West Midlands Futures

West Midlands Clusters Workstream – Synthesis of Research Project Findings

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West Midlands Combined Authority

Version Control / Updates

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- Original Publication: 29th April 2025
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Executive Summary

Background

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- In August 2022, the West Midlands Combined Authority (WMCA) published the West Midlands Plan for Growth.
- The plan aimed to stimulate economic growth by developing nine high growth economic clusters where the region has significant strengths.
- Combining the power of private and public sectors around these opportunity areas, the WMCA's clusters workstream aims to support growth in these parts of the economy. More information and contact information can be located here: https://www.wmca.org.uk/what-we-do/economy-and-innovation/plan-for-growth-a-vision-for-growth-in-the-west-midlands/
- The WMCA is now developing a new West Midlands Growth Plan, with a target publication date of June 2025.
- The Growth Plan is crucial for maximising the region's economic opportunities and laying the foundations for future growth. It is shaped around six proposed components and is currently under consultation through the West Midlands Futures Green Paper, launched in April 2025.
- ***This document provides supplementary evidence to the Green Paper, focusing on a series of recently completed research reports that relate to the priority cluster component of the Growth Plan and the ongoing clusters workstream.***

Introduction

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- During the 2024/2025 financial year, the WMCA's clusters team commissioned several research projects. The purpose was to review progress made since 2022, refresh the evidence base underpinning the cluster development approach, and inform the emerging West Midlands Growth Plan.
- This report synthesises the findings of these research projects, providing an additional layer of intelligence as part of the West Midlands Futures Green Paper consultation.
- The focus of the projects, and therefore the findings, is principally on the "High Growth Clusters and Innovation" component of the proposed Growth Plan.
- However, the findings are relevant across all six proposed components, reflecting their diverse nature.
- The intention of this report is to capture and publish key trends, opportunities, challenges and threats obtained by the research project's findings, so that stakeholders can consider the implications for the West Midlands' economic future.
- Starting with a high-level summary of the projects, the report then highlights key findings in a summary table. Further on, it provides more detail on both policy findings and strategic/delivery implications.
- **As part of the wider West Midlands Futures Green Paper consultation, the WMCA is seeking views, validation, and challenge to the findings.**

Summary of Projects

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During 2024/2025, WMCA's cluster team commissioned thirteen research studies covering a range of thematic areas, to support cluster development, as set out in Table 1, below and on the following slide.

The projects have been segmented into 3 different themes:

1) Cluster Performance and Future Opportunity studies
2) Technology Adoption studies
3) Cluster Specific studies

Table 1: Cluster Focussed Research Studies commissioned by WMCA in 2024/25

Research Theme and Title	Research Partner
Cluster Performance and Future Opportunity Studies	
Baselining, Definition and Monitoring of Clusters	Metro Dynamics
Preparing for 10 Year R&D Budgets	Jamie Clyde Innovation Advisory
Exploring Emerging and Future Economic Opportunities	The Economic Intelligence Unit (The EIU) and City Redi (University of Birmingham)

Summary of Projects

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Table 1 Continued: Cluster Focussed Research Studies commissioned by WMCA in 2024/25

Title	Research Provider
Technology Adoption Studies	
Economic Case for Robotics and Autonomous Systems	Make UK
Artificial Intelligence Economic Case	Amitypath
Artificial Intelligence Blueprint and Cluster Roadmaps	ANDigital
Distributed Artificial Intelligence Compute	Silicon Square
Artificial Intelligence Adoption Research	The Economic Intelligence Unit (The EIU)
Cluster Specific Studies	
Smart Energy Systems	
Heat Pumps Supply Chain Mapping	Gemserv
Smart Energy Market Dynamics Study	LCP Delta
Manufacture of Future Housing	
Manufacture of Future Housing Cluster Scoping	Cast Consultancy
Logistics & Distribution	
Freight Strategy Support	Steer
Freight Data Pilot Scoping	AECOM

Disclaimer

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Please note that not all of the cited reports are covered in detail in this document, nor do the topics covered reflect an exhaustive list of the WMCA's interests and priorities.

Some of the projects' full reports will be available in the public domain in the near future, dependent on agreement between the WMCA and delivery partners.

For more information and detail related to one or more of the research projects, please contact planforgrowth@wmca.org.uk in the first instance.

Key Findings and Implications Summary

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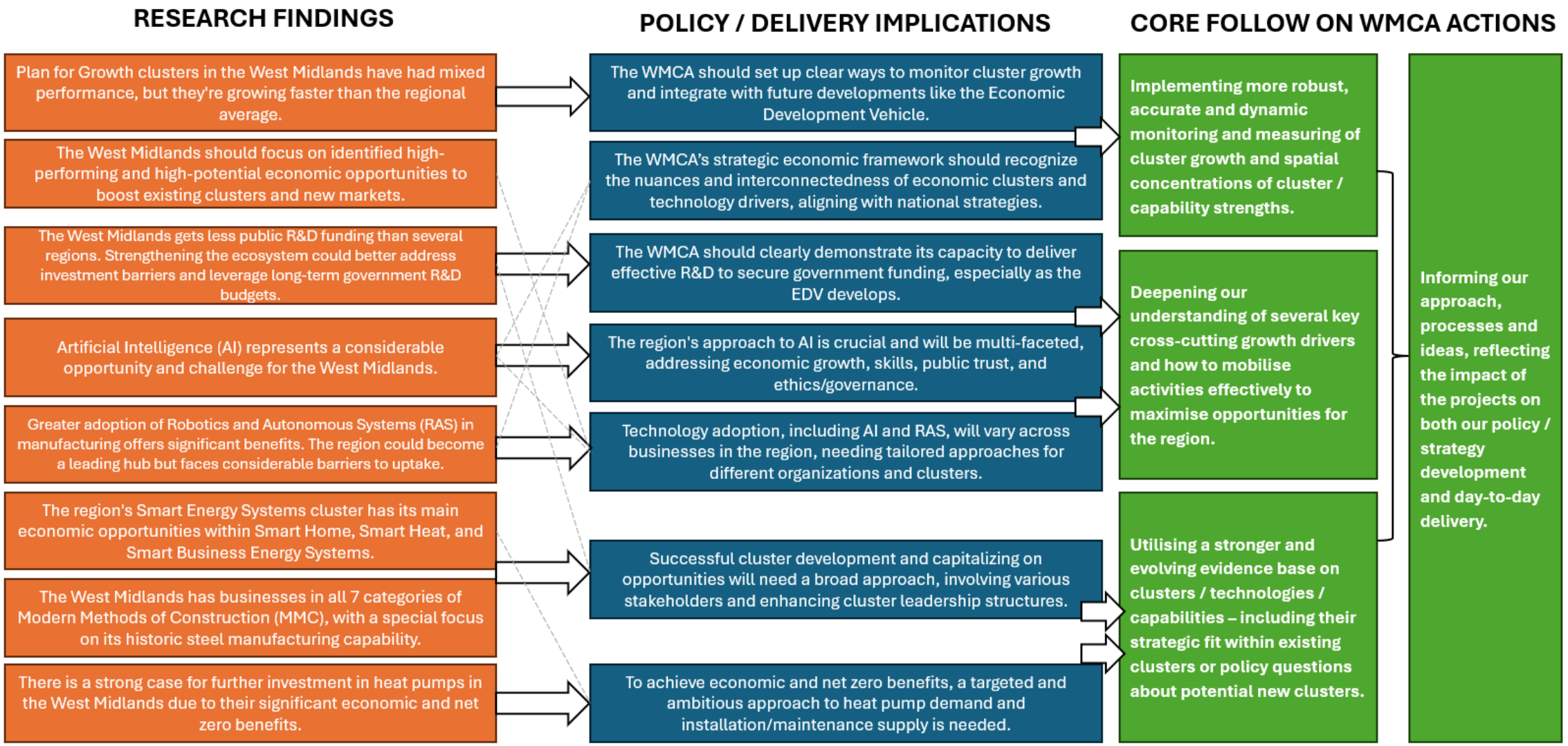

Key Findings and Implications Summary

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Theme	Research Findings	Policy and Delivery Implications
Cluster Performance and Future Opportunities	The economic performance of Plan for Growth clusters in the West Midlands has been mixed in recent years, but overall they are growing faster than the regional economy average.	The WMCA should implement clear mechanisms for monitoring cluster growth over time, and integrate with future functional developments such as the proposed Economic Development Vehicle (EDV)
	There are several new and fast evolving economic opportunities that the West Midlands can capitalise on; the high-performing and high-potential ones should be prioritised to support the further growth of existing clusters and new market opportunities.	
	The West Midlands' share of public R&D funding still lags behind several regions, and the current ecosystem could be strengthened to more effectively respond to key inhibitors to R&D investment, and the opportunity of Government led long-term R&D budgets.	Utilising a mix of clarity, capability and curation, the WMCA needs to present a strong justification for R&D funding to Government by demonstrating the capacity and ability to deliver R&D effectively within the region, including as the region's new Economic Development Vehicle (EDV) emerges.

Key Findings and Implications Summary

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Theme	Research Findings	Policy and Delivery Implications
Technology Adoption	Artificial Intelligence (AI) represents a considerable opportunity and challenge for the West Midlands.	The region's approach to Artificial Intelligence (AI) is critical, and will be multi-faceted, reflecting a range of key considerations across economic growth, skills, public trust and ethics / governance.
	There are significant productivity and labour market benefits associated with the greater adoption of Robotics and Autonomous Systems (RAS) in West Midlands manufacturing, and the region has the opportunity to be a leading hub, but considerable barriers to growing uptake exist.	The approach to technology adoption, via the likes of AI and RAS, will differ considerably across businesses in the region, requiring a tailored approach to the needs of different organisations and clusters.
		The WMCA's strategic economic framework should continue to recognise the nuances and interconnectedness between economic clusters and technology drivers, aligning to national strategies and approaches.

Key Findings and Implications Summary

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Theme	Research Findings	Policy and Delivery Implications
Cluster Specific	Within the region's diverse Smart Energy Systems cluster, there are specific economic opportunities to capitalise on across Smart Home, Smart Heat and Smart Business Energy Systems.	The successful delivery of cluster development and the capitalisation of opportunities will continue to require a wide-ranging approach with a range of different stakeholders and the further mobilisation of cluster leadership structures.
	The West Midlands has businesses represented across all 7 categories of Modern Methods of Construction (MMC) but has developed a particular specialism surrounding its historic steel manufacturing capability.	
	Given the significant economic and net zero benefits and imperative, there is a strong case for further investment in heat pumps in the West Midlands.	A targeted and ambitious approach to heat pump consumer demand and heat pump installation / maintenance supply is required to achieve the potential economic and net zero benefits.

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Key Research Findings

The economic performance of Plan for Growth clusters in the West Midlands has been somewhat mixed between 2017-2022 (a period characterised by geopolitical challenges and a global pandemic), but overall, they are growing faster than the regional economy average.

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- Together, the 9 original Plan for Growth clusters showed a 3% Compound Annual Growth Rate (CAGR) in employment between 2017 and 2022, above the regional average of 1%. The clusters perform slightly better than the regional average for GVA and productivity too, but slightly below the region's business CAGR average.
- A growth in jobs was recorded across 6 out of 9 clusters between 2022 and 2023, most considerably within Health Tech & Med Tech and Manufacture of Future Housing.
- The Creative Content Production & Gaming is consistently performing against all metrics, out-performing national trends and continuing to grow, while Professional and Financial Services is the largest cluster overall. Other clusters have more nuanced trends – Health Tech and Med Tech is by far one of the most productive clusters and has seen a huge increase in employment in the last year, Logistics and Distribution is growing in both employment and businesses, Electric Light Vehicles and Battery is seeing stability in GVA output and growth in productivity compared to GB, while Smart Energy Systems is outperforming UK trends in terms of GVA and productivity.
- Equally, there are clusters which are grappling with some challenges, likely linked to the turbulent economy in the last few years in reaction to the pandemic and the outcomes of Brexit. Analysis shows signs of contraction within Aerospace, Digital Economy and Manufacture of Future Housing, while the most recent business and employment data shows a notable decline in the number of businesses in almost all clusters. Some clusters are also not seeing as much growth as the GB average in employment and businesses, such as Health Tech, Smart Energy Systems and Electric Light Vehicles & Battery.

Source: Metro Dynamics

The economic performance of Plan for Growth clusters in the West Midlands has been somewhat mixed between 2017-2022 (a period characterised by geopolitical challenges and a global pandemic), but overall, they are growing faster than the regional economy average.

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Headline baseline study trends

Greater than 0%
Remains the same 0%
Less than 0%

The initial baseline analysis uses four core economic metrics – employment, GVA, number of businesses and productivity. Data from 2022 is used to provide an initial starting point of the size, and data from 2017-2022 measures the economic performance of each cluster, where growth is measured through the Compound Annual Growth Rate (CAGR). The table below shows a summary of trends for each cluster and the pages that follow provide detailed analysis and description of each of these trends.

Cluster	Size of the cluster (2022 data)				Growth (CAGR 2017-2022)			
	Employment	Businesses	GVA (£m)	Productivity	Growing employment	Growing businesses	Growing GVA	Growing productivity
Aerospace	7,217	153	£542	£75,138				
Creative Content Production & Gaming	4,480	535	£314	£70,135				
Digital Economy	32,150	4,450	£2,310	£71,840				
Electric Light Vehicles & Battery Technologies	26,105	685	£1,721	£65,933				
Health Tech & Med Tech	3,625	390	£279	£76,901				
Logistics & Distribution	76,040	10,395	£3,165	£41,627				
Manufacture of Future Housing	6,250	2,705	£494	£78,987				
Professional & Financial services	178,340	18,590	£17,007	£95,365				
Smart Energy Systems	22,015	3,200	£1,762	£80,031				

Source: Metro Dynamics

There are several new and fast evolving economic opportunities that the West Midlands can capitalise on; the high-performing and high-potential ones should be prioritised to support the further growth of existing clusters and new market opportunities.

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- A mix of quantitative and qualitative evidence suggests the region is home to a diverse set of emerging economic opportunities. The opportunities identified through Location Quotient Analysis are grouped into 3 areas, providing a framework for targeting:
  1) Consumer, Health & Market-Driven Opportunities (e.g., Textiles & Fashion)
  2) Industrial & Sustainable Infrastructure (e.g., Future Logistics)
  3) Digital & Advanced Technologies (e.g., Cyber Security)

- As demonstrated in the Figures on the next page, a comprehensive analytical framework provides a deep understanding of these opportunities, coupled with qualitative insight from regional experts.

- In addition, more future / potential focused opportunities—such as Autonomous Logistics, Smart Mobility, Future Food Resilience, and Sustainable Aviation Fuels—reflect the West Midlands' capacity to lead in high-value, globally relevant sectors.

- Emerging opportunities within the regional economy do not exist in isolation - they are embedded in a wider ecosystem of traditional sectors, existing clusters, enabling technologies, and aligned policy frameworks, while interacting with each other.

- Economic opportunity areas are not uniform across the WMCA geography – individual local authority areas have specific strengths to capitalise on given their industrial characteristics and capabilities.

Source: The Economic Intelligence Unit and City-REDI (University of Birmingham)

There are several new and fast evolving economic opportunities that the West Midlands can capitalise on; the high-performing and high-potential ones should be prioritised to support the further growth of existing clusters and new market opportunities.

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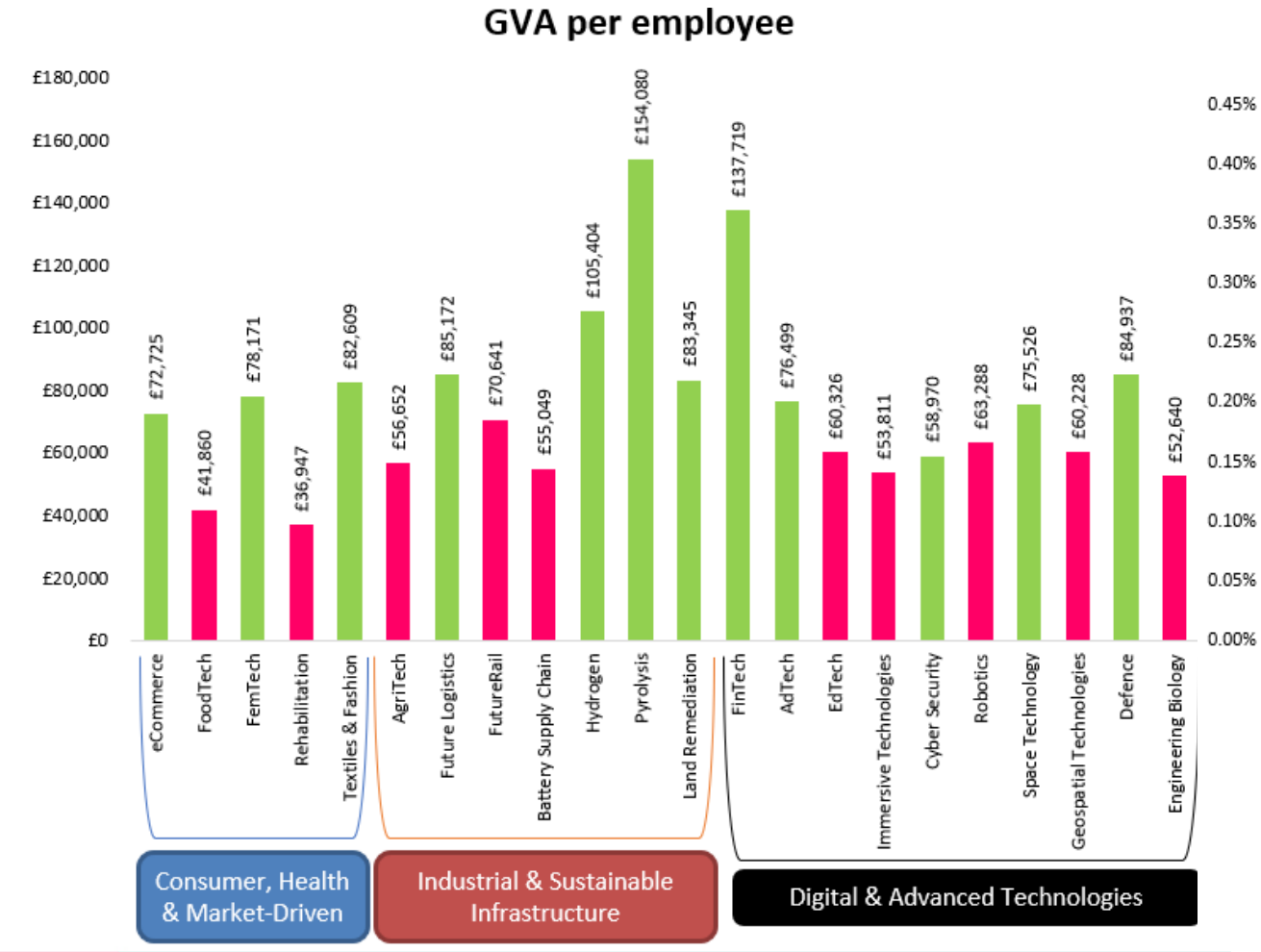

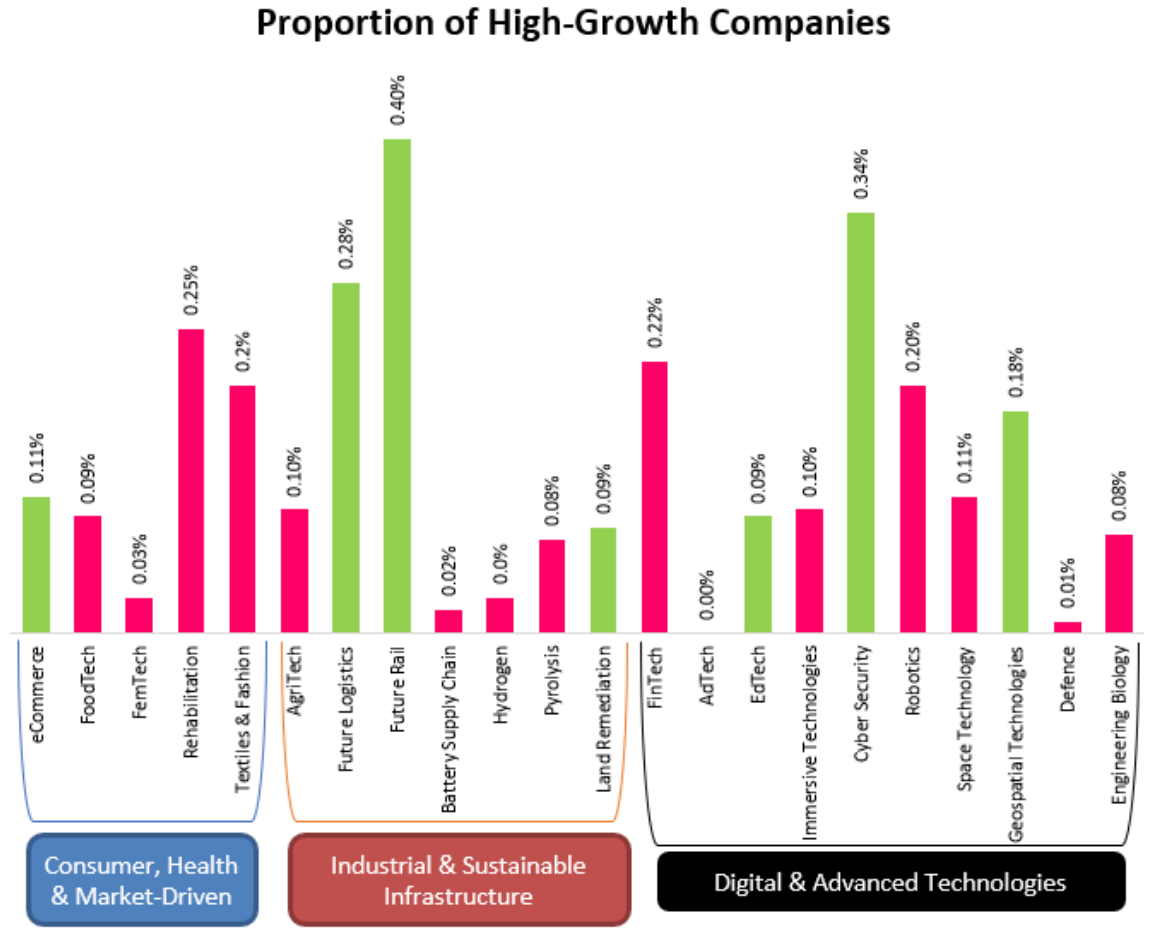

Source: The Economic Intelligence Unit, City-REDI (University of Birmingham)

The West Midlands' share of public R&D funding still lags behind several regions, and the current ecosystem could be strengthened to more effectively respond to key inhibitors to R&D investment, and the opportunity of Government led long-term R&D budgets.

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- In 2022 WM's share of £747m overall public R&D investment was around a third less than for the North West, East of England and South West.

- R&D intensity remains low, limiting innovation and productivity growth. The slow adoption of advanced technologies and underinvestment in R&D have contributed to this lag.

- Work by the Productivity Institute identifies 6 drivers behind the low R&D investment within the region: lagging UK R&D spend; fragmented R&D ecosystem; spinout numbers; talents and skills for R&D; innovation adoption; collaboration culture.

- Unlocking the long-term (up to 10 years) government R&D budgets upcoming will require a focus on:
  1) creating clarity around the needs for R&D
  2) building capability to deliver R&D investment within the region
  3) building a more coordinated ecosystem to support commercialisation of R&D and innovation within existing businesses.

Source: Jamie Clyde Innovation Advisory

The West Midlands' share of public R&D funding still lags behind several regions, and the current ecosystem could be strengthened to more effectively respond to key inhibitors to R&D investment, and the opportunity of Government led long-term R&D budgets.

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Regional UKRI Investment 2021-4*

*Research England, Research councils, Innovate UK and cross-UKRI investment

Source: UKRI

1. **Lagging UK R&D spend:** Governments Gross Expenditure is low. GERD as a percentage of GDP for UK is around 5% (including UKRI funding) while the same figures for the EU and the US are 11% and 17% respectively.
2. **Fragmented R&D Ecosystem:** The Midlands lacks the large, cohesive R&D clusters that are critical for fostering innovation and economic growth. Industrial parks, science parks, and incubators are present, but not well integrated into a broader innovation ecosystem.
3. **Spinout Numbers:** Comparing to the Golden Triangle universities, the Midlands' universities produce far less spinouts in numbers, in sizes and in income generation potential. This could be one of the reasons behind low R&D investments attracted into the region.
4. **Talents and Skills for R&D:** The region struggles to retain talented professionals and researchers, particularly in emerging sectors such as green technologies and digital innovation, which are vital to boosting R&D outputs. This is partly because universities from other regions and countries offer better packages.
5. **Innovation Adoption**: Many businesses in the region are slow to adopt and integrate new technologies into their operations. This reluctance, driven partly by limited resources and risk aversion, hampers the diffusion of innovative practices across industries
6. **Collaboration Culture:** Despite some notable research centres, collaboration between universities, industries, and LAs is not fully optimised in the Midlands. This affects knowledge transfer and the region's ability to turn academic research into commercial products and services.

Sources: Productivity in the Midlands: Trends, Challenges & Solutions Jan 2025

Source: Jamie Clyde Innovation Advisory

Artificial Intelligence (AI) represents a considerable opportunity and challenge for the West Midlands.

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- The region has several natural advantages that provide a strong foundation for AI leadership: a well-established industrial base, long-standing reputation for innovation, world-class academic institutions, a robust and diversified tech sector, and a collaborative approach to economic development through cluster models.

- However, barriers to AI adoption exist through skills gaps, constraints on infrastructure such as energy and broadband, and a lack of distinct messaging and differential AI advantage in West Midlands messaging.

- AI can act as an economic multiplier across multiple sectors, potentially adding £32.6 billion in GVA by 2035.

- AI should be seen as an integral component of a broader transformation across the region's economy, businesses, and workforce. For the West Midlands, AI represents more than incremental efficiency gains—it is a catalyst for reinvention and sustainable economic progress.

Sources: Amitypath, ANDigital, The Economic Intelligence Unit

There are significant productivity and labour market benefits associated with the greater adoption of Robotics and Autonomous Systems (RAS) in West Midlands manufacturing, and the region has the opportunity to be a leading hub, but considerable barriers to growing uptake.

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- Automation and adoption of robotics and other new digital technologies offers a range of valuable benefits for manufacturing, including improved flexibility, greater efficiency in labour, and better use of resources. By integrating digital technologies with automation, production facilities can become more adaptable and productive, driving real gains in output and performance.

- 45% of WM manufacturers surveyed rank productivity improvements as the primary benefit of RAS, followed closely by enhanced product quality and consistency.

- Half (50%) of surveyed companies reported that RAS adoption led to workforce upskilling and reskilling, helping employees transition into higher-value roles.

- 37% of respondents noted that RAS implementation created new job roles, especially in technical fields such as system maintenance and programming; 30% indicated reduced headcount due to RAS.

- However, 48% of respondents identified the high initial capital investment required for RAS as the top barrier to adoption. For SMEs, these costs are often prohibitive, making external funding support critical.

- While 47% of companies reported that a shortage of skilled personnel is a key obstacle, particularly in specialised areas like robotics programming, system integration, and maintenance. While the data shows that the West Midlands has a strong general manufacturing workforce, RAS specific skills remain limited.

Source: Make UK

There are significant productivity and labour market benefits associated with the greater adoption of Robotics and Autonomous Systems (RAS) in West Midlands manufacturing, and the region has the opportunity to be a leading hub, but considerable barriers to growing uptake.

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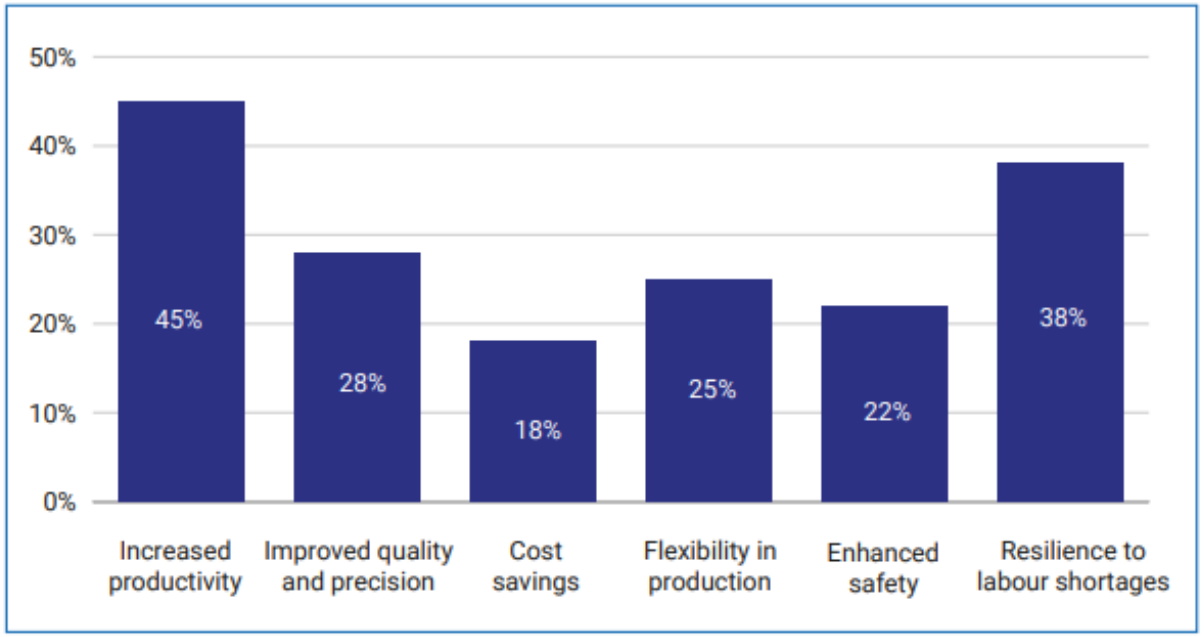
Chart 9: Increased productivity is most commonly cited as the highest ranking reported benefit of adopting RAS by West Midlands manufacturers

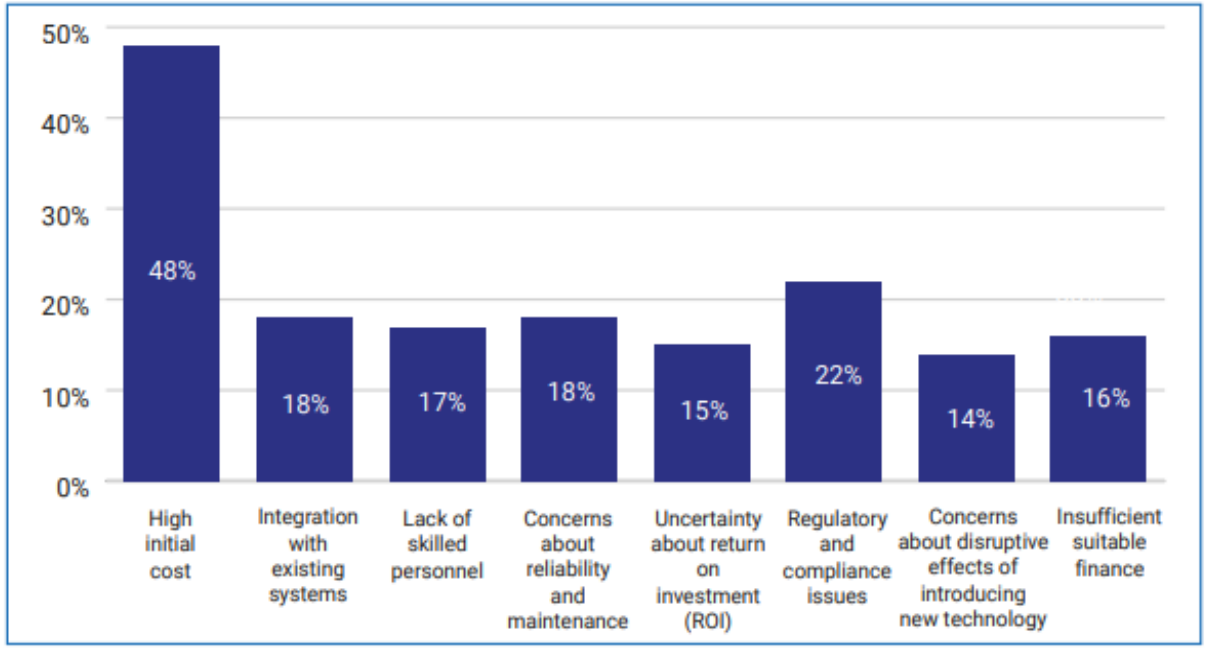
% respondents who placed each option in its respective ordinal position, ordered by the greatest proportion in each category



Source: Make UK RAS fieldwork September 2024

Chart 10: High initial cost is most commonly cited as the highest ranking reported barrier to adopting RAS by West Midlands manufacturers

% respondents who placed each option in its respective ordinal position, ordered by the greatest proportion in each category



Source: Make UK RAS fieldwork September 2024

Source: Make UK

Within the region's diverse Smart Energy Systems cluster, there are specific economic opportunities to capitalise on across Smart Home, Smart Heat and Smart Business Energy Systems.

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- Smart energy system value chains in the West Midlands are dynamic and diverse, with a comprehensive landscape of market developers across technologies and key market users and facilitators: covering commercial, residential, industrial and infrastructural.

- Three segments of smart energy systems are assessed as having significant potential to develop and achieve strong growth in the West Midlands. These should be prioritised by the region's smart energy system cluster.
  1) EV charging for trucks
  2) District heating
  3) Residential solar.

- There is a limited case for investment in component and assembly manufacture of hear pumps in the West Midlands. However, by targeting investment in the right areas, the WMCA could help companies in the region to break into the global heat pump component supply chain, by pivoting their existing market provision.

- Flexibility is critical to the success of the region's smart energy system, yet local flexibility needs in the West Midlands are currently not being met: across all products, National Grid Electricity Distribution met peak tendered capacity in <1% of the West Midlands region in 2023/24.

Sources: LCP Delta, Gemserv

Within the region's diverse Smart Energy Systems cluster, there are specific economic opportunities to capitalise on across Smart Home, Smart Heat and Smart Business Energy Systems.

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Executive Summary - Opportunities in Three Broad Smart Systems

LCP Delta

Smart System	Subsector	Definition and Integration into Smart Energy Systems	Potential Challenges of Integration	Revenue Potential
Smart Home Energy System	**Residential Solar** **Battery Storage** **EV Charging - Car**	Through the combination of the technologies that are involved for net zero homes; namely residential solar, battery storage, heat pump and EV charging, these can be harnessed under home energy management systems to provide maximum efficiency both for the homeowner and the network. The West Midlands has a number of companies in the region that can develop this system, ranging from sensors for energy monitoring, through to companies that can install the various technologies.	Ensuring the interoperability of both the different technologies and the technology brands to maximise customer experience will be vital. If successful, this can lead to a system that is effective both at the individual level and in the creation of virtual power plants.	**£254-390 million in 2030.** This is a combination of the three segments, with a range allowed for the residential solar revenue. The actual outcome could be higher than the sum of the parts, particularly once the addition of home energy management systems and the potential income from VPPs are factored in.
Smart Heat System	**District Heating** (incl Energy from Waste)	District heating networks, including those utilizing energy from waste, provide a centralised solution for low-carbon heat distribution across urban areas. These systems harness heat from sources such as waste-to-energy plants, industrial processes, and combined heat and power (CHP) plants, distributing it through an insulated pipe network to homes, commercial buildings, and public facilities.	Roll-out of district heating faces challenges related to infrastructure investment, regulatory alignment, and public-private collaboration. Upfront capital costs for network installation can be high, requiring long-term commitment.	**£186 million in 2030.** This assessment includes energy from waste. Growth of the sector is likely to be driven by high urbanization rate and the Heat Network Zoning regulation framework.
Smart Business Energy System	**Building Energy Management** **EV Charging Truck** **Solar C&I**	In a similar way to the development of the smart home energy system, through combining the technologies involved in greening businesses, a smart business system can be developed. As detailed on page 11, the technologies that enable building energy management, EV charging for trucks and solar C&I, can be used across the vast majority of subsectors within commercial, industrial and infrastructural businesses. (Although not detailed in this report, there is also the potential for battery storage within businesses to be paired with the solar assets.) When combined with the strong number of developers in the region, this sector has great potential both for revenues and creating smart, efficient energy usage by businesses.	The breadth of user base is both an opportunity and a challenge and the co-ordination of the opportunities will be key to the success. The successful persuasion of the different businesses that will need to co-ordinate for the most effective smart business energy system needs to be strategically planned. E.g. where the best location for the truck charging facilities is.	**£234-245 million in 2030.** This is a combination of the three segments, with a range allowed for solar C&I. It is also worth highlighting that the truck revenues are likely to still be low in 2030 and the figure should be expected to grow strongly beyond 2030 as that sector gains traction. As with the home system, the potential for cross-revenues across the various sectors involved could also lead to a higher figure than the sum of the parts stated here.

WMCA: Market Dynamics and Value Chain of Smart Energy Systems

Source: LCP Delta

Given the significant economic and net zero benefits and imperative, there is a strong case for further investment in heat pumps in the West Midlands.

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- The WMCA region is below the national median for percentage of homes with an MCS-certified heat pump installation.
- The WMCA has set a target for the region to reach net zero by 2041, by when low carbon heating will need to be retrofitted in up to 1.169 million dwellings. By 2035, to meet net zero targets yearly new heat pump installations will need to be over 22 times higher than the 2024 installation level.
- The heat pump supply chain is expected to contribute over £1 billion to the economy of the WMCA's seven constituent authorities by 2045.
- Installation and maintenance represent by far the largest economic opportunity for the West Midlands, accounting for between 94% and 98% (depending on the scenario) of all GVA associated with the heat pump supply chain in 2045. Over 6,000 heat pump installation & maintenance jobs are expected to be created in the WMCA by 2035.
- In all housing archetypes, there is an overall cost saving to society of switching from a gas boiler to a heat pump. However, although heat pumps deliver overall cost savings to society compared to gas boilers, the direct costs borne by consumers are higher. Therefore, it's important to carefully consider the costs to consumers of realising the economic and environmental benefits highlighted, stressing the importance of understanding consumer demand and preferences.

Source: Gemserv

Given the significant economic and net zero benefits and imperative, there is a strong case for further investment in heat pumps in the West Midlands.

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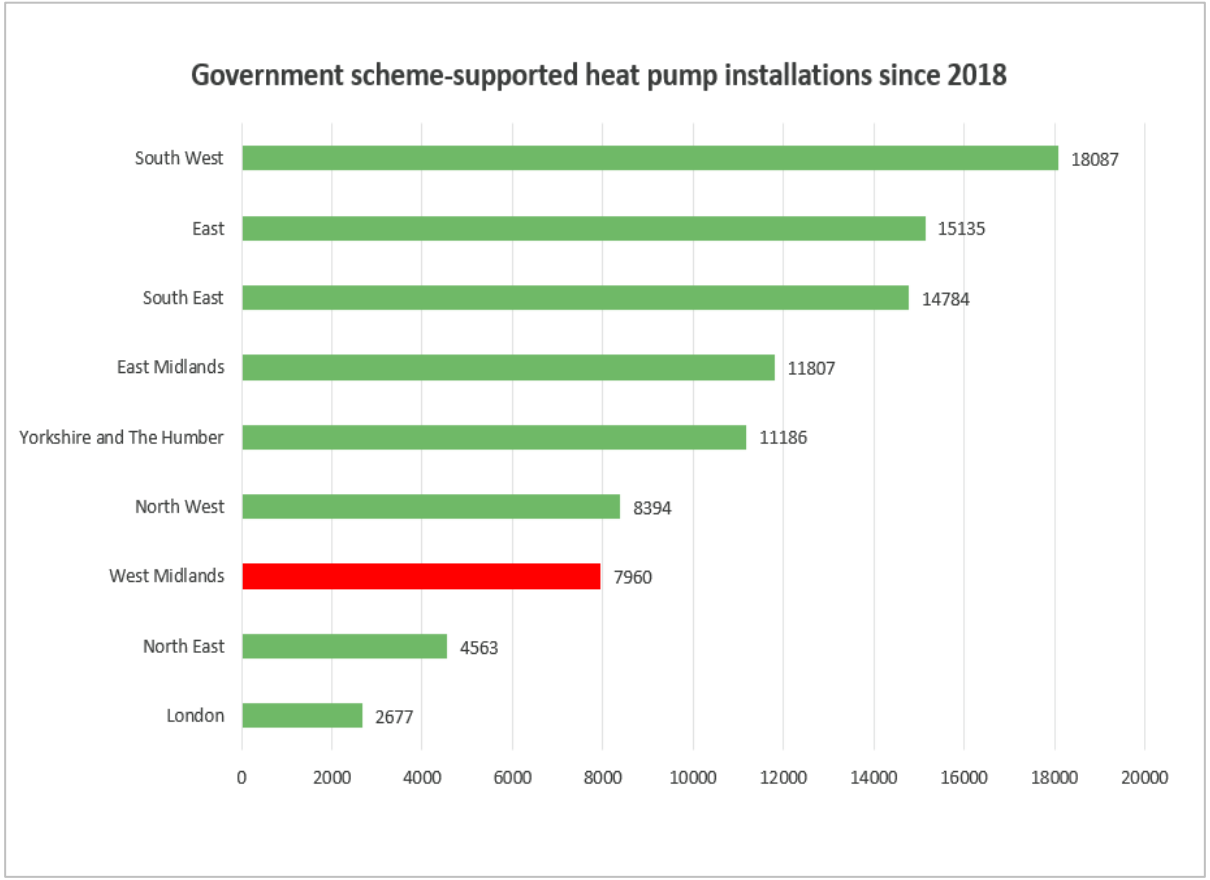
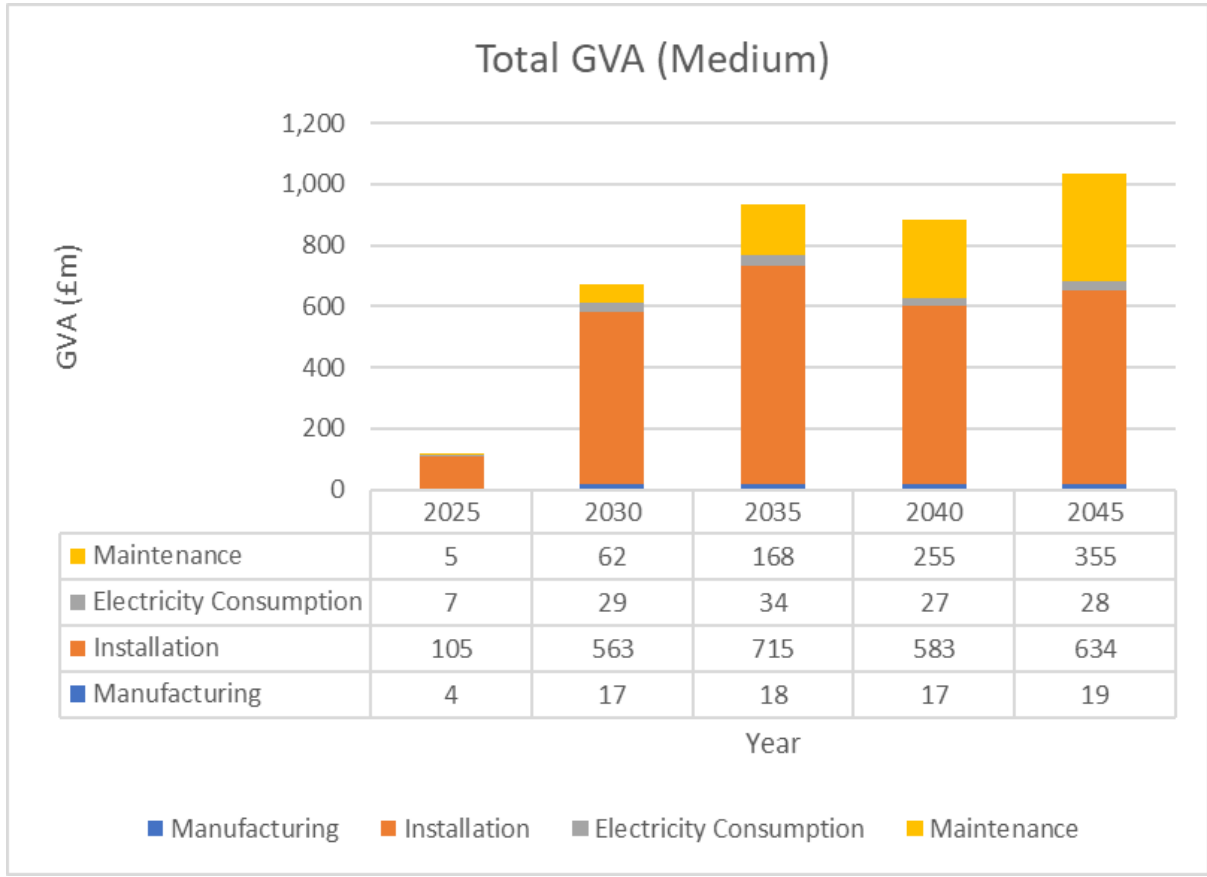
Government Scheme Supported Heat Pump Installations



GVA impact (medium scenario) in WMCA of Heat Pump Supply Chain Segments



	2025	2030	2035	2040	2045
Maintenance	5	62	168	255	355
Electricity Consumption	7	29	34	27	28
Installation	105	563	715	583	634
Manufacturing	4	17	18	17	19

Source: Gemserv

The West Midlands has businesses represented across all 7 categories of Modern Methods of Construction (MMC) but has developed a particular specialism surrounding its historic steel manufacturing capability.

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- There is insufficient construction sector capability, nationally and in WMCA, to scale housing output and meet future house building targets using purely traditional methods.

- The WMCA geographical region needs to increase output by 50% in order to reach new mandatory housing targets. In the last 3 years, the WMCA area has built roughly 8,000 new homes annually, and it must increase this to 12,000 a year to meet new targets.

- It is estimated that an additional 7,000 workers are needed to meet current output, and additional 1,000 on top of that to reach the new housing targets.

- Therefore, an evolution in construction methodology is essential to increasing productivity, certainty, quality and output per worker, and for creating additionality in resourcing by tapping into a manufacturing labour and technology base, bolstering the construction workforce. In other words, part of the solution to reaching new targets will be utilising offsite methods of construction.

- There is a cluster of MMC manufacturers concentrated along a corridor between Birmingham and Sandwell, with other businesses dotted across the other 5 LA areas.

- MMC and low carbon sectors related to residential construction are worth an estimated £225m per year in GVA to the West Midlands economy.

Source: Cast Consultancy

The West Midlands has businesses represented across all 7 categories of Modern Methods of Construction (MMC) but has developed a particular specialism surrounding its historic steel manufacturing capability.

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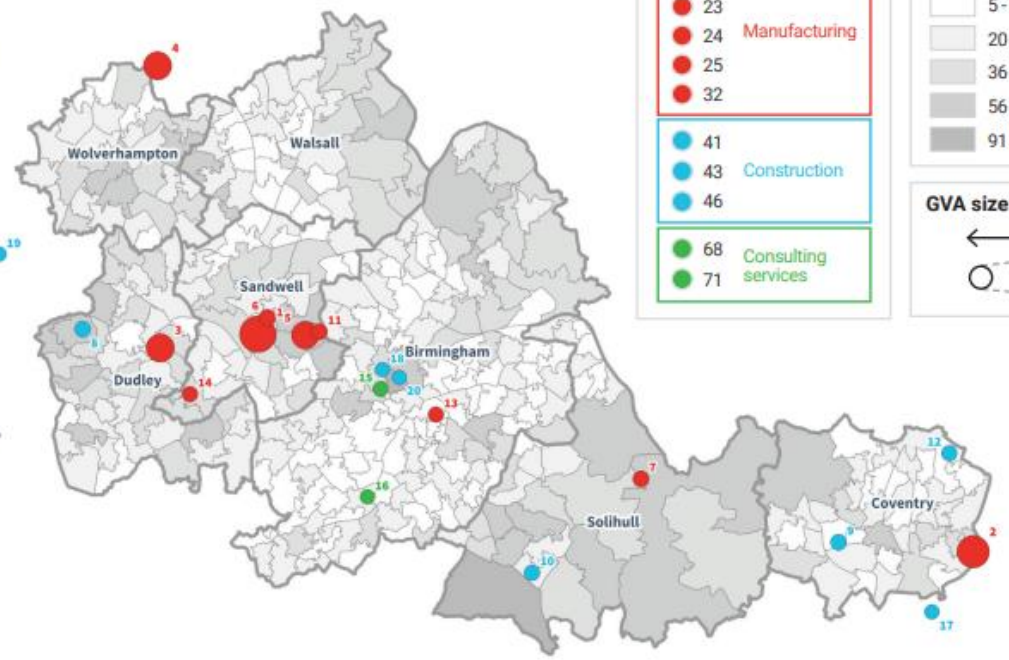
The West Midlands Combined Authority has developed an MMC specialism based on its historic steel manufacturing capability

- There is a cluster of MMC manufacturers concentrated along a corridor between Birmingham and Sandwell
- Most of these firms have developed systems that draw on the region's historic capabilities in the steel industry
- Other major MMC manufacturers are distributed around the periphery of the WMCA, while smaller scale MMC suppliers are distributed evenly around Birmingham, Coventry and Dudley
- Some of the more significant suppliers and manufacturers are MMC business units integrated into larger national and international construction companies



SIC 2-Digit Categories

- Manufacturing: 16, 23, 24, 25, 32
- Construction: 41, 43, 46
- Consulting services: 68, 71

Construction Business Concentration

- 5 - 20
- 20 - 35
- 36 - 55
- 56 - 90
- 91 - 235

GVA size

Companies

1. voestalpine Metsec
2. Saint-Gobain Offsite Solutions
3. MiTek Industries Ltd
4. Ibstock Futures
5. Hadley Group
6. Ash & Lacy
7. Wyckham Blackwell
8. FrameClad
9. Prism Offsite Manufacturing
10. WB Timber Innovations Limited
11. Albion Sections
12. TG Escapes Ltd
13. Vincent Timber
14. Drywall Steel Sections
15. LoCal Homes
16. HausBots
17. Innovaré Offsite Limited
18. Dynamic Build UK Ltd
19. Vanbrugh Construction Ltd
20. Actavo

Basemap: SIC 40-43 (Construction) mapped at MSOA level – UK Business Counts data
Points: Scaled to GVA, mapped coordinates colour-coded by SIC code – KOPE.AI supplier data

Source: Cast Consultancy

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Policy and Delivery Implications

The WMCA should implement clear mechanisms for monitoring cluster growth over time, and integrate with future functional developments such as the proposed Economic Development Vehicle.

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- High growth clusters are likely to make-up a larger proportion of the economy than previously cited: between 25%-45% depending on the metric.

- Achieving strong definitions for economic clusters and sectors remains difficult. A multi-layered approach, including both ONS Standard Industrial Classification (SIC) codes and Data City Real Time Industrial Classifications (RTICs), can improve robustness of the method and understanding of cluster growth. As outlined in the Metro Dynamics report, a framework for future monitoring should be implemented utilising a mix of data sources and business data platforms.

- Individual clusters will require individual approaches dependant on their level of maturity, including specific studies where possible to drive deeper understanding of what is driving economic patterns.

- An evidence-based approach is critical for continuing to understand the regional economy.

- Emerging and potential economic opportunities should be aligned to existing cluster development mechanisms where possible: Cluster bodies leading on cluster development should review and consider the emerging and potential economic opportunities that relate to their cluster, and mobilise to take the economic advantages.

Sources: Metro Dynamics, The EIU / City-REDI

The WMCA should implement clear mechanisms for monitoring cluster growth over time, and integrate with future functional developments such as the proposed Economic Development Vehicle.

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A measuring and monitoring model to inform next steps

The baseline study approach, focused on tracking clusters at a macro level

Need	Response	Measuring	Monitoring	Application
A means to measure and monitor the economic performance and trends across each of the Plan for Growth clusters over time	An **economic baseline study** with a methodology which allows for trend analysis on an annual basis	The baseline performance of clusters against macroeconomic indicators (revised SIC code definition)	The changes in these macroeconomic indicators, with comparisons to regional / national trends and between clusters	For the WMCA cluster delivery team to identify key trends within each cluster at a macro level
		The number of innovation / technology-oriented firms in each cluster and the related growth signals (Data City RTICs)	The variation in the number of technology-oriented firms, tracking the growth of innovative activity	For cluster leads to validate and critique baseline trends based on industry expertise
		A sample of 'businesses of interest' within each cluster and their individual growth signals (employees, turnover)	The change experienced by individual 'businesses of interest' in each cluster and identification of high performers	

Helping to inform more detailed and bespoke on-the-ground cluster analysis

A deeper understanding of each cluster, the spatial dynamics, and the market opportunities

Individual **deep-dive cluster studies**, directly shaped by the cluster lead requirements

Involving

- Spatial concentration of firms, both SIC and RTIC definition, specific sites and space requirements
- A distinction on where growth will come from and clarity on drivers of innovation
- Identifying ambition, priority areas, market opportunities, barriers to growth, and required interventions

35

Source: Metro Dynamics

Utilising a mix of clarity, capability and curation, the WMCA needs to present a strong justification for R&D funding to Government by demonstrating the capacity and ability to deliver R&D effectively within the region, including as a new Economic Development Vehicle (EDV) emerges.

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- **Clarity: demonstrate to UK Government that the West Midlands has a clear and differentiated strategy for innovation:** Clusters require a clear set of R&D objectives, based on a clear analysis of their cluster and a clear 2023 vision, and mapped innovation pathways to identify R&D needs and inform other economic development functions.

- **Capability: assure funders that the West Midlands has the expertise to deliver R&D investments:** The "Innovation Settlement" with government should be harnessed to reap the benefits of longer-term R&D funding; a robust pipeline methodology should be developed and implemented for electing projects; and the regional R&D Investment Management Capability should be built-up.

- **Curation: leverage our innovation assets to optimise the impact from any funding we receive:** Forge closer partnerships between universities, clusters and Catapults; define and manage innovation journeys for businesses; and fully exploit translational research, supporting spinouts.

Source: Jamie Clyde Innovation Advisory

Utilising a mix of clarity, capability and curation, the WMCA needs to present a strong justification for R&D funding to Government by demonstrating the capacity and ability to deliver R&D effectively within the region, including as the EDV emerges.

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Summary of recommendations

JAMIE CLYDE INNOVATION ADVISORY

Over the next 12 months, establish a solid pipeline of R&D investment proposals which are based on market needs, prioritised against clusters' R&D Objectives and close gaps in regional Innovation Pathways. In parallel, ensure the Innovation Settlements incorporate key elements for success and we build up our Investment Management Capability in part through forging stronger partnerships between Clusters and both Universities and Catapults

FY 25 Q1	Q2	Q3	Q4

Recommendation 1 (Clarity) :
Ensure all Clusters have clear R&D Objectives

Recommendation 2 (Capability) :
Innovation Settlement Considerations

Recommendation 3 (Curation) :
Map Innovation Pathways to identify and manage ecosystem gaps

Recommendation 4 (Capability) :
Build up Regional R&D Investment Management Capability

Recommendation 5 (Curation) :
Improved collaboration between Catapults, Universities & Clusters

Recommendation 6 (Capability) :
Establish a solid pipeline of R&D Projects and Programmes

The 3 Priorities for R&D Investment for the Region

JAMIE CLYDE INNOVATION ADVISORY

The different maturities of Clusters, our relatively limited experience of delivering large regional R&D programmes and the complexity of our ecosystem, leads to are three priorities to unlock significant long term R&D funding

1	Demonstrate to UK Gov that the West Midlands has a clear and differentiated regional strategy for innovation	Clarity	A focus on creating Clarity around our R&D Objectives across the region
2	Assure funders that the West Midlands has the expertise to deliver R&D Investments	Capability	A plan to expand our R&D investment management capability
3	Leverage our innovation assets to optimise the impact from any funding we receive	Curation	A way forward to boost collaboration between Universities, Catapults and our High Growth Clusters

Source: Jamie Clyde Innovation Advisory

The approach to technology adoption, via the likes of AI and RAS, will differ considerably across businesses in the region, requiring a tailored approach to the needs of different organisations and clusters.

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- Businesses—especially SMEs—face common barriers to AI and RAS adoption: limited AI / RAS literacy, cost concerns, uncertainty around tools, and a lack of accessible support. The scale of these is different depending on the size, type and sector of a company.

- A set of developed AI adoption roadmaps provide a flexible and adaptable framework for meeting organisational needs wherever they are on their AI journey. There are three tiers, each providing a different level of guidance—from detailed, cluster-specific blueprints to broader frameworks and principles that support consistent, region-wide AI adoption.

- The West Midlands' manufacturing base, particularly in advanced manufacturing sectors, provides a good foundation for RAS adoption proliferation. Combined with a central geographic location and well-connected transport links, the region is well-positioned to serve as a national hub for RAS.

- Through a proposed high-level operating model, RAS specific support in the region should include industry and academic collaboration; skills development and workforce training; financial support and access to technology; and market development and networking. This is already in train through a "RAS Cluster" development driven by MTC and University of Birmingham, which will be harnessed for further RAS adoption and growth.

- The AI roadmaps and RAS support offer should be utilised by cluster lead organisations to support AI and RAS adoption in businesses within clusters, and integrated within the region's wider business support ecosystem (via Business Growth West Midlands), developing a coherent approach to technology adoption support in the region.

Sources: Amitypath, ANDigital, Make UK, Silicon Square

The approach to technology adoption, via the likes of AI and RAS, will differ considerably across businesses in the region, requiring a tailored approach to the needs of different organisations and clusters.

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Introducing the AI Adoption Roadmaps

What are they?
A flexible, three-tiered framework to guide organisations of all sizes through their AI journey—whether starting out or scaling up.

Who are they for?
Businesses, clusters, public sector bodies, and others across the West Midlands looking for practical, tailored support to adopt AI.

What do they include?

Tier 1
Detailed, step-by-step roadmaps for early adopters

- HealthTech, Manufacturing (TBC) and Creative industries
- Helping organisations pilot and apply AI quickly

Tier 2
A flexible, general roadmap that clusters can adapt for their own sector

- Designed to be adapted for subsequent clusters
- Clusters can create Tier 1-style roadmaps by conducting interviews and assessments

Tier 3
High-level principles and good practice for AI adoption

- A guide for clusters planning long-term AI adoption
- Encapsulate the vision, ethics &, governance standards

How to use them?
Begin by segmenting member organisations based on their AI maturity. The roadmap is not linear—it functions as a flexible toolkit, with tools and templates that can be picked up as needed to support practical progress.

Why they matter?
They reduce barriers, support collaboration, and turn ambition into action—enabling confident, coordinated AI adoption across the region.

Source: ANDigital

AND

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The approach to technology adoption, via the likes of AI and RAS, will differ considerably across businesses in the region, requiring a tailored approach to the needs of different organisations and clusters.

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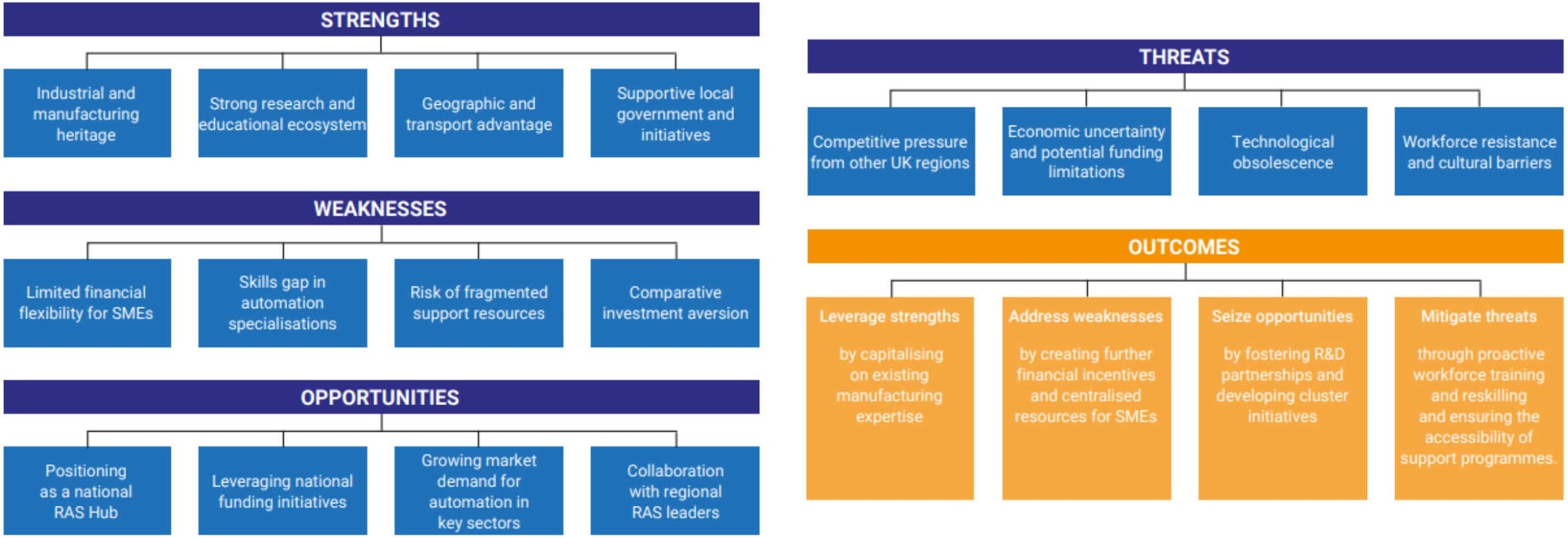
Chart 4: Visual representation of the core themes emerging from a SWOT analysis on the suitability of the West Midlands for further RAS adoption.



Source: Make UK

The WMCA's strategic economic framework should continue to recognise the nuances and interconnectedness between economic clusters and technology drivers, aligning to national strategies and approaches.

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- Economic clusters of strength have been identified, with emerging and potential cluster capabilities prioritised for ongoing capitalisation. Clusters should aim to maximise the opportunities of relevant future opportunities.

- Several critical technologies will enable growth across all clusters: e.g. AI, cyber, telecoms, as identified by the Government. The region needs a coherent approach to technology adoption across the economy utilising these technologies.

- Where sufficient industrial activity is present, technology adoption priorities have the potential to be regional economic clusters too: for example AI, RAS and cyber. The WMCA and wider region should continue to review the evidence base on the industrial capabilities of companies and assets in these areas and adopt relevant strategic and delivery approaches accordingly.

Sources: Metro Dynamics, The EIU / City-REDI, Jamie Clyde Innovation Advisory, Make UK, Amitypath

The WMCA's strategic economic framework should continue to recognise the nuances and interconnectedness between economic clusters and technology drivers, aligning to national strategies and approaches.

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Clarity

Alignment with UK Gov's Critical Technologies

JAMIE CLYDE INNOVATION ADVISORY

The Government's UK Science and Technology Framework has identified 5 critical areas for development and investment. In the WM, there is either specialist AI research or the application of AI in most Clusters and VITs. Except for Advanced Materials and Telecoms, the research into the other critical technologies is confined to a 1-2 relevant Clusters

Key: Application; R&D; Future Potential

	AI	Telecoms	Engineering Biology	Semiconductors	Quantum	Advanced Materials*	Cyber*
	Leveraging AI for various applications, from healthcare to predictive maintenance in industries.	Advancing 5G and beyond to improve connectivity and support the digital economy	Innovations in biotechnology and synthetic biology to address challenges in healthcare, agriculture, and environmental sustainability.	Ensuring a robust supply chain and advancements in semiconductor technology, which are crucial for electronics and various other sectors.	Developing quantum computers and other quantum-based technologies for advancements in computing and security	Discovering, Developing and learning to manufacture new materials that can unlock innovation across all major industrial sectors	Developing technologies, processes, and controls to protect systems, networks, programs, devices and data from cyber attacks
Aerospace	Bespoke AI Implementation					UoB (HTRC), Private Sector R&D	
Creative Content Production & Gaming	AI driven Content Creation - CreaTech Frontiers				Content Visualisation (UoB - Bham Institute for Quantum Technologies)		
Digital Economy	AI Adoption - Aston (ACAIRA), CU (DAASN), UOB(Data&AI Institute)	UK Telecoms Lab (UKTL) & WM5G			AI & Future Tech Forum		UoB (BCCS), UoWv (WCRI), Midlands Cyber, WMCRC
ELV and Battery (Automotive)	Discovery, Design, Man'ure & Control			Power Semiconductors		WMG (EIC), CU (AME), UoB	
Health Tech & MedTech	Digital Health – UoB (National Centre of Excellence in AI and Digital Health)	Community Healthcare WM5G	Bioeng/Med informatics: UoB (BioEMIS), Cell biology: UoW (CMCB)			UoW/UoB (City Science)	
Logistics & Distribution	Operational optimisation						
Smart Energy Systems	Controlling the System e.g. carbonTRACK implementation	Accessing Smart Systems		Power Semiconductors: Unipart, UoW (ARPL)	Reducing energy consumption in AI Data centres	UoW/UoB (City Science)	
Professional & Financial Services	Adoption Tools for AI - UoW (FFRG), Aston (ACARIA), WBS (Gillmore)				Collaboration with FinTech Scotland e.g. Quantum Key Distribution (QKD)		
Manufacture of Future Housing						UoW/UoB (City Science)	
Cyber Working Group	Detect, Respond, Prevent, Predict &Test UoWv(WCRI), Aston CSI	NCSC's Cyber Resilience Testing (CRT)			Quantum Cryptography		UoB (BCCS), UoWv (WCRI), Midlands Cyber, WMCRC
Sustainability	UoB (BISCA), Green Growth Corridor, Aston (ACICA)					UoW/UoB (City Science)	
Rail	UoB (CCRE –UKRRIN)	Signalling and Telecoms (S&T) UoB (CCRE –UKRRIN)					

*Not part of the 5 Critical Technologies identified by Conservative UK Gov in 2023 but may formally be recognised by the new Labour Government

Source: Jamie Clyde Innovation Advisory

The successful delivery of cluster development and the capitalisation of opportunities will continue to require a wide-ranging approach with a range of different stakeholders and the further mobilisation of cluster leadership structures.

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- Effective capitalisation of smart energy system opportunities will require the interaction and engagement of market buyers and sellers, through the setting up of consortia and maximising flexibility.

- Through a designated cluster lead organisation, the Future Housing cluster should support:

1) Supply side support and partnerships to drive cost efficiencies in production and process, to help achieve cost parity with more traditional methods of construction i.e. skills and innovation partnerships.
2) Demand side enablers such as standardising demand and pipeline transparency.
3) Reducing friction at the interface of supply and demand
4) Building a private sector led governance model for the cluster and identifying quick wins with existing opportunities.

- The region's strategy for logistics & freight must be a collaboration between the logistics & distribution industry (through the region's cluster and key trade associations) and Transport for West Midlands / Local Authorities. The sharing of relevant data needs to be a key part of this.

Sources: Cast Consultancy, LCP Delta, AECOM, Steer

The successful delivery of cluster development and the capitalisation of opportunities will continue to require a wide-ranging approach with a range of different stakeholders and the further mobilisation of cluster leadership structures.

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Smart Energy Systems Company Landscape in the West Midlands

LCPDelta

This table maps the smart energy system landscape in the West Midlands, highlighting market developers (companies listed in the rows) and market users (represented by the column headers)*.

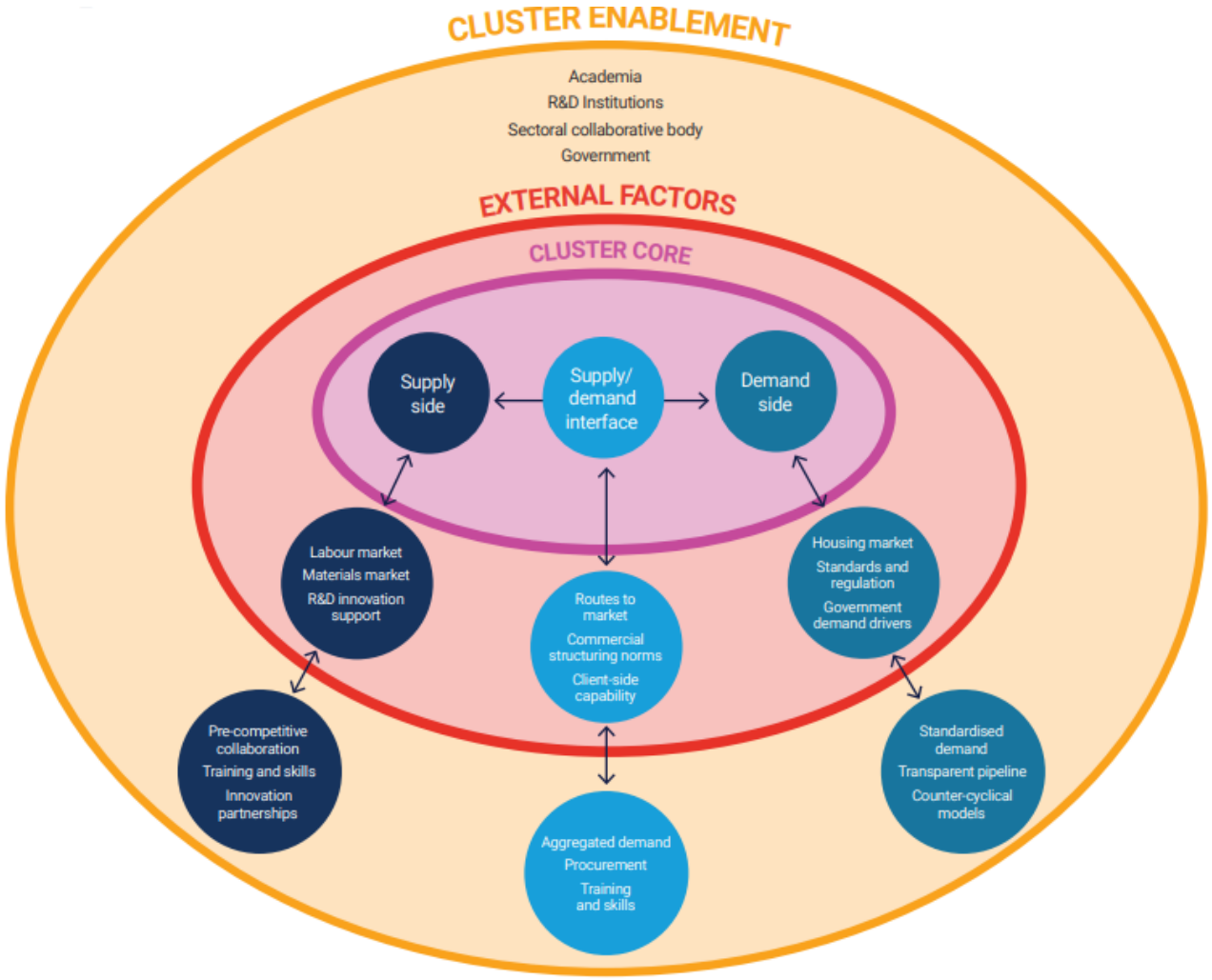
	Infrastructure	Industrial	Commercial	Residential
Energy management		Software & Service: Octopus Energy, Furbnow	Grid Edge, Elemental Power	Correla, Siemens
	Fuels and Energy Storage: Cadent, Ryze, Bryt Energy, Voltempo, Origin 21			
		Installers & operators: E.ON, Lovato Electric		
		Hardware: Schneider Electric, Jigsaw, Ecosmart, Mitsubishi Electric		
Clean tech		Manufacturing: Mitsubishi Electric, Heater Bands Ltd, Daikin		
	Fuels / Energy from waste: PryoGenesys, Micro:Cab, Wastewater Fuels			
		Batteries & EV: Voltempo, Faraday Battery, Global Nano Network		
		Installation/operation/maintenance: Omexom, Connect infrared		
Strategic services		Consultancy: Burns McDonnell, Baringa, Gemserv, Arup, wsp, Mott MacDonald, Jacobs, Atkins		
		Services: Equans, Enzen		
Supporting Infrastructure				
	iDNOs / Smart retailers: Octopus Energy, Eclipse Power, Tomato Energy			

*illustrative diagram, not designed to be exhaustive

WMCA: Market Dynamics and Value Chain of Smart Energy Systems

Source: LCP Delta

The successful delivery of cluster development and the capitalisation of opportunities will continue to require a wide-ranging approach with a range of different stakeholders and the further mobilisation of cluster leadership structures.



Source: Cast Consultancy

A targeted and ambitious approach to heat pump consumer demand and heat pump installation / maintenance supply is required to achieve the potential economic and net zero benefits.

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- A cross-WMCA and cross-organisational approach will be required to shift the dial on heat pump uptake and a strong supply chain to deliver and service implementation.

- Consumer demand and installation and maintenance are the priority areas for intervention. This is because they are the biggest economic opportunity, the greatest potential for job creation, the most urgent strategic need, and the easiest to influence on a regional level.

- It will not be possible to reach the required level of deployment without action to boost consumer demand and build up the installation & maintenance supply chain.

- Consumer demand: undertake a consumer segmentation study; carry out targeted awareness and marketing campaign; One Stop Shop for information and advice; green finance offerings; take action to lower electricity prices for residents switching to heat pumps.

- Installation and maintenance: marketing heat pump careers; invest in high-quality hat pump courses; ringfence a % of retrofit funding for investment in local supply chains; take an area-based, cross-tenure installation approach by blending existing funding streams.

Source: Gemserv

A targeted and ambitious approach to heat pump consumer demand and heat pump installation / maintenance supply is required to achieve the potential economic and net zero benefits.

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CONSUMER DEMAND	INSTALLATION & MAINTENANCE	ASSEMBLY MANUFACTURING	COMPONENT MANUFACTURING
Consumer segmentation study	Marketing heat pump installation careers	Offer existing manufacturers incentives to repurpose and expand heat pump manufacturing facilities	Position the WMCA as a leading innovation zone for heat pump systems and components
Heat pump awareness and marketing campaign	Invest in high-quality heat pump courses	Establish a Heat Pump Investment Taskforce	Encourage existing manufacturers within the WMCA to pivot into the heat pump supply chain
One Stop Shop for impartial information and advice	Provide subsidies for heat pump courses	Undertake research into the potential for manufacturing large heat pumps	
Lower electricity prices for those switching to heat pumps	Take an area-based, cross-tenure installation approach by blending existing funding streams		
Green finance offering to reduce the capital cost of heat pumps	Ringfence a percentage of local retrofit funding for investment in local supply chains		

*The strongest economic case and the most urgent recommendations relate to **consumer demand** and **installation & maintenance**. Although not as urgent or lucrative, there is still a significant additional opportunity in **heat pump manufacturing** through limited but targeted investment in certain areas.*

Source: Gemserv

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For more information, please contact

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