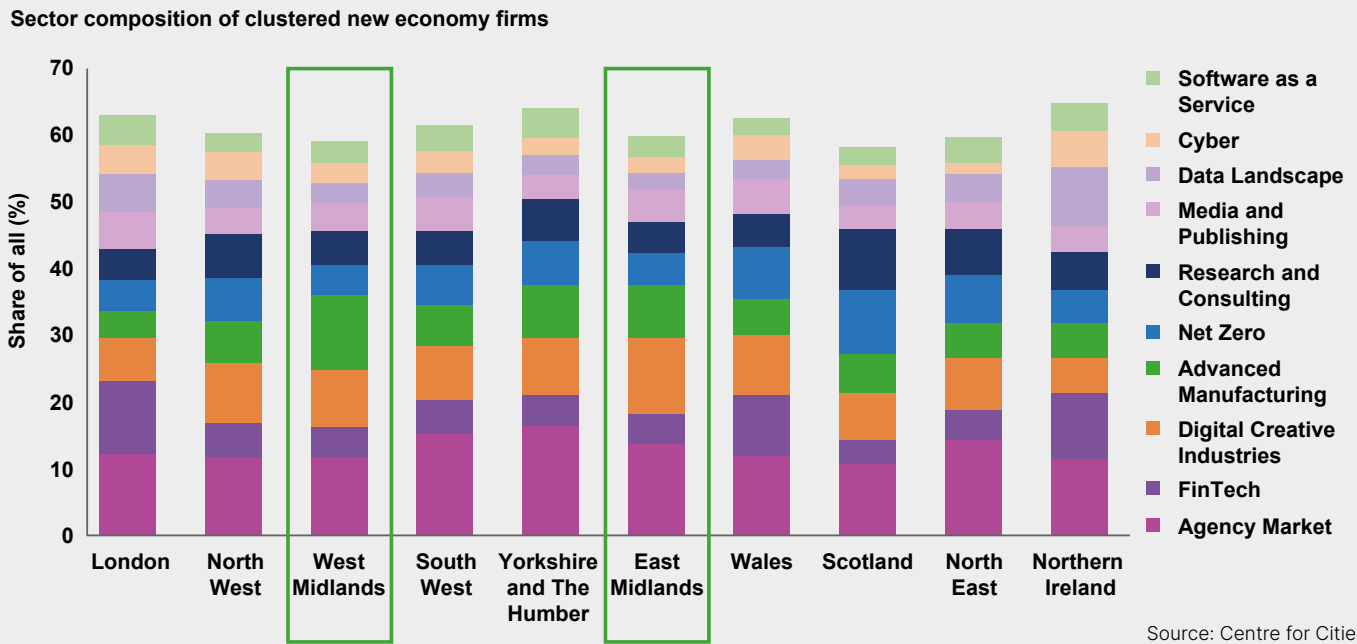
However, spatial inequalities relating to innovation and R&D also exist within the Midlands, both regarding the level of R&D funding awarded and the innovation of businesses in different places. Innovation and R&D is still largely concentrated within a small number of firms and organisations within the Midlands Engine.

Figure 9: Annualised GVA growth estimates



Source: Centre for Cities

Figure 10: The frequency of the most common new economy industries among clustered firms by region, 2022



PARTNERSHIP IN ACTION

Universities as drivers of trade and investment

Context

Led by Midlands Innovation and Midlands Enterprise Universities, representing 17 of the region’s higher education institutions, this pioneering pilot aims to provide a blueprint for universities, government and local partners to work together to attract greater overseas investment into regional research and development.

Detail

The programme includes a **GREAT branded pilot campaign** highlighting investment opportunities across five sectors in which the Midlands innovation base is world-leading, targeting companies in the US, Germany, Australia, Singapore and South Korea. The programme is also establishing the

regional infrastructure needed to secure more inward investment, with Trade & Investment Champions to be created at each university along with a suite of training and concierge services for prospective investors.

Impact

Together with the Department of Levelling-Up, Housing and Communities, the Midlands Engine Partnership has announced the initiative will receive a further £200,000 funding, which will be matched by in-kind contributions of £300,000 from the universities and other programme partners. The funding will be used to turn the initial proof-of-concept pilot into a longer-term programme that is embedded within the region and across Whitehall.



We are grateful that the Midlands Engine Partnership has provided new funding to extend the reach and opportunities that the Universities as Drivers of Trade and Investment Pilot presents. Overseas investment into R&D has largely been attracted into London and the South East, but if the UK is to truly become a science superpower, then we need to look to supercharge all UK regions by better harnessing the R&D capabilities across the whole of the country. We believe that the Midlands pilot will demonstrate that universities with their international reputations and world-leading R&D capabilities can play a more significant and strategic role.

PROFESSOR KAREN HOLFORD, CHAIR OF MIDLANDS INNOVATION BOARD AND CHIEF EXECUTIVE AND VICE-CHANCELLOR OF CRANFIELD UNIVERSITY



Building infrastructure for growth

Supporting strong business cases for investment and innovation in critical transport technologies and digital and energy systems.

Digital

As of May 2023, **75.4% of Midlands Engine premises had access to gigabit broadband**, which was above the UK-wide proportion of 73.6%¹¹. However, as seen in figure 11, there are significant areas where gigabit connectivity is poor.

The Midlands Engine is **a centre of excellence in digital innovation, a leader in 5G** and is committed to delivering greater digital connectivity to drive the region's productivity.

The **2023 Local Digital Index** serves as a guide describing the impact and value technology can bring to a region, showcasing strengths and providing direction for development.

Across the twelve regions, the West Midlands region scores well overall, featuring 4th in the Index, as each area within the region has its own strengths and drawbacks.

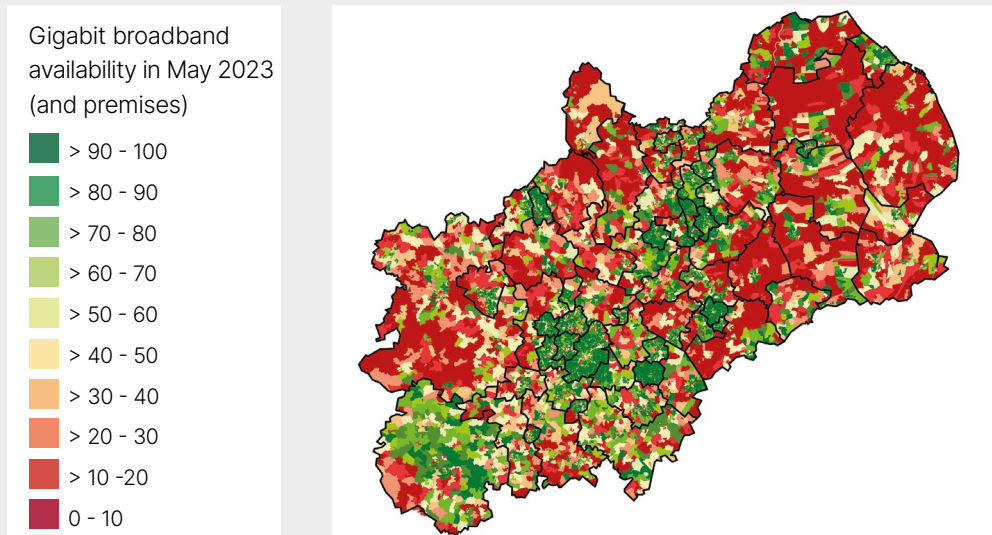
The East Midlands was placed 8th in the Index, as the region shows strong fundamentals without finishing top in many of the metrics.

There is a **growing mismatch in the demand and supply of digital skills** in the UK which was accentuated by the economic fallout of the pandemic. The Covid-19 crisis has underlined how important digital skills are to individuals, communities and the economy.

However, there is evidence that the pandemic, as well as accelerating adoption of digital services, is also accelerating the digital divide – **increasing the number of people facing digital poverty and highlighting the adverse effects on poor or no digital connections.**

In both the East and West Midlands, only 62% of people have high digital capability, compared to the UK average of 63%¹².

Figure 11: Gigabit Broadband Connectivity



11. Ofcom, Connected Nations, September 2023

12. Lloyds Bank, UK Consumer Digital Index, November 2022

Transport

There have been years of **underinvestment in the transport infrastructure**.

In 2021/22 **the Midlands accounted for 13.7% (£6.0bn) of the UK total identifiable expenditure on transport¹³**; behind London which accounted for 24.2% (£10.7bn).

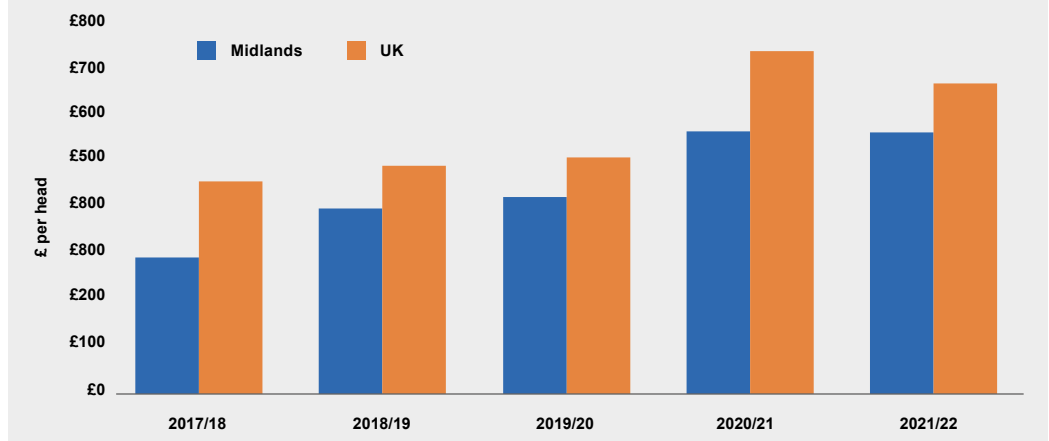
Since 2020/21, **the Midlands total expenditure on transport has slightly decreased** (by -0.2%) which followed the national trend (-9.8%).

The Midlands decline is linked to the East Midlands (falling from £2.3bn to £1.9bn).

As seen in figure 12, **expenditure per head on transport was £555 in the Midlands in 2021/22** (£394 per person in the East Midlands, £688 in the West Midlands), compared to the UK average of £658.

The shortfall in transport expenditure amounts to more than £6.5bn in the last five years alone for the Midlands.

Figure 12: Trend in transport expenditure per head



13. HM Treasury: Country and regional Analysis, November 2022

PARTNERSHIP IN ACTION

Midlands Rail Hub

Context

The Midlands is an area which suffers from poor infrastructure, with weaknesses in East to West connectivity alongside rural to urban connectivity due to slow and unreliable journey times. These factors have led to a £86.3bn productivity gap. One proposed way to overcome this gap is through improving rail connectivity and in turn boosting economic growth across the Midlands.

Detail

The Midlands Rail Hub is the region's most ambitious rail improvement programme with a £1.5bn – £1.75bn blueprint for faster, better, and more frequent connectivity across the Midlands. Passenger rail usage in the Midlands is growing faster than anywhere else in the UK, but without investment, the region's rail network can't keep pace with this record demand, and many services remain slow and infrequent. Historically, turning rail projects from concept to reality has been a long and frustrating process. Midlands Connect, in collaboration with Network Rail and alongside the Midlands Engine, are keen to break this cycle by securing the future of this project and planning for its delivery.

Impact

The scheme will add more than 14 million more seats on the rail network each year and provide faster, more frequent, or new rail links for over 30 locations including: Birmingham, Bromsgrove, Nuneaton, Worcester, Hereford, Cardiff, Bristol, Cheltenham, Nottingham, Derby and Leicester.

It will also bring 1.6 million more people to within an hour of the region's biggest towns and cities by public transport. Furthermore, each parcel or person moved by rail instead of diesel/petrol vehicles will create 76% less CO2. The Midlands Rail Hub proposes building two 'chords' at Bordesley in central Birmingham as well as several other engineering interventions throughout the region to deliver transformational change in rail transport in the Midlands.



The Midlands Rail Hub is our flagship project, and it represents the biggest upgrade of our rail network for a generation. It was highlighted as key part of the government's Network North announcement – to address the east-west connectivity issues. That is a major win for our region and everyone who works, lives and travels here. Our purpose is to create a fairer, greener, stronger Midlands, focused on delivering better transport connections for our communities. The Midlands Rail Hub will boost regional economic growth and give people more options to travel sustainably.



It is a vital scheme of engineering interventions throughout the region, and we are progressing it without delay. The Midlands Rail Hub will deliver faster, better and more frequent connectivity for decades to come.

**MARIA MACHANCOSES –
CHIEF EXECUTIVE OFFICER, MIDLANDS CONNECT**

Increasing global and investment

Unlocking potential and building a reliable evidence base for the region to present the region's cumulative strengths and inform decision making.

Midlands Engine published the second edition of the [Global and Investment scorecard](#) in September 2023. It provides a high-level summary of how the Midlands is performing across five key themes: trade, business, investment, higher education and tourism.

Trade in goods

In the year ending Q2 2023, **the Midlands area exported¹⁴ nearly £60.0bn worth of goods** and imported £76.2bn. This represents a trade in goods deficit of £16.2bn, a decrease from the trade deficit in the year ending Q2 2022 which was £21.1bn.

Goods exports from the Midlands area increased by £11.6bn (+24.1%) since the year ending Q2 2022. The UK increased by a slower rate, by 12.2% to £379.8bn, notably the Midlands regions had the highest increases.

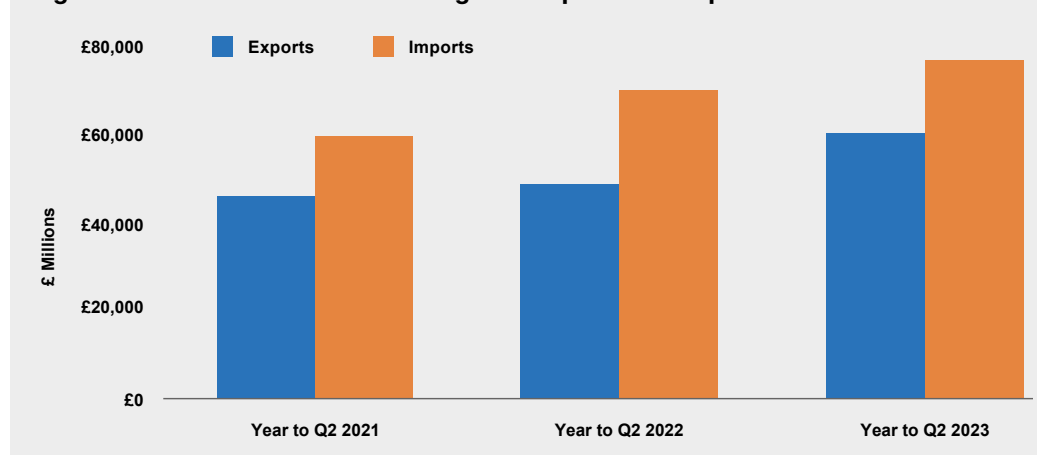
While goods imports to the Midlands area increased by £6.8bn (+9.7%) since year ending Q2 2022. UK-wide total imports increased by 12.2% to £627.8bn.

The Midlands area accounted for **22.0%** of England's exports which was **above London and the South East**.

The largest SITC section for goods exports in the Midlands area was **machinery and transport at £41.2bn** – 68.7% of total. Since the year ending Q2 2022, overall, this SITC section increased by £10.0bn (+32.1%), reflecting a recovery in the automotive sector and wider manufacturing industry.

By defined country group¹⁵, the highest value **of goods exports from the Midlands area was to the EU at £26.8bn**, accounting for 44.7% of the total. The value of goods exports to the EU has increased by £3.1bn (+13.3%) since the year ending Q2 2022.

Figure 13: Latest trends in Midlands goods exports and imports



14. HM Revenue & Customs, UK Regional Trade in Goods Statistics Quarter 2 2023, September 2023

15. Country groups are: Asia & Oceania, Eastern Europe, European Union, Latin America & Caribbean, Middle East & North Africa, North America, Sub-Saharan Africa and Western Europe.

Investment

There were **265 FDI¹⁶ projects** into the Midlands area in 2022-23, an increase of 9.5% (+23 projects) compared to 2021-22. The UK overall increased by 4.1%, from 1,589 in 2021-22 to 1,654 in 2022-23. In 2022-23, the Midlands area accounts for **16.0% of total** FDI projects.

In the Midlands, there were 11,091 new jobs created from FDI projects in 2022-23. This is a decrease of 11.0% (-1,368 new jobs) from 2021-22. The UK experienced a decrease over the same period, of 6.1%. In 2022-23, the Midlands accounted for 14.0% of new jobs created from FDI projects in the UK – the second highest area.

43.4% (314 of 724 total projects) of Midlands FDI projects and 45.1% (13,603 of 30,142) of Midlands new jobs were from the EU between 2021-22 to 2022-23. These proportions for the Midlands were higher than UK-wide (38.4% of FDI projects and 36.1% of new jobs from the EU).

The Midlands accounted for the highest number of FDI projects for net zero at 47 (22.3% of total), which created 4,278 new jobs in 2022-23.

Also, 57 FDI projects were linked to Research and Development which created 2,321 new jobs.

PARTNERSHIP IN ACTION

Midlands Investment Portfolio

Context

Developed with Midlands Engine partners, including the region's local authorities, local enterprise partnerships and investment promotion agencies, the Midlands Investment Portfolio presents a comprehensive list of partners' priority capital investment propositions.

Detail

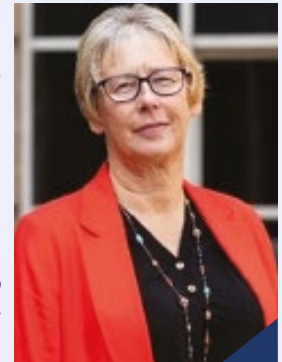
The Midlands Investment Portfolio is a single front door to the Midlands' most significant capital investment opportunities. It presents priority propositions of the region's upper tier local authorities, showcasing 90 key sites across the region. Collectively these have a gross development value well in excess of £33bn, with the potential to create more than 220,000 jobs, as well as regenerated urban spaces and thousands of homes.

Impact

The Portfolio is being further developed to build on the capital propositions with economic insight – sharing findings from the **Exploring the Investment Potential of Clusters** report to demonstrate economic strengths and supply chain opportunities across the region and hosting the collateral for the **Universities as Drivers of Trade & Investment** campaign. This will include contemporary mapping of innovation assets and networks, signposting key contacts and investment opportunities around the region's universities.



Stoke-on-Trent is a dynamic and growing city with a diverse business base. We have many exciting new investment opportunities and a range of great spaces available to businesses wanting to make a contribution to what is going to be an exciting period ahead for Stoke-on-Trent.



The already successful Smithfield business district has further opportunities available for companies looking for a first-class base location in the heart of the city centre. Regeneration schemes such as the Goods Yard and Spode Works provide the opportunity to join creative tech and other companies already locating together to exploit the benefits of collaboration, including with one of the best universities for producing digital talent in the country. And the Ceramic Valley Enterprise Zone continues to meet the needs of manufacturing and distribution as it fills up fast, with companies recognising the superb locational advantages and swift connectivity.

The Midlands Investment Portfolio provides a global platform to showcase these opportunities and highlight that we are highly competitive within the region and beyond.

COUNCILLOR JANE ASHWORTH OBE
LEADER OF STOKE-ON-TRENT CITY COUNCIL

16. Department for Business & Trade (DBT) inward investment results 2022 to 2023, June 2023



KEY SECTORS

As part of the refreshed Midlands Engine Business Plan published earlier this year, a set of key regional sectors were identified as priority focuses for the region: **green growth, med-tech and life sciences, advanced manufacturing, food & agri-tech and new market opportunities.**

These regionally significant sectors will be critical to growth in the Midlands, while each have sub-sector and sub-cluster strengths in the region, guided by the evidence supported through the clusters project and more traditional sector-based analysis.

Green Growth

Overview

The **Midlands Low-Carbon Sector Study** reported that low carbon and environmental sectors already generate **£26.6bn GVA per annum in the Midlands, with a sector productivity level 2.5 times the regional average**. With existing strengths in a range of areas, including utilities, alternative fuels, fuel cells and wind and a need to decarbonise across sectors, there is ample opportunity for growth.

The **Green and Hydrogen Jobs in the Midlands** report was produced by the Warwick Institute for Employment Research (IER), co-funded by Midlands Engine, HyDEX and Warwick University.

The measurement of the extent and demand of green jobs was a challenge due to a lack of agreed definition. To address this issue, the report defines green jobs for the first time. Findings include that up to **41% of employment in the Midlands region were in occupations classified as green** (that is, either contributing to green activities or considerably influenced by the green economy). The report also undertook a deep dive into the hydrogen sector.

Of all vacancies that mentioned hydrogen in the UK since the end of 2020, on average, 17% of these were in the Midlands. The findings provide a baseline for monitoring progress towards green ambitions in the Midlands and suggest that the region is building from a solid foundation.

To ensure further and sustained progress, it is recommended that **the greening of jobs in non-green sectors should be encouraged**. This can be achieved through training that delivers up-skilling and re-skilling enabled by new micro credentials (short-term, small-volume flexible courses that offer qualifications) which will support the drive to a more inclusive net zero economy.

Despite some progress, much more needs to be done in order to drive the Midlands to net zero. In 2021, the Midlands Engine area **produced a total of 60,602 Kt carbon dioxide (CO₂e) emissions**. This has **increased by 4,994 Kt CO₂e (+9.0%)** since last year, compared to an increase of 7.4% across the UK.

For the Midlands Engine area in 2021, 35.1% (21,278 Kt CO₂e) of emissions came from the industrial sector, above the UK proportion of 25.1%.

This was followed by 32.1% (19,481 Kt CO₂e) of emissions from the transport sector, below the UK proportion of 34.7%¹⁷.

However, the Midlands is **home to many projects that are developing innovative ways of decarbonisation**. For example, **the Repowering the Black Country** project, which is finding pathways for dispersed sites to decarbonise and continue manufacturing high quality products using clean energy.

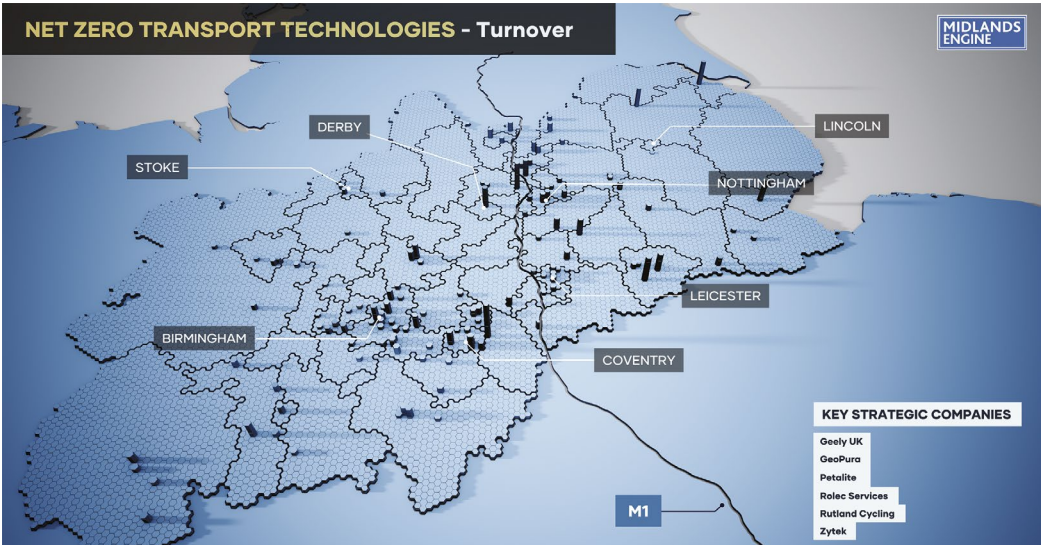
Green Growth clusters

The clusters work has identified Green Growth strengths in several areas: **net zero transport, offshore wind, circular economy, modern and low carbon utilities** and **nuclear**. Some of the key findings for two of these are displayed opposite:

17. Department for Business, Energy & Industrial Strategy, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2021, June 2023

Net zero transport technologies cluster

- Almost 4,000 jobs; 27% of national and largest region outside of London and the South East
- 7% of Midlands university graduates studied subjects relevant to net zero transport technologies. These included courses at four top 25 UK universities for Engineering and Technology and Natural Sciences
- Over 200 businesses; 17% of UK total and 252% growth since 2013
- 4% of cluster relevant UK FDI Capex and 7% of cluster relevant UK Domestic Direct Investment Capex 2017-2021
- 17 high growth companies (59% of UK) and 4 £100m+ turnover companies (50% of UK)
- Midlands companies have received over 28% of Innovate UK funding in this sub sector



Offshore wind cluster

- Almost 400 jobs; 5% of the national total
- 7% of Midlands university graduates studied relevant subjects to offshore wind. These included courses at four top 25 UK universities for Engineering and Technology and Natural Sciences
- Over 60 businesses; 7% of UK total; 126% growth since 2013
- 7 high growth companies (13% of UK)
- Midlands businesses received over 42% of Innovate UK funding in this sub-sector



PARTNERSHIP IN ACTION

Midlands Forest Network

Context

Now, more than ever, the Midlands needs a landscape rich in natural habitat. This habitat needs to be better connected and more able to adapt to a changing climate, whilst allowing biodiversity to recover. The UK is one of the least wooded countries in Europe. The Midlands is one of the least wooded parts of the UK. Just 7.4% of our region has woodland cover, compared to an England average of 10%.

Detail

The Midlands Forest Network (MFN) is a bold initiative aiming to bring about new opportunities and investment for the protection, restoration and creation of woods and trees in the Midlands. Led by a partnership between the Woodland Trust, National Forest Company and Midlands Engine, the network is supported by an

initial investment of £400,000 from Defra and the National Lottery Heritage Fund. The MFN will create a web of connected habitats that thread through our landscapes and communities, linking existing woodlands and green initiatives, engaging people in the natural world and delivering social, environmental and economic benefits for the whole of the Midlands.

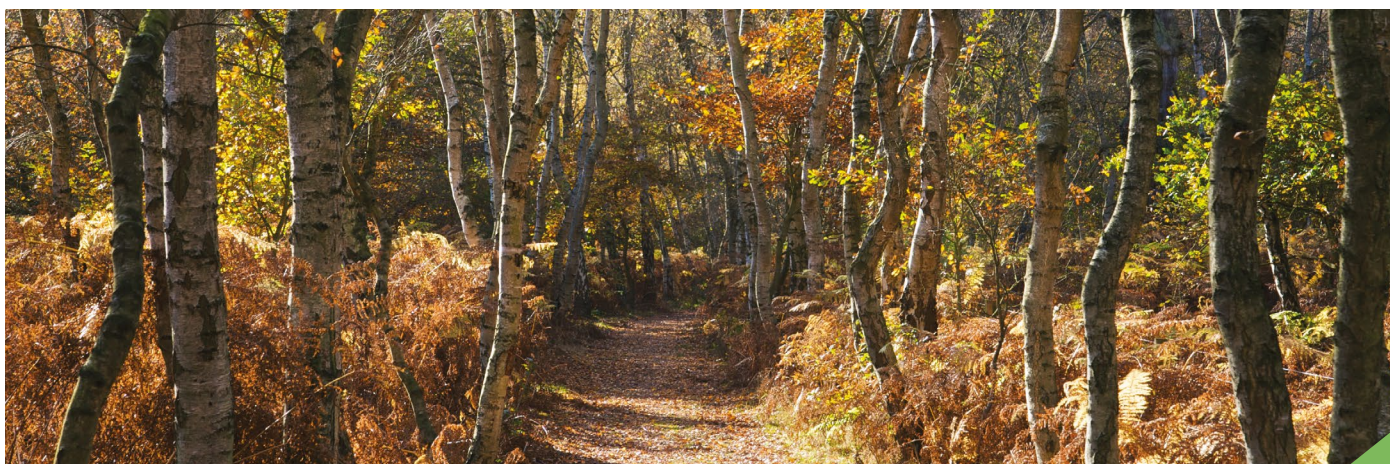
Impact

Over the next two years, the project will: establish a Midlands Forest Network vision and delivery framework; map where public and private investment in nature-based solutions, in particular woodland, can best deliver desired outcomes; build a portfolio of woodland-based 'investable propositions' that deliver the vision and attract green finance; and engage and connect a wider and more diverse Midlands audience with woods and trees.

“ Our work in the National Forest over the last 30 years demonstrates how woodland can regenerate the landscape, transforming lives and livelihoods. Expanding this approach across the whole Midlands gives us real hope that we can mitigate and adapt to a changing climate, reversing biodiversity decline, improving the health of communities and shifting to a low carbon economy. Thanks to funding from Defra and the National Lottery Heritage Fund, we can now take a big step forward in making the Midlands Forest Network a reality.



**JOHN EVERITT – CHIEF EXECUTIVE
THE NATIONAL FOREST COMPANY**



Advanced manufacturing

Overview

Advanced manufacturing is the second largest Midlands Engine sector in GVA terms (16.1% of total). After two years of declines in output and jobs due to the impact of Covid-19, Brexit and wider issues in automotive-linked sectors, **there are signs of a recovery (+8.4% in GVA, +5.8% in jobs).**

MakeUK data suggests the **Midlands regions contribute £40.4bn to total UK manufacturing output, 22.1% of the total.**

This is considerably larger than all other regions. The Midlands also has over **25% of all manufacturing jobs in England.**

Midlands manufacturing comprises globally significant businesses, as well as a network of interconnected supply chains working together to manufacture products for everyday use. It will be a critical sector for net zero, digitisation and the delivery of true levelling-up.

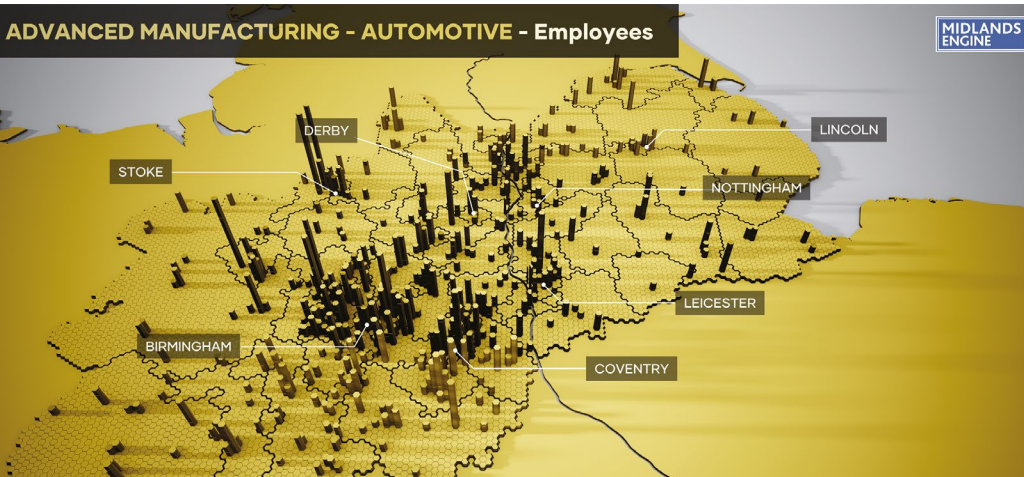
Advanced manufacturing clusters

The recent Midlands Engine Cluster Project identified various manufacturing sub-sectors as clusters in the Midlands, demonstrating the dynamic strength of the region's industrial base.

These were **aerospace, automotive, food & drink, ceramics metals and materials, rail** and **textiles** (examples of intelligence below). As well as the region having wider strengths, for example in defence.

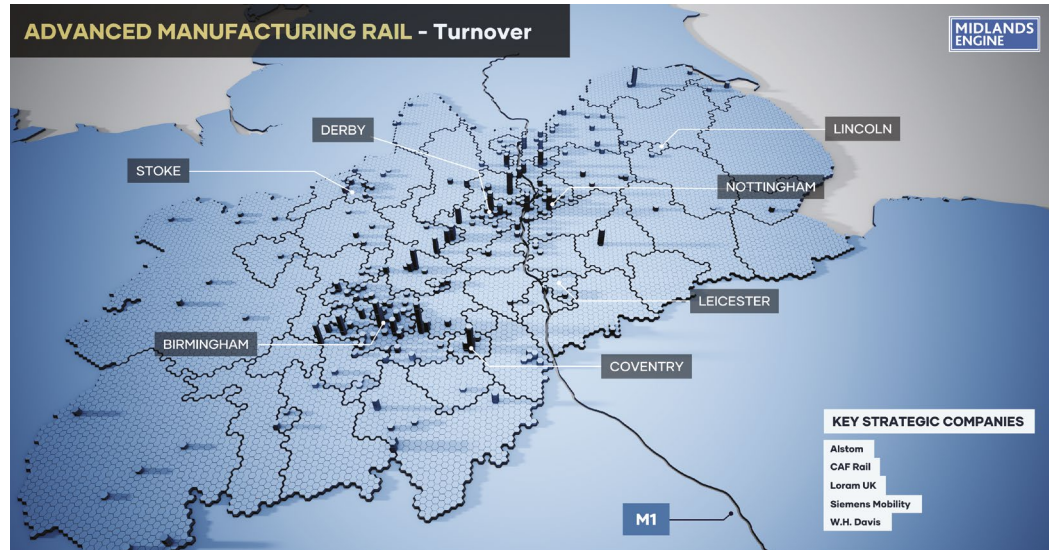
Automotive cluster

- Over 51,000 jobs; 25% of UK total and the most of any region
- Over 1,400 businesses; 25% of UK total and most of all regions
- Midlands businesses received over 60% of Innovate UK funding in this sub-sector
- 6% of Midlands university graduates studied relevant subjects to automotive, including from 4 of top 25 UK universities for Engineering & Technology
- 172% growth since 2013
- 38% of UK automotive FDI Capex and 21% of UK automotive Domestic Direct Investment Capex 2017-2021
- 61 high growth companies (29% of UK) and 29 £100m+ turnover companies (51% of UK)



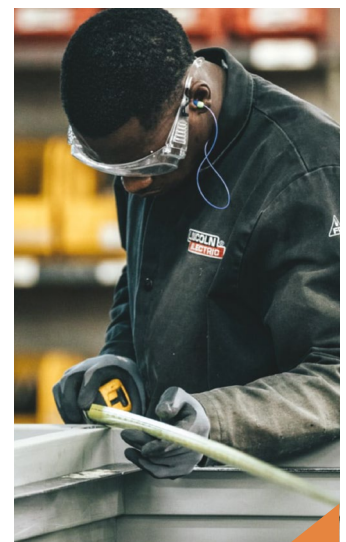
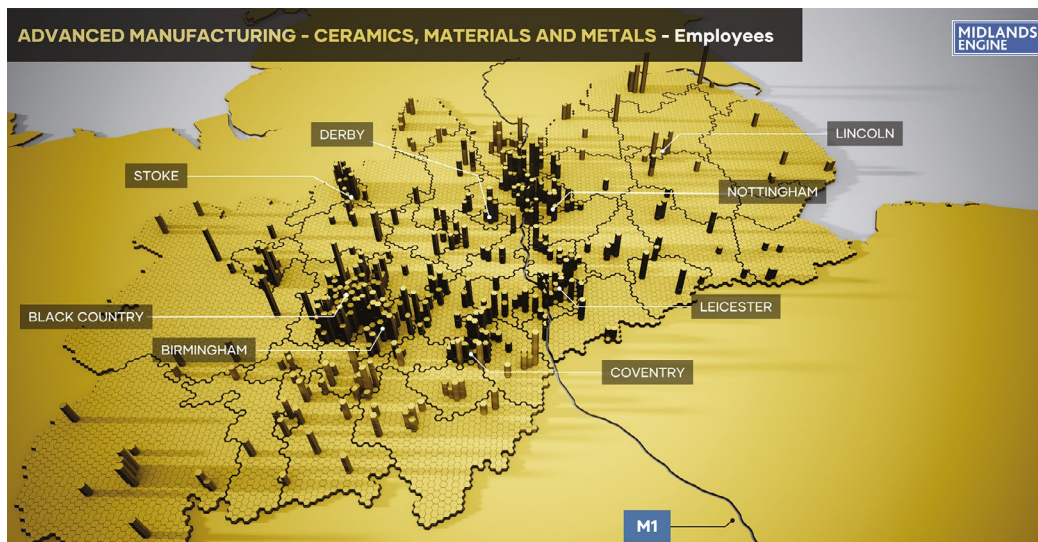
Rail cluster

- Almost 4,000 jobs; 12% of UK total and the most of any region outside London and the South East
- Over 600 businesses; 12% of UK total and most of all regions. 327% growth in business numbers since 2013
- Midlands businesses received over 71% of Innovate UK funding in this sub-sector
- 5% of Midlands university graduates studied in 2021 relevant subjects to rail, including from 4 of the top 25 UK universities for Engineering & Technology
- 27 high growth companies (14% of UK) and eight £100m+ turnover companies (47% of UK)
- 12.1% of UK rail FDI Capex and 0.2% of UK rail Domestic Direct Investment Capex 2017-2021



Ceramics, metals and materials cluster

- Almost 28,000 jobs; 30% of UK total and the most of any region outside of London and the South East
- Over 850 businesses; 32% of UK total and most of all regions. 24% growth in business numbers since 2013
- Midlands businesses received over 52% of Innovate UK funding in this sub-sector
- 7% of Midlands university graduates studied subjects relevant to ceramics, materials and metals, including from 4 of top 25 UK universities for Engineering & Technology
- 47 high growth companies (36% of UK) and 10 £100m+ turnover companies (42% of UK)
- 12% of UK ceramics, materials and metals FDI Capex and 30% of UK ceramics, materials and metals Domestic Direct Investment Capex 2017-2021



PARTNERSHIP IN ACTION

Decarbonising the Midlands aerospace industrial cluster

Context

Aerospace is one advanced manufacturing cluster with which the Midlands Engine partnership is working closely. This has included a comprehensive research project by Midlands Engine Observatory (MEO) and Midlands Aerospace Alliance (MAA), highlighting the true size, scale and importance of the sector in the region, while exploring the uneven distribution of R&D funding across its supply chains.

Detail

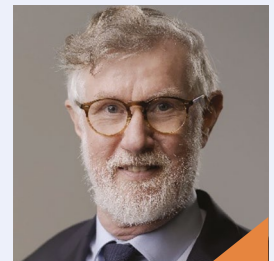
The project found that, when including multiplier effects, over 100,000 jobs and £5.3bn GVA are created by aerospace in the region – considerably higher than previously reported. It also confirmed that, while the Midlands has been successful in receiving significantly more than its share of national aerospace R&D funding, this is concentrated in a small number of firms and places.

Starting in 2024, the MAA is also leading a government funded project that will plan the decarbonisation of aerospace supply chains in the Midlands. The project is the result of a successful bid through the Department for Energy Security and Net Zero's Local Industrial Decarbonisation Plans competition, with the objective of delivering a credible strategic plan that enables Midlands aerospace cluster companies to decarbonise their manufacturing operations.

Impact

The project will explore the different options and solutions to make industrial decarbonisation in the aerospace supply chain be seen as feasible over a timeline to 2050; identifying a near-term action plan, research requirements and potential strategies and ambitions for the years ahead. The project will engage with a wide range of key stakeholders including Tier 1 companies, supply chain companies and the wider ecosystem such as universities and local authorities.

“Decarbonisation is essential to the future of the Midlands' aerospace industry and we know the cluster's responsibility in this area as well as the opportunities it brings. But it is notoriously hard to move fast in aerospace given tightly controlled sector-specific materials and processes for manufacturing aircraft parts that have a long in-service life.



This provides a key challenge for the cluster which we are excited to tackle through this cluster decarbonisation project, with the ambitious aim of developing in detail credible and feasible solutions to reduce emissions in the local aerospace cluster.

This is especially timely given the recent findings of our research project with Midlands Engine Observatory regarding the size, importance and the economic contribution of the aerospace cluster in the region.

ANDREW MAIR – CHIEF EXECUTIVE, MIDLANDS AEROSPACE ALLIANCE (MAA)

Food and agri-tech

Overview

The Midlands has **UK leading** concentrations of agricultural production, food processing and is the UK's largest logistics and distribution centre for food and drink supply chains. Growth opportunities include a focus on levelling up, using new technologies and investment to deliver higher-value, higher-skilled and better jobs.

In 2021, 21% of total jobs in agriculture, food and drink manufacturing and packaging in Great Britain were in the Midlands, confirmed by **Midlands Engine Observatory research**; correlating to approximately 17% of regional employment.

The sector's value is driven by a mature supply chain network of large companies, such as Unilever and Mondelez and SME suppliers who are supported by world-class research institutions.

The same study estimates food chain jobs in the Midlands at over 850,000, contributing an estimated £32bn in GVA. An estimated 17.6% of all jobs are related to the food chain, above the UK average of 16.2%.

However, the Midlands' food and agri-tech sector currently faces a number of challenges around **trade, labour supply, enabling infrastructure and a changing climate**.

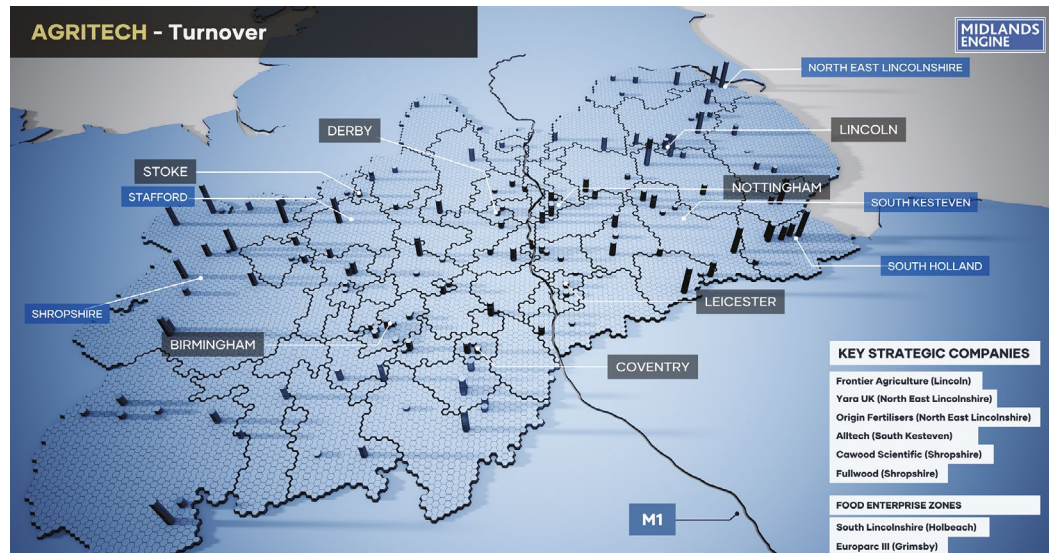
Food and agri-tech clusters

The recent Midlands Engine **Cluster Project** identified **food and drink** and **agri-tech** as clusters in the Midlands, sub-sets of the larger sector.



Agri-tech

- 20% of UK companies in Agri-tech are located in the Midlands Cluster
- 9% of high growth companies in the agri-tech sector are based in the Midlands Cluster
- 3,808 or 10% of UK employees in companies in this sector are located in the Midlands Cluster
- 16 of 51 (31%) of investments into UK agri-tech high growth companies were made into the Midlands Agri-tech Cluster
- 23% of UK total FDI and 25% of jobs created by inward investment related to this sector was into the Midlands Agri-tech Cluster
- 36% of UK total DDI and 34% of jobs created by inward investment related to this sector was into the Midlands Agri-tech Cluster
- Notable locations include Greater Lincolnshire's Food Valley and significant clusters in Herefordshire and Shropshire, with further contributions across counties in the region in a wider agriculture sector with upwards of 90,000 jobs
- The University of Nottingham's agri-sciences campus at Sutton Bonington, Harper Adams University, University of Birmingham, Cranfield University and University of Lincoln are all world-leading centres of research and innovation for agri-tech and associated subjects



PARTNERSHIP IN ACTION

Food white paper

Context

The Midlands Future Food Alliance – a private-public leadership group of major food and drink businesses and research centres – is working with the Midlands Engine Partnership to develop a Midlands Engine Food Policy White Paper that identifies how industry, government and others can work together to maximise the sustainable growth of the Midlands food system for regional and national benefit.

Detail

The White Paper is being developed with a wide range of food and drink producers and supply chain companies across the Midlands. This includes global companies in the region such as Mondelez, Bakkavor,

Moy Park, FreshLinc, Worldwide Fruit and Alltech; innovative companies grown in the Midlands such as brewing suppliers Murphy & Sons and soft fruit producers A.J. and C.I. Snell; and regional cluster organisations representing smaller and larger companies including the Seafood Grimsby and Humber Alliance and the Food and Drink Forum.

Impact

The White Paper will highlight the scale and ambition of the Midlands food and drink industry which is the largest regional sector in employment terms – supporting 857,000 jobs in 66,000 businesses and generating an estimated £25bn of GVA and £1.8bn of exports each year.



The Midlands food system is already delivering for the UK – delivering affordable, healthy food choices and spearheading the transition to net zero. Our industry is ambitious for sustainable growth and investing over £3bn year for higher productivity, resilience and reduced environmental impact. Through our Food White Paper, we are engaging with government to ensure the right national policy environment needed to maximise the potential of this investment.

JACKIE WILD – FOUNDER AND CEO, SMARTPARC



Medtech and life sciences

Overview

The med-tech and life sciences sector contributes an estimated **£6bn in GVA** to the region, but it **opens up a much broader opportunity through wider healthcare (a part of the economy worth over £30bn in the Midlands)**, while supporting a reduction in health inequalities.

Employing over 32,000 people in total, the Midlands life sciences sector leads the way nationally, ranking in the top two performing regions over the past decade for the number of life science businesses – and as a very high productivity sector, it punches above its weight in economic contribution.

There is a huge opportunity to capitalise on the Midlands’ **existing and emerging strengths** in the sector to the benefit of local and national health services and the health outcomes of Midlands communities.

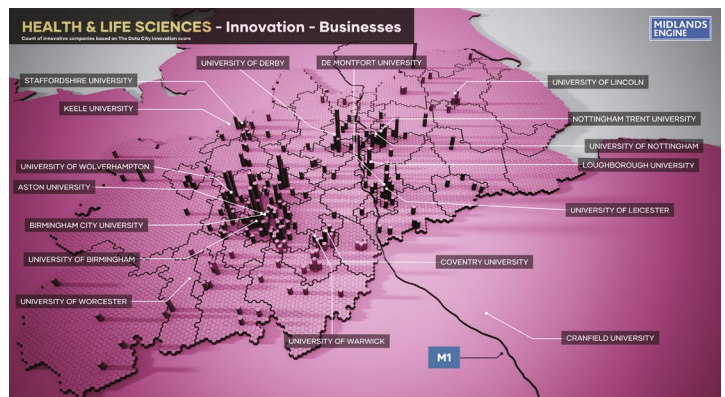
As the UK’s population ages, the Midlands has the **potential to be the testbed for new diagnostics, devices and trials**, capitalising on the world-leading, NHS-embedded infrastructure, including: the UK’s largest Clinical Trials Unit; three Biomedical Research Centres; two Applied Research Collaborations; the Centre for Ethnic Health Research; the School for Primary Care Research and a Patient Recruitment Centre.

Medtech and life science clusters

The recent Midlands Engine Cluster Project identified **health & life sciences** and **data-driven healthcare innovation** clusters in the Midlands, sub-sets of the larger sector identified below and opposite.

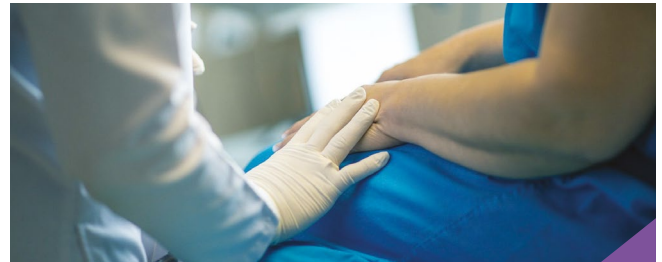
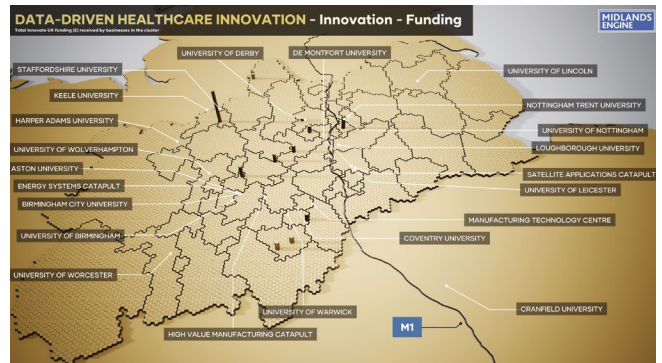
Health and life sciences

- 8% of Midlands university graduates studied relevant subjects to health and life sciences, including from 4 of top 25 UK universities for Life Sciences and Medicine
- Almost 1,300 businesses; 17% of UK total and 93% growth since 2013
- 78 high growth companies (12% of UK) and 17 £100m+ turnover companies (23% of UK)
- Over 10% of Innovate UK funding to health & life sciences businesses since 2005 has been awarded to those with a Midlands address
- Over 18,000 jobs; 7% of UK total
- 3% of UK health and life sciences FDI Capex and 15% of UK health and life sciences Domestic Direct Investment Capex 2017-2021



Data-driven healthcare innovation

- Over 5,500 jobs; 9% of UK jobs
- 8% of Midlands university graduates studied in 2021 relevant subjects to data-driven healthcare, including from 4 of the top 25 UK universities for Life Sciences and Medicine
- 17 high growth companies (11% of UK) and eight 100m+ turnover companies (14% of UK total)
- 11% of Innovate UK funding to data driven healthcare since 2005 have been awarded to businesses with a Midlands address
- 3% of UK data driven healthcare relevant FDI Capex and 15% of UK data driven healthcare relevant Domestic Direct Investment Capex 2017-2021
- Over 200 businesses; 14% of UK total and 62% growth in business numbers since 2013



PARTNERSHIP IN ACTION

Mental health and productivity pilot

Context

The **Mental Health and Productivity Pilot (MHPP)** is a collaboration of Midlands organisations, working together to identify the link between mental health and productivity in the workplace. Led by Coventry University, partners include University of Warwick, West Midlands Combined Authority, national charity Mind and five other Midlands universities.

Detail

MHPP was commissioned by Midlands Engine following publication of the Thriving at Work Report (2017). It has worked with over 1,000 Midlands organisations during the last four years, supporting a range of employers from different sectors and varying in size from 6 to 22,000 employees.

Impact

The MHPP team has worked with organisations at both employer and employee level. Firstly, supporting employers to understand the impact of their own data and how psychosocial factors may be having an impact on their workforce. Then providing intensive support by producing a data report, strategy, action plan and several interventions and resources designed to improve the psychological safety of the workplace. At employee level, MHPP partners have developed and are trialling

new approaches to areas that impact on how effective employees are in the workplace, for example rest and sleep which help with mood regulation.

Their research has identified that help for line managers, to help them thrive and to support their team members, is under invested in many organisations, particularly small and medium enterprises.



During the pandemic we saw organisations pivoting to focus on staff health and wellbeing. However, what we're seeing now is that some organisations are reverting to a traditional focus of productivity and this is starting to impact staff.



Our research suggests that good employers pay attention to their workforce, by listening to what they are saying about how they're feeling and by offering relevant and impactful workplace interventions.

We're seeing organisations reshaping roles to reduce excessive workloads, empowering staff to enable job control and putting measures in place to create a work life balance.

SEAN RUSSELL – MHPP PROGRAMME DIRECTOR

New market opportunities

A region committed to identifying and supporting emerging sectors.

Overview

Midlands Engine partners continue to work to map the modern, emerging and innovative economy. This includes drawing on external expertise from The Data City (through the clusters project) and their 350+ 'Real-Time Industrial Classifications' (RTICs), as well as wider analysis, commissioning and partnership engagement. There will always be new, evolving opportunities for growth in the region. Here are some of the areas of focus identified so far in this nascent opportunity space:

Hydrogen

Hydrogen is an emerging strength highlighted in several studies/work programmes as there is an opportunity for the Midlands to play a significant role in the roll out.

Specific opportunities exist linked to three core areas of the Midlands Engine

[Hydrogen Technologies Strategy](#):

- Hydrogen production and distribution
- Power generation and heat applications
- Transport applications

The strategy could deliver 167,000 new or safeguarded jobs, £10bn GVA and a 29% reduction in CO2 (17m tonnes).

Strength in hydrogen reflects the Midlands' leading position in the development of new green innovation/ways of producing and providing energy, as highlighted through the [Green Innovation report](#).

Smart energy

A smart energy system is an approach which uses new and emerging digital technologies, artificial intelligence and machine learning to actively monitor and balance energy needs across connected energy networks, of all scales, by making real-time autonomous interventions. This empowers energy users and companies, ensuring costs are reduced, energy networks are resilient and the energy system transitions to net zero.

In order for the Midlands to become an exemplar for smart energy, the region

will need to work with key organisations to build a smart energy system based on implementing projects and programmes. This will support the UK's energy systems transition by maximising the benefit that smart systems offer, not only for the Midlands itself but also for the UK as a whole.

Evidence outlined in the [Smart Energy](#) report published in late 2022 and work up to the present time, provides a credible basis for the Midlands taking a leading role in this sector.

Quantum technologies

Quantum Technologies is another of the five technologies identified by government and, while still emerging in application, quantum has the potential to enable smart cities, revolutionise healthcare systems and drive innovation in key industries including cyber security, logistics and manufacturing amongst many others.

The Midlands has already benefited from existing investment through university involvement and leadership in the UK Quantum Technologies Programme (NQTP).

There are ample opportunities for the region to grow its academic strength in this space, but also to develop a dynamic quantum industry in the private sector – from technology driven software and service firms, to the advanced manufacturing supply chain in electronics and photonics.

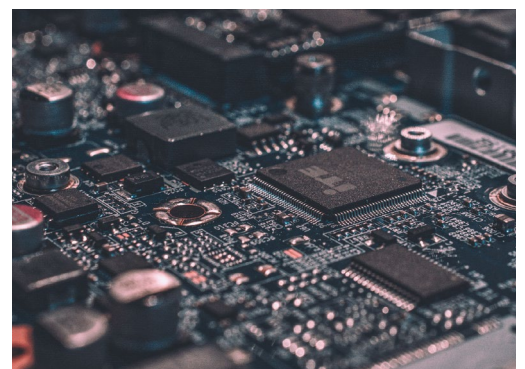
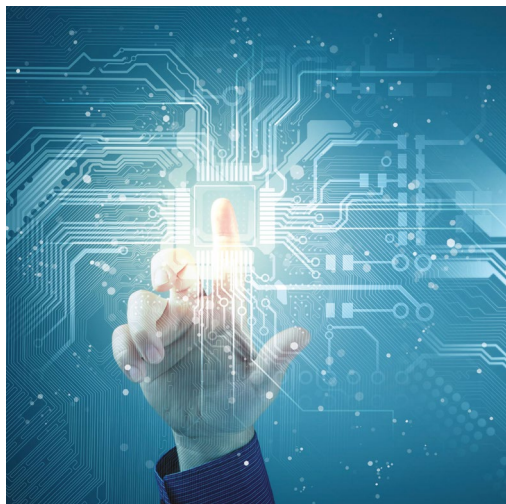
Estimates from The Data City, published as part of a recently developed snapshot document, suggest that there are over 60 businesses working actively in Quantum Technologies in the Midlands, employing 2,000 people (around 10% of the UK total).

Artificial intelligence

As highlighted in a recent **snapshot report**, artificial intelligence (AI) offers growing opportunities and benefits for the Midlands Engine economy and society.

Underpinned by a growing set of AI-specific firms and other firms adopting AI technologies, the Midlands has an emerging

cluster of this technology, highlighted as one of five critical technologies within the government-led **UK Science and Technology Framework** (2023). Estimates from The Data City suggest that there are over 300 businesses working actively in AI in the Midlands region, employing 11,000 people (around 10% of the UK total).



Nuclear

There are opportunities for the Midlands to play a more significant role in nuclear power through the development and deployment of Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs), as well as within nuclear fusion with the Spherical Tokamak for Energy Production (STEP) programme.

The nuclear fusion agenda links in with numerous political priorities – sovereign capabilities, Britain's place in the World, the climate agenda and the cost of energy and living crisis.

Future investment in nuclear fusion could bring a multitude of benefits to communities in the Midlands. This has been highlighted through the announcement of major investments – such as the STEP nuclear fusion facility in **West Burton**.

The 2023 report, **Review of Nuclear & Related Industries in the Midlands**, provides more detail on the region's nuclear potential.

Nuclear was also highlighted as an emerging opportunity as part of the clusters project.

PARTNERSHIP IN ACTION

Nuclear fusion STEP

Context

In October 2022, as part of the UK's ambition to achieve net zero by 2050, West Burton in Nottinghamshire was chosen to host the UK Atomic Energy Authority (UKAEA)'s pioneering prototype fusion power station. The decision followed Nottinghamshire County Council's Fossil2Fusion campaign, supported by the Midlands Engine Partnership and the Energy Research Accelerator.

Detail

If successful, STEP could pave the way to commercial fusion plants producing safe, sustainable, low carbon energy for generations to come. It will attract inward

investment, focusing on low-carbon energy generation as a route to tackle climate and energy crises and create vital high-paid, high-skilled jobs across the Midlands.

Impact

Direct impacts will include 600+ jobs on site during project operation and up to 3,000 jobs during peak construction with indirect jobs offering further benefits to its supply chain and local economy. Around 2,150 jobs and over £100m of GVA in the UK are linked to operations at the three coal power sites (West Burton A, West Burton B and Cottam). Retaining this value in Bassetlaw and surrounding areas is critical in making levelling up a success for local people.

“STEP has huge potential to change the world and our region, through a fusion innovation cluster. This exciting project is an anchor for the wider region, helping us to attract major industry, innovative businesses and research and other investment in fusion, in clean energy and its supply chain from around the world.



This part of the world has incredible potential, with its energy infrastructure such as the former coal fired power stations on the River Trent, with its heritage in energy production, with local communities who support and take pride in this sector.

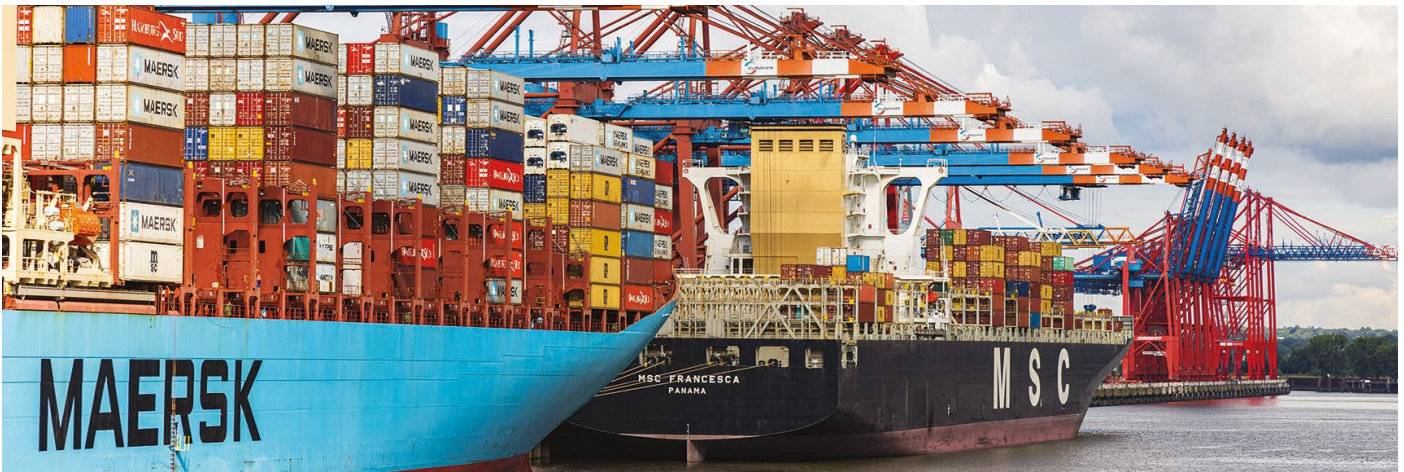
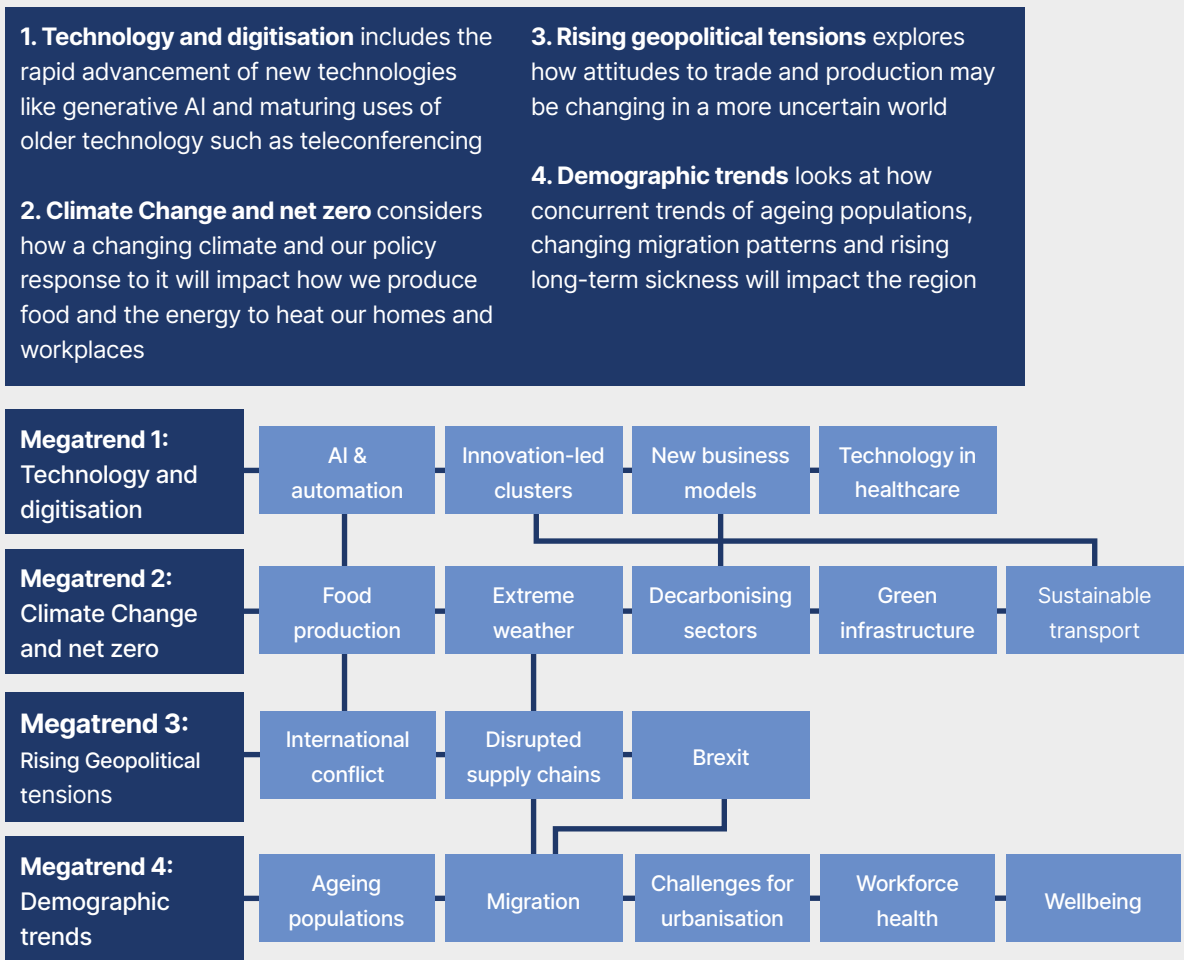
BEN BRADLEY MP – LEADER OF NOTTINGHAMSHIRE COUNTY COUNCIL

Megatrends

Aligned to emerging new market opportunities is the concept of megatrends. The Midlands Engine report **Megatrends in the Midlands** explores the impacts of these trends on the region, many of which are already taking place whilst some will grow in significance in the future.

If the Midlands is to strengthen its collective approach to support sustainable, inclusive growth, understanding of the four key megatrends and their implications for the region is vital.

Figure 14: The four identified megatrends and their interrelationships



MIDLANDS ENGINE

Trent Bridge House
Fox Road
West Bridgford
Nottingham
NG2 6BJ

info@midlandsengine.org



[@MidsEngine](https://twitter.com/MidsEngine)



[midlands-engine](https://www.linkedin.com/company/midlands-engine)



[midlandsengine.org](https://www.midlandsengine.org)
[midlandsengineintelligencehub.org](https://www.midlandsengineintelligencehub.org)

Front cover credit: top row, second from left – Siemens Energy
Front cover credit: bottom row end – University of Nottingham

The Midlands Engine is a coalition of local authorities, local enterprise partnerships, universities and businesses across the region, actively working with government to build a collective identity, to enable us to present the Midlands as a competitive and compelling offer that is attractive at home and overseas. Copyright © 2023 The Midlands Engine, All rights reserved.

Contains Ordnance Survey data © Crown copyright and database right [2023]
Contains Royal Mail data © Royal Mail copyright and database right [2023]
Contains National Statistics data © Crown copyright and database right [2023]

Our mailing address is: Midlands Engine, Trent Bridge House, Fox Road, West Bridgford, Nottingham, NG2 6BJ

DISCLAIMER OF LIABILITY

Every effort is made to provide accurate and complete information in this Midlands Engine publication. However, Midlands Engine cannot guarantee that there will be no errors and makes no claims, promises or guarantees about the accuracy, completeness of the contents of its newsletter and expressly disclaims liability for errors and omissions in the contents of this newsletter.