West Midlands Futures

Exploring Emerging and Future Opportunities in the West Midlands Combined Authority Region

The Economic Intelligence Unit

UNIVERSITY OF BIRMINGHAM | City-REDI — City-Region Economic Development Institute

West Midlands Combined Authority

Contents

Executive Summary

The overall aim of this project is to identify **how existing industries and new technologies interact to create new opportunities which may lead to emerging and potential future clusters in the West Midlands Combined Authority (WMCA) region**. While existing high-growth opportunities are central to the region's economic strategy, **new and fast-evolving areas must be explored to ensure long-term success.**

In this study, we conceptually distinguish two types of opportunities for developing capabilities that align with existing clusters: *emerging* and *future* **opportunities.**

We build an Analytical Framework based on four key ecosystems (Business, Investment, Innovation, Talent) to identify **emerging and future opportunities of technologies and capabilities**, which complement existing regional assets and clusters in the WMCA region. Quantitative analysis drawing on **firm-level and spatial data** has been synthesised with the qualitative insights gained from **stakeholder engagement** to:

- **Define and prioritise emerging and future opportunities** based on economic potential.

- **Assess sector strengths** using innovation, investment, business, and talent indicators.

- **Understand how these opportunities interact**, including their role in supply chains and enabling technologies.

- **Provide a prioritisation framework** highlighting high-potential industries across the region.

The research provides **clear, evidence-based insights** to help shape the Local Growth Plan and guide investment in the most promising areas.

Quantitative Analysis

The report presents a robust and data-driven assessment of 22 emerging opportunity areas in the West Midlands Combined Authority (WMCA), using a detailed quantitative framework structured around four economic ecosystems: Business, Innovation, Investment & FDI, and Talent. Drawing on spatial firm-level data and national benchmarks, the analysis identifies where regional opportunities are strongest, underdeveloped, or emerging, and provides a comparative baseline for prioritisation.

The analysis highlights **Future Logistics**, **Textiles & Fashion**, and **eCommerce** as particularly well-established opportunities with high employment, turnover, and business presence. Sectors such as **FinTech**, **Defence**, and **AdTech** are found to generate strong GVA per employee, while **Pyrolysis** and **Hydrogen** stand out for their productivity within clean growth sectors, albeit with smaller workforces. Innovation intensity is highest in fields like **Engineering Biology**, **Space Technology**, and **Robotics**, while investment flows are concentrated in **Digital & Advanced Technologies**, including **Space**, **Geospatial Technologies**, and **Defence**.

The chapter also identifies areas of low current specialisation but with high future potential, such as **Battery Supply Chain, FinTech, Cyber Security**, and **Immersive Technologies**. Many of these underrepresented opportunities show low employment and business density but benefit from growing investment and innovation funding. Conversely, traditional sectors such as **FoodTech** and **Rehabilitation** are shown to be more labour-intensive with lower productivity, indicating the need for transformation through automation or upskilling.

Qualitative Insights

This chapter presents the findings from a programme of targeted stakeholder engagement, designed to complement the quantitative analysis by capturing place-based insights into emerging and future opportunities across the West Midlands. Consultations were held with 24 experts from across academia, industry, cluster organisations, and innovation agencies, spanning sectors such as aerospace, health tech, logistics, advanced manufacturing, and digital technologies.

The chapter identifies a number of strategic themes emerging from these discussions. Stakeholders consistently emphasised the West Midlands' strengths in **advanced manufacturing**, **engineering**, and **materials science**, and how these can support **cross-sectoral innovation** across areas such as space, energy, health, and mobility. However, the **slow diffusion of enabling technologies** such as robotics, AI, and cyber, particularly among SMEs, was highlighted as a critical barrier to growth.

The importance of **technology translation ecosystems**, the need to enhance **commercialisation** of research, and challenges in scaling advanced capabilities were recurring messages. Stakeholders also pointed to a severe **skills mismatch**, particularly for SMEs unable to attract or retain talent in high-demand technical disciplines. Furthermore, infrastructure constraints, such as energy capacity and data centre availability, were seen as a growing risk to future competitiveness, especially in quantum and clean mobility-related sectors.

The chapter also incorporates a comparative analysis of ten **international city-regions** with economic and spatial similarities to the WMCA. These include global innovation hubs such as **Montreal**, **Greater Brisbane**, and **Sendai**, which have established strengths in sectors highly relevant to the West Midlands' future direction, such as sustainable aviation, hydrogen, agri-tech, and immersive content creation. The comparator analysis provides external validation for the WMCA's emerging opportunity areas, while offering insights into how global peers are addressing similar challenges around infrastructure, skills, and commercialisation.

Informed by this qualitative evidence, the report identifies a series of **future-facing opportunities** that build on regional assets and global demand trends. These include **Future Food Resilience**, **Autonomous Logistics**, **AR/VR/XR content creation**, and **Sustainable Aviation Fuel development**—all of which demonstrate significant growth potential, but require coordination across innovation, skills, and infrastructure systems to fully materialise.

The stakeholder engagement process also uncovered a clear set of **priority actions** to support these opportunities. These include accelerating the **adoption of enabling technologies**, improving **technology diffusion** and **transition support**, addressing **SME access to talent**, enhancing **commercialisation pathways**, and securing investment in energy and digital infrastructure. Stakeholders further highlighted the importance of developing **regionally tailored investment mechanisms** and strengthening the **West Midlands' innovation identity** through clearer branding and policy advocacy.

Synthesising Results

Chapter 5 introduces a structured **prioritisation framework** designed to assess and rank 22 identified opportunity areas based on their potential to drive long-term economic growth in the West Midlands. The framework integrates **quantitative analysis** with **qualitative insights** and is organised across four key economic ecosystems: **Business, Innovation, Investment & FDI**, and **Talent**. Each opportunity is assessed through RAG-rated indicators, with weighted scoring

applied to ensure balance across ecosystems with varying numbers of measures. This is then combined with qualitative insights to ascertain strategic importance.

The analysis identifies a group of high-ranking opportunities including **Future Logistics**, **Defence**, **Land Remediation**, and **Future Rail,** that perform strongly across multiple criteria. These opportunities demonstrate not only current economic strength but also alignment with strategic regional and national priorities. Other notable opportunities include **Engineering Biology**, **eCommerce**, and **Textiles & Fashion,** which exhibit strong business presence and innovation potential, though may require support in areas such as infrastructure or skills. Although not immediately evident in the data, the framework recognises through qualitative insights the strategic importance of opportunity areas such as **Battery Supply Chain** and **FinTech**, which are critical to the rapid transition to electrification and the establishment of a thriving financial hub in the region.

In addition to assessing individual opportunities, the chapter highlights the **interconnected nature** of emerging economic activity. Opportunities such as **Future Logistics** are shown to intersect with existing sectors (e.g. Logistics and Rail), Plan for Growth clusters, enabling technologies (e.g. CleanTech, Enabling Tech), and national innovation priorities (e.g. AI and Future Telecommunications). These interconnections reinforce the importance of a **systems-level approach** to policy and delivery, where value is amplified through cross-sector innovation, shared infrastructure, and combined interventions.

To support spatial insight and place-based decision making, the chapter also includes a suite of **mapping tools** visualising the geographic distribution of businesses across each **emerging opportunity area**. An **interactive map** highlights where activity is concentrated, alongside the location of key regional assets such as **innovation hubs**, **transport infrastructure**, and **R&D institutions**. Complementing this, a series of static **hex-based heat maps** have been developed - one per opportunity area - showing the **density of firms within 1km grid cells** across the WMCA region. These tools help identify **spatial clusters**, reveal **infrastructure gaps**, and inform more targeted, **geography-sensitive interventions**.

The chapter also sets out a refined view of **future opportunity identification**, drawing on both stakeholder insights and international comparator analysis. It outlines a shortlist of opportunities—such as **Autonomous Logistics**, **Future Food Resilience**, **Advanced Air Mobility (eVTOL)**, **Sustainable Aviation Fuels**, and **AR/VR/XR content creation**—which are not yet mature but show strong potential for future regional competitiveness. These are presented in a dedicated future opportunities table, which defines each area and assesses the WMCA's current readiness to support development.

1. The Current Status: West Midlands' Strategic Context

1.1 Introduction – Purpose of the Project

The West Midlands **Plan for Growth** (WMCA, 2022)[1] identifies key clusters that continue to form a core part of the region's economic strategy. Eight primary and eight nascent clusters are outlined across the WMCA geography, reflecting both existing strengths and future potential. The Government's **Industrial Strategy Green Paper** (November 2024) emphasises the importance of 'tradable' or 'export-oriented' sectors, including advanced manufacturing, clean energy, creative industries, defence, digital and emerging technologies, financial services, life sciences, and professional and business services. The Industrial Strategy is due to be published in Summer 2025 alongside dedicated sector plans. These national priorities align with the regional focus presented in the **West Midlands Innovation Prospectus** (WMCA, 2025)[2], which identifies innovation activity concentrated around three core technologies: Clean Tech, Med Tech, and Creative Tech—as well as the additional Enabling Tech. Collectively, these contribute to the WMCA's broader cluster development strategy, which encompasses key innovation-led clusters. A new Local Growth Plan is also currently in development which will provide a ten-year economic strategy for the region, this will be published in June 2025.

The purpose of this project is **to explore emerging and future opportunities for the West Midlands Combined Authority Area, beyond these clusters and sectors**, recognising the **rapid pace of economic change and identifying areas of opportunity that could drive significant economic growth and high-value job creation in the next 5–10 years**.

The overall aim of this project is identifying how existing industries and new technologies interact to create new growth areas which may lead to emerging and potential future opportunities in the West Midlands Combined Authority Area. In this study, we conceptually distinguish two types of opportunities for developing capabilities that align with existing clusters:

- **Emerging opportunities**: Industrial activities that already exist in the West Midlands (and are perhaps growing), with pockets of companies already supplying into small-scale opportunities, but with the potential to grow substantially.
- **Future opportunities:** Industrial activities that generally don't exist as material activity in the region (or in very small pockets), but with companies in the region that have the capacity and capability to supply into growing opportunities with increasing demand in future years.

The scope and conceptual foundation of this study is established in **Chapter 2**, which introduces the Analytical Framework. **Chapter 3** outlines the approach to quantitative datasets and analysis, identifying emerging and future opportunities through detailed metrics. This is complemented by **Chapter 4**, which presents qualitative insights gathered through targeted stakeholder engagement sessions. These findings are brought together in **Chapter 5**, where a Prioritisation Framework is developed to assess and rank opportunity areas. The chapter also explores the interconnectedness of opportunities and mapping of emerging opportunities, as well as reviewing the information gathered to develop a list of future opportunities. Finally, **Chapter 6** summarises key insights from across the study, identifies remaining evidence gaps, and provides a set of policy considerations and recommendations for future strategic planning.

---

[1] "Eight existing clusters fit the profile of delivering high value differential growth where the West Midlands has comparative advantage, business confidence and further market opportunity". These are: *Manufacturing of electrical light vehicles and associated battery storage devices; Health-tech and med-tech; Aerospace (including manufacturing alternative fuels); Logistics and distribution; Professional and financial services and supply chain; Creative content production and gaming; Manufacturing of future housing; Modern and low carbon utilities.* https://www.wmca.org.uk/strategies/plan-for-growth/
[2] To be published in 2025.

2. Methodological Approach: Identifying Emerging and Future Opportunities

2.1 Approach

As background to this study, several materials and data have informed our research design and analytical frameworks. These include a **methodological overview on cluster identification** and **industrial classifications**, a review of recent **cluster mapping** exercises (Midlands Engine, 2023 a[3], 2023b[4]; DSIT, 2024[5], CBI Economics, 2024[6]), along with existing analytical methods and datasets.

Figure 1 shows how the different elements of the approach come together. The process is designed to integrate both **quantitative and qualitative methods**, ensuring **analytical rigour and relevance** to the WMCA context.

The approach begins with a **review of existing literature, including global megatrends, foresight analysis, international comparator studies, patent data, and deep dives into the region's established cluster strengths**. These materials shape the development of an initial longlist of emerging and future opportunities, aligned to Data City's Real-Time Industrial Classifications (RTICs).

From this foundation, a refined set of data indicators is developed. Indicator selection is based on **data availability, alignment with the Midlands Engine cluster framework, and WMCA-specific project priorities**. This ensures that the analysis captures meaningful patterns of regional specialisation and potential growth.

Stakeholder engagement is embedded throughout the process. Insights from key local stakeholders help guide to validate the selection of opportunities. These inputs add important context to the data findings, revealing areas of latent or under-recognised potential.

Quantitative and qualitative analysis proceeds in tandem, with data drawn from multiple sources including Data City, Dealroom, Innovate UK, and HESA – insights are integrated in **Chapters 3 and 4**. This analysis is tested and refined through a **dedicated WMCA/Local Authority workshop**, providing an opportunity to explore findings in policy and delivery context as discussed in **Chapter 5**.

This iterative approach enables the **synthesis of emerging trends and the identification of priority opportunities for future intervention**. Final outputs include a short report, presentation, methodology statement, prioritisation framework, and a consolidated dataset.

---

[3] Midlands Engine (2023 a) "Exploring the Investment Potential of Midlands Clusters" Library | Midlands Engine
[4] Midlands Engine (2023 b) "Exploring the Investment Potential of Midlands Clusters: Appendix" Library | Midlands Engine
[5] DSIT (2024) "The Innovation Clusters Map from the Department for Science", Innovation and Technology https://www.innovationclusters.dsit.gov.uk/
[6] CBI Economics (2024) "Realising Regional Potential: Identifying and assessing high-value, emerging clusters across the UK".

Figure 1: Project Overview
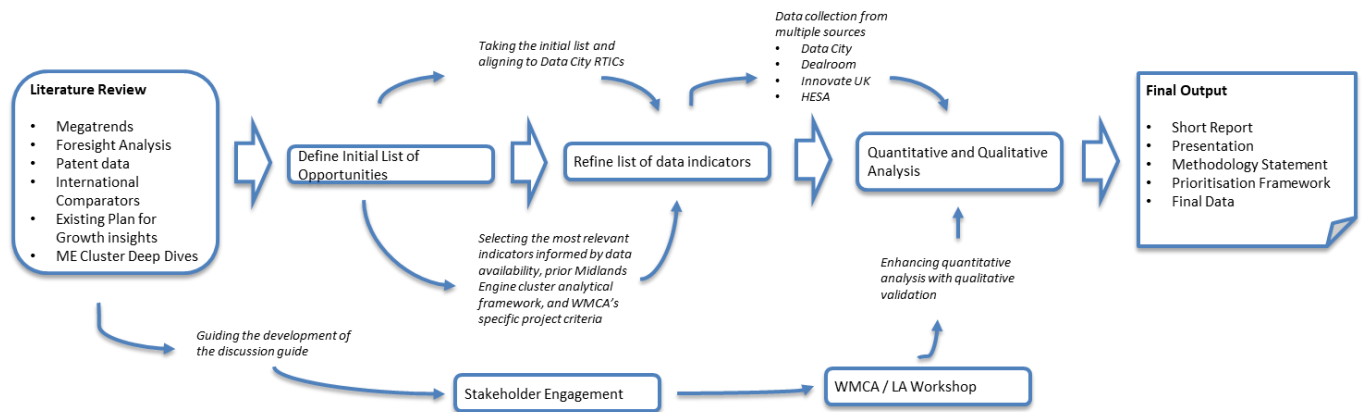
This research design has been adopted to ensure robustness. To identify emerging and future opportunities of technologies and capabilities which complement existing regional assets and clusters, the quantitative analysis drawing on firm-level and spatial data has been synthesised with the qualitative insights gained from stakeholder engagement.

- **Data-Driven Identification** - Building on existing frameworks of recent cluster studies conducted by the Midlands Engine, a comprehensive analytical framework has been developed ensuring methodological and conceptual validity. The framework consists of measures across four ecosystems as highlighted below, and in Figure 2:

  - **Business** - Includes metrics linked to each opportunity such as the number of businesses, the number of high-growth companies and the number of major strategic companies (£100m+ annual turnover) and their vulnerabilities and resilience to global megatrends.
  - **Innovation** - Includes metrics linked to each opportunity such as the amount of Innovate UK funding received by businesses in the opportunity, major sector-related university R&D and innovation assets, spinouts and companies deemed innovative by the Data City platform.
  - **Investment & FDI** - Includes metrics linked to each opportunity such as the number of investors located in the WMCA geography, fundraising volumes across total, seed and venture investment and the number of exporters and importers.
  - **Talent** - Includes metrics linked to each opportunity such as the number of employees at businesses in the opportunity and location quotients, and the number of graduates in relevant fields from WMCA HEI providers.

Figure 2: Analytical Framework (adopted from Midlands Engine, 2023a)

The study adopts Data City's Real Time Industrial Classification system to capture data on emerging and new opportunities highlighting spatial concentration of industries with emerging or strengthening activity. Each of the four ecosystems are analysed with quantitative datasets in **Chapter 3**. **Chapter 4** highlights the key insights from stakeholder engagement, outlining the characteristics and emerging trends captured through the Analytical Framework.

- **Qualitative Insights**- Stakeholder engagement help contextualise the data findings, reflecting on the strengths and weaknesses of the region and highlighting areas of future opportunities which may not yet be reflected in the quantitative data.
- **Synthesis of Trends** - key drivers and trends identified through stakeholder engagement, such as innovation opportunities and/or global challenges are cross-referenced with the quantitative data to pinpoint industries poised for future growth.

The emergence and development of new economic activities will be buffeted by global megatrends – these interactions may be positive, negative or somewhere in-between. To identify **global challenges and opportunities impacting local opportunities**, the Midlands Engine megatrends framework (2023c) has been applied to the WMCA as depicted in Figure 3. Four thematic areas of the global challenges and opportunities are:

- o *Technology and Digitisation*
- o *Climate Change and Net-Zero*
- o *Rising Geopolitical Tensions*
- o *Demographic Trends*

Figure 3: Four themes that form the Megatrends analysis (adopted from Midlands Engine, 2023c)

The research considers how these megatrends and regional factors will combine to influence the development of emerging and future opportunities in the WMCA area.

See Accompanying Resource A2.2 for further detail on the global megatrends analysis.

To understand how these trends are likely to influence emerging and new opportunities and shape clusters, a desk-based review has been carried out to better understand existing industrial profiles in the region as identified in the *Plan for Growth* and the more recent *West Midlands Innovation Prospectus*.

Stakeholder engagement discussions have also been conducted to capture insights into trends across emerging technologies, market opportunities, and future societal demands—particularly in relation to specific technology areas and industrial sectors—within the context of current geopolitical uncertainties. **Section 4** highlights the key insights from stakeholder engagement, outlining the characteristics and emerging trends captured through the Analytical Framework.

- **Synthesis of Trends** - key drivers and trends identified through stakeholder engagement, such as innovation opportunities and/or global challenges are cross-referenced with the quantitative data to pinpoint industries poised for future growth.

The synthesised approach has been designed to ensure that quantitative and qualitative inputs complement each other, providing a comprehensive understanding of emerging and future opportunities for the region (see **Chapter 5**).

3. Quantitative Analysis

3.1 Understanding the Data

Through the comprehensive approach outlined above, a list of 22 emerging opportunity areas have been identified for further in-depth data analysis. These are opportunities emerging from existing sectors and clusters in the WMCA region. To support the analysis, these opportunities have been split into three groups sharing similar characteristics, this is highlighted in Figure 4 below.

Figure 4: Emerging Opportunities list and groupings

Group	Opportunity	Definition
Consumer, Health & Market-Driven	eCommerce	Companies supporting E-Commerce sector through platform development, inventory management, tracking and logistics services.
	FoodTech	Companies developing food and drink processing technologies.
	FemTech	Companies developing innovative technologies, products, and services tailored to women's health and wellness.
	Rehabilitation	Companies aiding recovery of any physical, psychological, cognitive, vocational and speech impairment/disability
	Textiles & Fashion	Encompasses the design, and manufacturing of fabrics, apparel, and related products, integrating traditional craftsmanship with advanced materials, digital technologies, and sustainable practices to drive innovation, exports, and employment across the supply chain.
Industrial & Sustainable Infrastructure	AgriTech	Companies developing and implementing new agricultural technologies, with an additional focus on Net Zero advancements in the field.
	Future Logistics	Companies that are leveraging automation, digitalisation, and sustainable transport solutions to enhance supply chain efficiency, reduce emissions, and adapt to shifting consumer and industry demands.
	Future Rail	Companies involved in design, manufacture, and deployment of lightweight, cost-effective, and sustainable rail transport solutions
	Battery Supply Chain	Companies involved in the major parts of the battery supply chain.
	Hydrogen	Companies generating energy from hydrogen, contributing to sustainable power solutions and carbon-neutral practices.
	Pyrolysis	Companies involved in thermal decomposition of organic materials in the absence of oxygen, driving innovation in waste-to-energy solutions
	Land Remediation	Companies supporting land remediation process through brownfield restoration, remediation and project management services
Digital & Advanced Technologies	FinTech	Creation, facilitation and commercialisation of software, service, and intelligent technologies to support financial institutions and personal finance products.
	AdTech	Companies that create technology and SaaS platforms that marketers use to target, design, deliver and review the effectiveness of their advertising.
	EdTech	Companies creating technology that supports teaching and learning and enhances educational outcomes.

Group	Opportunity	Definition
	Immersive Technologies	Companies and start-ups focused on the development, manufacturing, and delivery of Immersive Technologies, including Augmented Reality, Haptics, Hardware, the Metaverse and more
	Cyber Security	Companies working across the cybersecurity and computer safety sector.
	Robotics	Companies involved in the Robotics and Autonomous Systems sector.
	Space Technology	Companies involved in the space industry including providing satellite services, launch services, governance, and fundamental research.
	Geospatial Technologies	Companies working with geographical data in some form, including but not limited to; Data Capture, Data Processing and Visualisation, Geospatial and GIS Technologies, Navigation Technologies.
	Defence	Companies involved in developing secure communications, advanced military platforms, AI-driven surveillance, and critical logistics for the defence sector.
	Engineering Biology	Companies involved in the design, modification, and application of biological systems, including synthetic biology and genetic engineering, to develop new materials, medicines, biofuels, and other biotechnology solutions.

The purpose behind grouping opportunities is as follows:

- Grouping helps identify shared drivers and barriers, enabling more strategic support.
- A significant number of emerging opportunities have been identified, grouping makes it easier to communicate complex information clearly and effectively.
- Grouping supports targeted policy, investment, and collaboration across related areas.

As can be seen in Figure 4, three distinct groups have been identified:

1. **Consumer, Health & Market-Driven Opportunities**

- Shaped by consumer trends, demographic shifts, and wellbeing needs.
- Blend of established and early-stage markets with growth potential.
- Strong alignment with community impact and exportable services.

2. **Industrial & Sustainable Infrastructure**

- Focused on clean energy, transport, and circular economy solutions.
- Often capital-intensive, requiring long-term investment and planning.
- Reflect regional strengths in engineering and net zero transformation.

3. **Digital & Advanced Technologies**

- Built on data, software, AI, and automation that power modern industries.
- Opportunities are often scalable, knowledge-intensive, and R&D-led.
- Share common digital infrastructure and innovation ecosystems.

The comprehensive analytical framework (Appendix 1) has then been applied to analyse the status and potential of each of these emerging opportunity areas. The following subchapters contain an analysis of this data, first outlining the significance of location quotient data before

utilising the analytical framework across the four ecosystems to analyse the emerging opportunities.

Accompanying Resource A3.1 details how each of these opportunities have been defined using The Data City RTIC system, while Accompanying Resource A3.2 contains the quantitative data analysis used to develop the following subchapters.

3.2 Location Quotient Analysis

Location quotients (LQs) have been analysed to assess the relative concentration of employment, turnover, and business establishments across identified opportunity areas in the WMCA, benchmarked against national averages. The results can be seen in Figure 5 below. The analysis helps distinguish between sectors with established specialisation, emerging growth potential, and those currently underrepresented in the regional economy.

While LQs offer a valuable indication of regional specialisation, they **should not be interpreted as a definitive measure of opportunity**. A low LQ score may reflect an early-stage or emerging opportunity area that has yet to develop scale in terms of employment, business count or turnover, but nonetheless holds significant strategic or innovation potential. As such, the following LQ analysis should be considered alongside other qualitative and contextual insights that follow later in the report.

eCommerce and **Textiles & Fashion** show strong regional presence across all three indicators. Both have above-average LQs for employment and turnover, indicating that these are well-established opportunities contributing significantly to both job creation and economic output. **Future Logistics** also stands out, with consistently strong LQs for employment (1.50), turnover (1.57), and business presence (1.25), highlighting its status as a major growth opportunity for the region.

In contrast, sectors such as **FemTech** and **Rehabilitation** demonstrate high business density but relatively low employment, suggesting clustering of early-stage firms or digital delivery models that do not yet translate into large workforces. **Land Remediation** presents a different profile — an exceptionally high turnover LQ (1.84) alongside neutral levels of employment and business activity, pointing to a high-value but capital- or technology-intensive sector.

Within the Industrial and Sustainable Infrastructure grouping, **Battery Supply Chain** and **Hydrogen** are underdeveloped across all indicators, despite their strategic importance. These sectors currently lack a substantial business base or workforce, indicating a need for foundational investment. Meanwhile, **Future Rail** shows emerging strength, with high turnover (1.32) and stable employment.

In the digital and advanced technology sectors, **EdTech, Robotics, and Space Technology** demonstrate relatively strong business presence, though employment and turnover remain moderate, pointing to early-stage ecosystem development. **Geospatial Technologies** and **Defence** show the highest levels of employment and turnover among the technology-led sectors, reflecting stable contributions likely underpinned by defence, public sector or research activity.

Several digital sectors, including **FinTech, Engineering Biology, AdTech**, and **Immersive Technologies**, remain significantly underrepresented across all three dimensions. These findings indicate that these sectors are either nascent or lack the commercial infrastructure to scale within the region. **Cyber Security** presents a distinctive profile: despite low employment concentration (0.20), its turnover LQ (0.57) suggests a small but high-value industry segment driven by technical expertise.

Figure 5: Location Quotient Analysis

Group	Opportunity	Employee	Turnover	Business
Consumer, Health & Market-Driven	eCommerce	1.47	1.68	1.10
	FoodTech	0.85	1.02	0.70
	FemTech	0.17	1.05	1.52
	Rehabilitation	0.50	0.65	1.16
	Textiles & Fashion	1.32	1.17	1.56
Industrial & Sustainable Infrastructure	AgriTech	0.60	1.10	0.20
	Future Logistics	1.50	1.57	1.25
	Future Rail	1.00	1.32	1.11
	Battery Supply Chain	0.41	0.35	0.57
	Hydrogen	0.23	0.84	0.29
	Pyrolysis	0.35	0.10	0.29
	Land Remediation	0.89	1.84	0.88
Digital & Advanced Technologies	FinTech	0.08	0.19	0.58
	AdTech	0.01	0.01	0.38
	EdTech	0.72	0.80	0.90
	Immersive Technologies	0.20	0.40	0.50
	Cyber Security	0.20	0.57	0.65
	Robotics	0.40	0.40	0.90
	Space Technology	0.55	0.42	0.81
	Geospatial Technologies	0.82	0.99	0.44
	Defence	0.82	1.05	0.62
	Engineering Biology	0.08	0.35	0.59

Key

🟥 Underrepresented (LQ < 0.75)

🟧 Neutral (0.75 ≤ LQ < 1.25)

🟩 Emerging strength (1.25 ≤ LQ < 2.0

🟢 Highly specialised (LQ ≥ 2.0)

3.3 Business Ecosystem

GVA per employee serves as a key indicator of productivity across the WMCA opportunity areas, offering insight into the relative economic value generated per job. The analysis highlights **considerable variation across the region**, with several opportunities exceeding national benchmarks and others underperforming, despite their strategic importance. This can be seen in Figure 6.

Opportunities within Industrial and Sustainable Infrastructure demonstrate particularly strong productivity. **Pyrolysis** (£154,080) and **Hydrogen** (£105,404) emerge as the highest-performing opportunities by GVA per employee, reflecting the economic contribution of emerging clean energy and waste-to-energy technologies. **Future Logistics** (£85,172) and **Land Remediation**

(£83,345) also exceed national levels, underscoring the importance of sustainability-led infrastructure in driving regional value.

Within the Technology and Innovation group, **FinTech** (£137,719) and **AdTech** (£76,499) display strong performance, reinforcing the West Midlands' position in high-value digital finance and advertising technologies. These opportunities contribute not only to job creation, but also to regional competitiveness through their high output per employee.

The Consumer and Health category shows mixed outcomes. While **FemTech** (£78,171) and **eCommerce** (£72,725) perform above the national average, **FoodTech** (£41,860) and **Rehabilitation** (£36,947) fall below, suggesting lower-value business models or labour-intensive service delivery in certain parts of the consumer economy.

Emerging innovation-led opportunities such as **Space Technology** (£75,526) and **Defence** (£84,937) show promising levels of productivity, while others including **Engineering Biology** (£52,640) and **Immersive Technologies** (£53,811) remain below national averages. These findings point to ongoing development and underline the importance of scaling commercial activity in these domains.

Some industrial and advanced manufacturing opportunities—namely **AgriTech** (£56,652), **Battery Supply Chain** (£55,049), and **Robotics** (£63,288)—also fall below productivity benchmarks. While these are critical for future innovation, their current economic output per worker suggests a need for targeted investment in skills, technology adoption, and value chain development to enhance impact.

Figure 6: GVA per employee
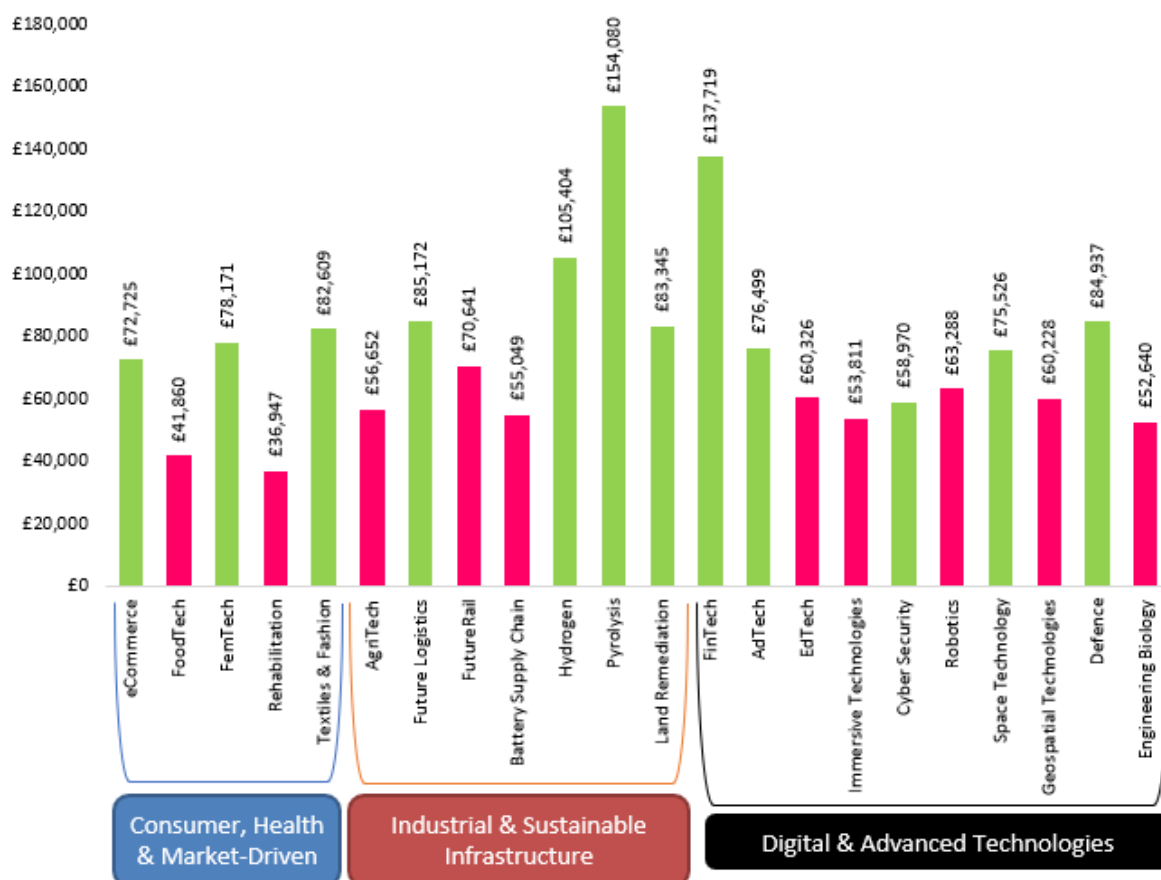
Green shading indicates an opportunity where the GVA per employee exceeds the national level

Analysis of the **proportion of importing and exporting companies** across the WMCA opportunity areas as detailed in Figure 7 reveals distinct patterns in trade intensity. **Robotics** (21%), **Hydrogen** (18% exports; 27% imports), and **Engineering Biology** (18% exports; 23% imports) display the highest levels of international trade activity, highlighting their integration into global supply chains. These findings suggest that several advanced technology and clean growth opportunities are already contributing to the region's international economic engagement and may have significant potential to scale further.

Opportunities such as **Future Logistics** (16% exports; 19% imports), **Pyrolysis** (11% exports; 19% imports), and **Future Rail** (12% exports; 14% imports) also exhibit relatively high trade participation, particularly within infrastructure, mobility, and clean technology domains. This points to a strong foundation for export-led growth and increased inward investment across these strategically important areas.

Conversely, several technology and innovation opportunities—including **FinTech** (1% exports; 2% imports), **EdTech** (2% exports and imports), and **AdTech** (0%)—show minimal international trade activity. This may reflect business models that are more domestically focused, digitally delivered, or pre-commercial in scale, though it may also suggest untapped export potential in digital sectors.

Consumer-facing opportunities such as **eCommerce** (11%), **FoodTech** (11% exports; 16% imports), and **FemTech** (15%) fall in the mid-range for trade engagement. While these areas do participate in international trade, they may benefit from further support to internationalise and build resilience through access to wider markets.

Figure 7: Proportion of Companies Exporting / Importing
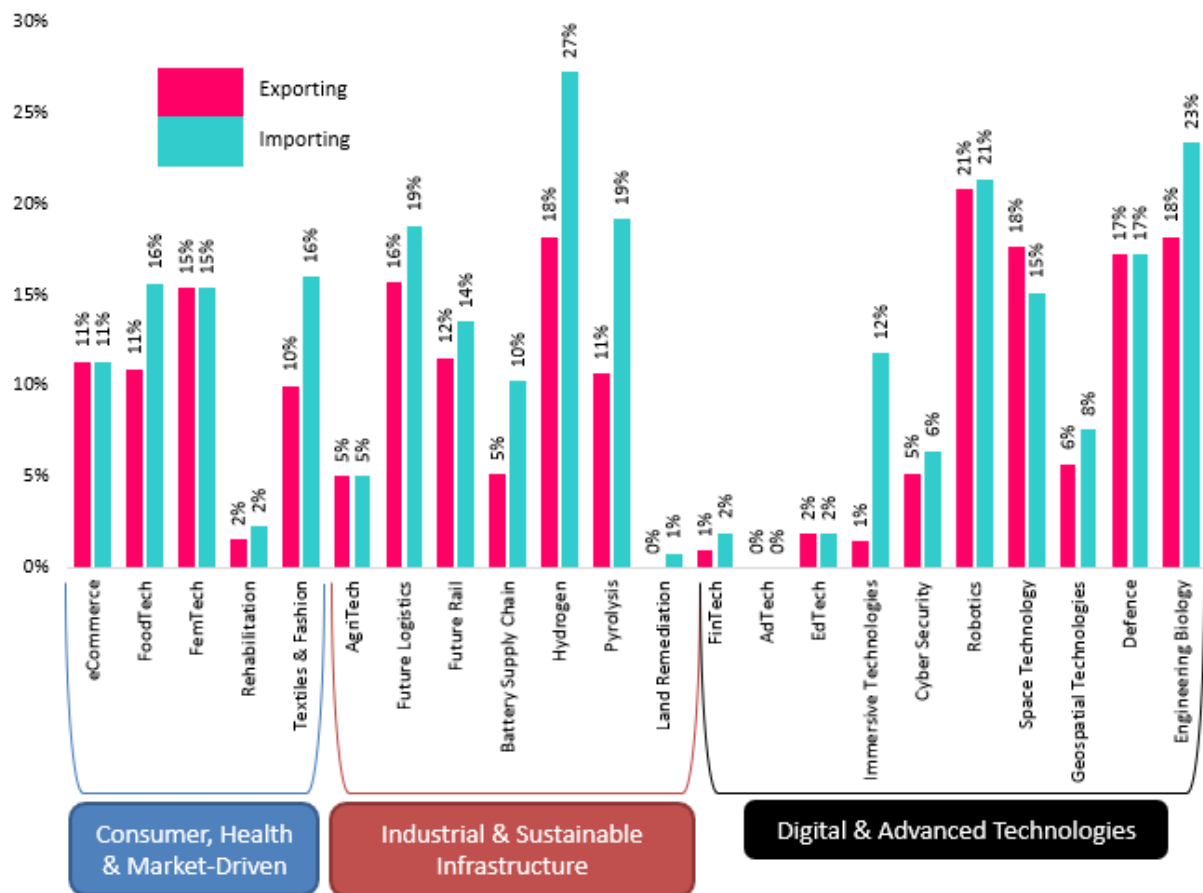
High-growth companies—defined as firms achieving annualised growth of 20% or more—serve as a key indicator of business dynamism and the ability of an opportunity area to support innovation, scale-up and sustained economic expansion.

Analysis shows that opportunities linked to Technology and Innovation host the highest proportion of high-growth firms. As depicted in Figure 8, **Cyber Security** (0.34%) and **FinTech** (0.22%) perform particularly well, highlighting the high-value and scalable nature of businesses in these fields. These findings are consistent with trends observed in investment and productivity data, suggesting that advanced digital and scientific capabilities underpin robust commercial growth.

Opportunities in **Space Technology** (0.11%) and **Robotics** (0.20%) also exhibit promising levels of high-growth activity, albeit with smaller business populations. These areas may benefit from further targeted support to unlock their full scale-up potential.

In contrast, many consumer-facing and traditional sectors show minimal levels of high-growth activity. **eCommerce** (0.11%) and **FoodTech** (0.09%) perform modestly, while others such as **Textiles & Fashion** (0.2%), **Rehabilitation** (0.25%), and **FemTech** (0.03%) remain low or flat. This may reflect the prevalence of smaller or service-based firms in these opportunities, often operating with limited scalability or constrained by labour-intensive models.

Several emerging infrastructure and clean growth opportunities also underperform on this metric. Despite their strategic relevance, areas such as **Hydrogen** (0.00%), **Battery Supply Chain** (0.02%), and **AgriTech** (0.10%) report little high-growth activity to date. These findings

suggest that while these opportunities are critical for long-term economic transformation, they may still be at early stages of commercial maturity.

Figure 8: Proportion of High-Growth Companies
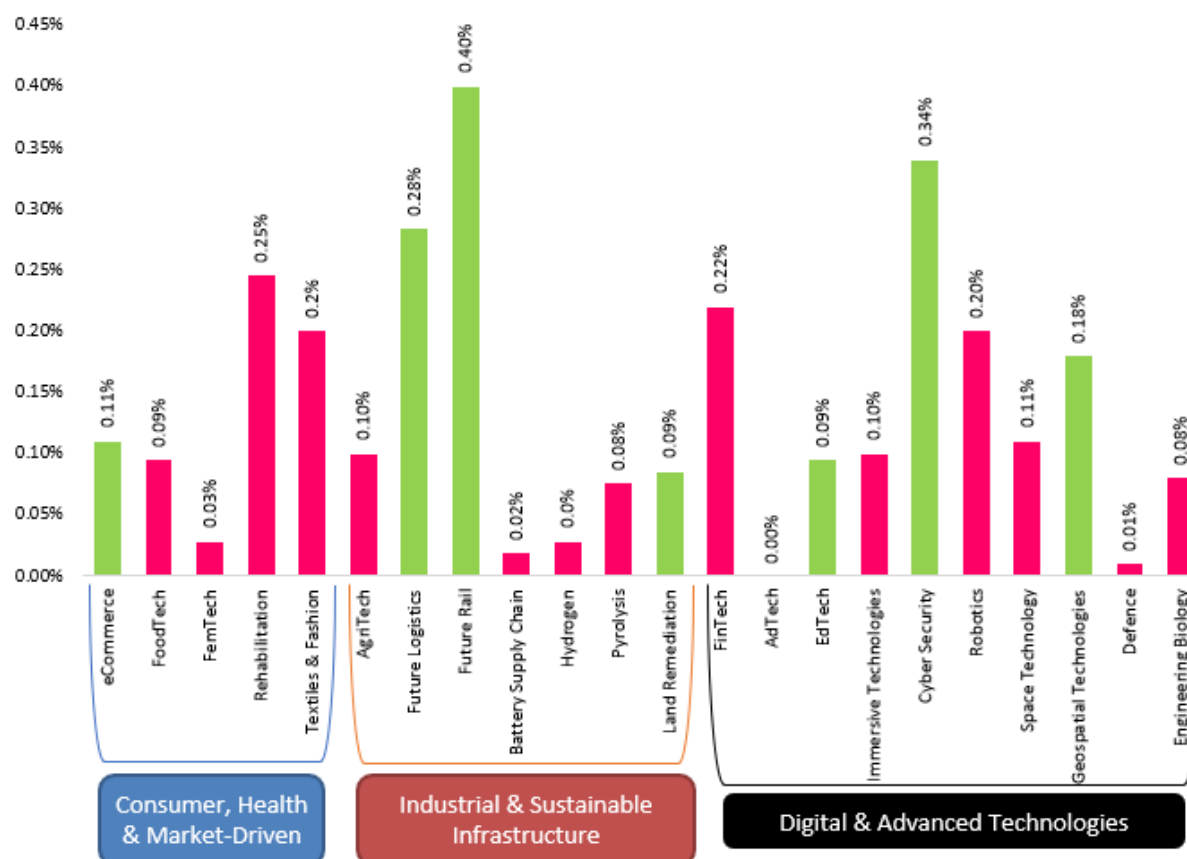
Green shading indicates an opportunity where the proportion of high-growth companies exceeds the national level

The combined analysis of employment levels, GVA per employee, and business presence reveals the varied composition and performance of opportunity areas across the WMCA region. Figure 9 highlights both established economic drivers and more emerging areas of strategic interest.

Opportunities such as **Future Logistics** (10,610 employees), **Space Technology** (8,764), and **Cyber Security** (8,619) are among the largest contributors to regional employment. Their scale reflects the West Midlands' strengths in logistics, digital infrastructure, and security-related technologies, supporting the region's broader ambitions in advanced manufacturing and global connectivity.

In terms of productivity, **FinTech** (£137,719 GVA per employee) and **Hydrogen** (£105,404) lead the region, demonstrating that both finance and clean energy innovation have the potential to generate high-value employment. These figures align with national priorities for low-carbon economic growth and future-oriented service sectors.

Some opportunities exhibit strong productivity despite smaller workforce footprints. **Pyrolysis** (£154,080) and **AdTech** (£76,499), for example, indicate that highly specialised and innovation-driven activity is taking place in niche areas, contributing disproportionately to economic value despite limited employment volume.

Conversely, **FoodTech** (£41,860) and **Rehabilitation** (£36,947) appear to be more labour-intensive but comparatively low in productivity, suggesting potential opportunities for upskilling, innovation adoption, or service model transformation to improve economic efficiency.

Business composition data also underscores the diversity of the regional economy. FemTech, and eCommerce collectively account for a significant share of business activity (6.70%, and 4.44% respectively), pointing to the role of consumer-driven, and digital enterprises in shaping a dynamic and resilient business base.

Figure 9: Productivity by Opportunity

The chart shows GVA per employee plotted against proportion of businesses in that opportunity based in the WMCA, with the size of the bubble representing the number of jobs in that opportunity in the WMCA. The colour of the bubble relates to the category it belongs to (Purple = Consumer Health & Market Driven, Pink = Industrial and Sustainable Infrastructure, Yellow = Digital & Advanced Technologies).

3.4 Innovation Ecosystem

As depicted in Figure 10, **Engineering Biology** records the highest innovation rate (16.88%) across all opportunities, underlining its position as a leading-edge field. This is supported by £9.8 million in Innovate UK funding, reinforcing its potential as a strategic growth area driven by breakthrough science and applied commercialisation.

Robotics (6.25%) and **Space Technology** (5.04%) also demonstrate strong innovation performance, with particularly high levels of public R&D investment. These two opportunities have attracted £36.8 million and £162.3 million respectively in Innovate UK funding, reflecting investor and government confidence in the region's strengths in advanced manufacturing, automation, and space-related industries.

Several green innovation opportunities are beginning to show promise. **Hydrogen**, while registering no innovative businesses, has received £1.99 million in funding, averaging £249,000 per company—suggesting early, capital-intensive development activity. **Pyrolysis** similarly benefits from £2.7 million in funding (£104,000 per company), indicating growing recognition of its role in sustainable materials and waste-to-energy innovation.

Notably, **Defence** and **Future Rail** show relatively low innovation proportions (0% and 9.01% respectively), but both receive significant Innovate UK investment per company—£1.91 million for Defence and £164,600 for Future Rail. These figures point to a model of targeted, high-value funding, likely directed at a small number of strategically important firms or projects within critical national infrastructure domains.

In contrast, several consumer-facing opportunities show extremely low innovation performance. **eCommerce**, **Textiles & Fashion**, and **FemTech** all report 0% innovation scores, coupled with little to no public R&D funding. These figures may reflect the dominance of established business models in these areas and a lack of R&D activity, which could constrain future productivity or limit access to innovation-led support mechanisms.

Figure 10: Proportion of Innovative Companies (based on Data City innovation score)
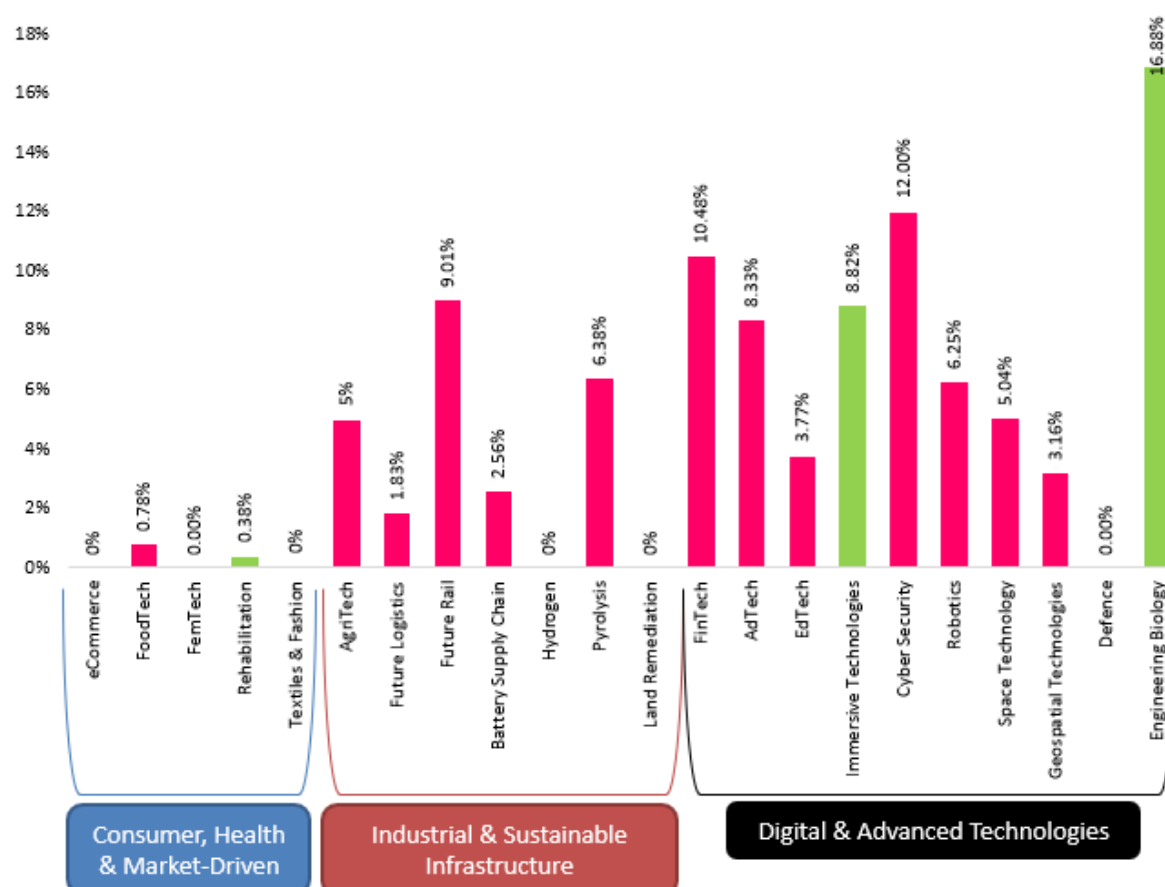
Green shading highlights areas where the proportion of innovative companies exceeds the national average

3.5 Investment & FDI Ecosystem

Investment data across the WMCA's opportunity areas provides insight into investor confidence, market maturity, and the relative positioning of regional opportunities within national fundraising activity. Figure 11 highlights the level of funding raised in each opportunity

area as a proportion of the national level. The findings reveal that **Digital and Advanced Technologies currently attract the largest share of investment into the region**, particularly in space, geospatial, and defence-related fields.

Space Technology (£168 million), **Geospatial Technologies** (£158 million), and **Defence** (£155 million) represent the most highly capitalised opportunities within the WMCA, suggesting strong investor confidence in sectors aligned with national security, aerospace, and space innovation. These opportunities also account for a disproportionately large share of national fundraising in their respective fields, with WMCA-based companies responsible for 54.3%, 15.4%, and 7.7% of national capital raised. Prominent firms such as BAE Systems plc (Defence), BIRDI Ltd (Geospatial), and SteamJet Space Systems Ltd (Space) are likely contributing to this positioning. However, it is important to note that these figures may be influenced by the headquarters effect or reporting linked to spatial data availability, and thus should be interpreted with some caution.

Analysis of per-company investment reveals **Defence** (£9.1 million per company) and **AdTech** (£3.9 million per company) as two of the most capital-intensive opportunities. This suggests that while overall activity may be limited in terms of company numbers, a smaller set of firms is attracting substantial and highly targeted funding.

Opportunities linked to the green transition, such as **Hydrogen** (£6.6 million) and **Pyrolysis** (£18.2 million), are beginning to attract investment, though still fall behind more established areas in total capital raised. This suggests a growing interest in low-carbon technologies, albeit at a relatively early stage of market development.

A contrasting picture is seen in **Textiles & Fashion**, which, despite its strong export profile and high international trade activity (91 exporting and 184 importing companies), has received only £310,000 in recorded investment. This highlights a potential funding gap in traditional manufacturing and consumer-driven opportunities, where commercial activity may not be matched by levels of financial backing typically seen in innovation-led sectors.

Figure 11: Level of Funding Raised as a Proportion of National Level, March 2025
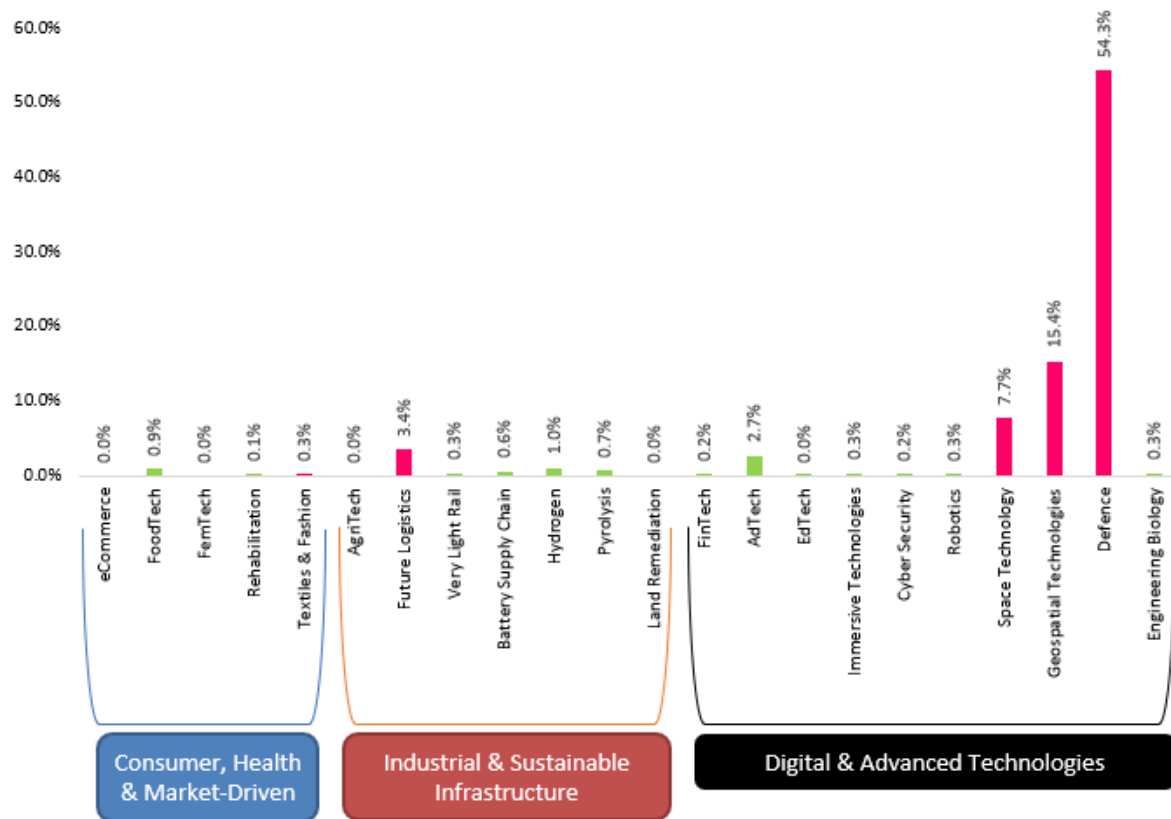
The green colouring here is based on a comparison to the proportion of businesses in the LA - if the proportion of funding raised is higher than the proportion of businesses in the LA, then this would be classed as green as it suggests a healthy fundraising environment

3.6 Talent Ecosystem

Figure 12 shows **employment data** across the WMCA's opportunity areas and highlights a **mix of high-value fields with strong workforce representation and emerging opportunities with growth potential**. **Future Logistics** (10,610 employees), **Space Technology** (8,764), and **Cyber Security** (8,619) stand out as major regional employers, reflecting the West Midlands' strengths in transport, advanced manufacturing, and digital infrastructure. These opportunities are likely to play a central role in supporting high-value job creation and international competitiveness.

By contrast, a number of green and health-focused opportunities—such as **Hydrogen** (147 employees), **Pyrolysis** (418), and **Battery Supply Chain** (235)—are currently small in workforce terms but strategically important for the region's transition to a low-carbon economy. Employment in **Rehabilitation** (1,846) and **FemTech** (23) also points to the early emergence of health innovation opportunities, where scaling activity may follow further investment and market development.

Traditional opportunities such as **FoodTech** (8,111) and **Textiles & Fashion** (5,719) continue to support substantial employment and remain an important part of the region's industrial identity. These areas present clear potential for transformation through greater adoption of digital technologies, automation, and sustainability-led approaches, reinforcing their relevance within a future-facing economy.

Figure 12: Total Employees
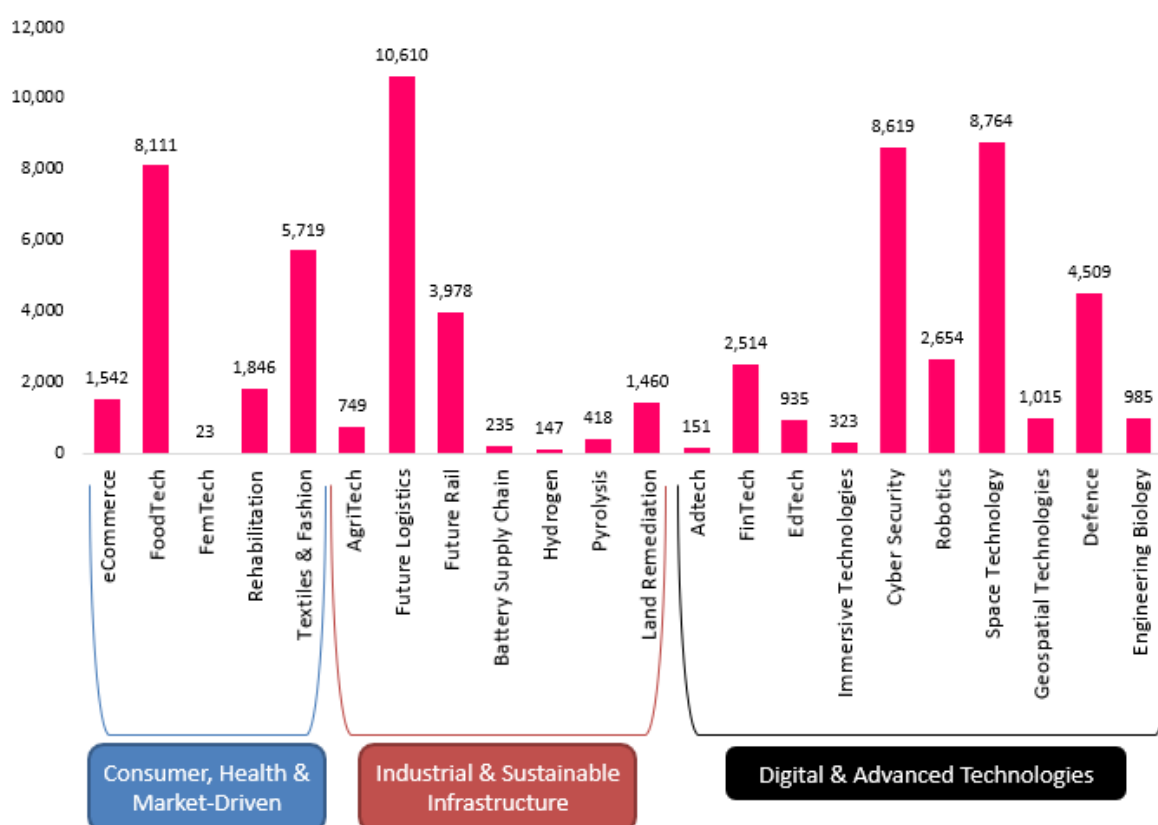
Analysis of HESA graduate data from 2022-2023 across opportunity areas within the WMCA (Figure 13) reveals an **uneven distribution of talent emerging from local universities**. This data offers important insights into the readiness of the regional workforce to support future growth sectors and highlights areas where skills development may be required.

Opportunities such as **FinTech** (35.7%) and **AdTech** (27.5%) have the highest proportion of graduate alignment, suggesting a well-developed talent pipeline in digital and financial technologies. This reflects the strength of the region's higher education offer in business, computing, and data-related disciplines, and provides a foundation for future innovation and enterprise in these areas.

In contrast, several high-priority opportunities within the Industrial and Sustainable Infrastructure ecosystem show comparatively low levels of graduate alignment. For example**, Battery Supply Chain** (6.9%), **Hydrogen** (9.3%), and **Future Rail** (8.4%) each demonstrate limited talent flow, despite their strategic importance to regional decarbonisation and mobility goals. This may reflect the emerging nature of these opportunities, and suggests a need to develop dedicated training pathways, partnerships with industry, and focused curriculum development.

The Consumer, Health and Market-Driven grouping presents a mixed picture. While **eCommerce** (35.7%) and **Rehabilitation** (15.1%) are well supported by graduate talent, others such as **FoodTech** (0.8%) and **FemTech** (6.4%) show limited alignment. These gaps may present barriers to scaling activity in health and wellbeing-related opportunities, especially where specialist or interdisciplinary skills are required.

Several opportunities within Digital and Advanced Technologies also show moderate graduate alignment. While **Defence** (17.9%), **Space Technology** (15.8%), and **EdTech** (12.1%) have a reasonable share of graduate relevance, others such as **Cyber Security** (5.9%) and **Immersive Technologies** (6.0%) remain relatively underserved, indicating potential risks to workforce scalability in these innovation-led areas.

Figure 13: Proportion of Graduates Emerging from WMCA Universities (2022 – 2023)
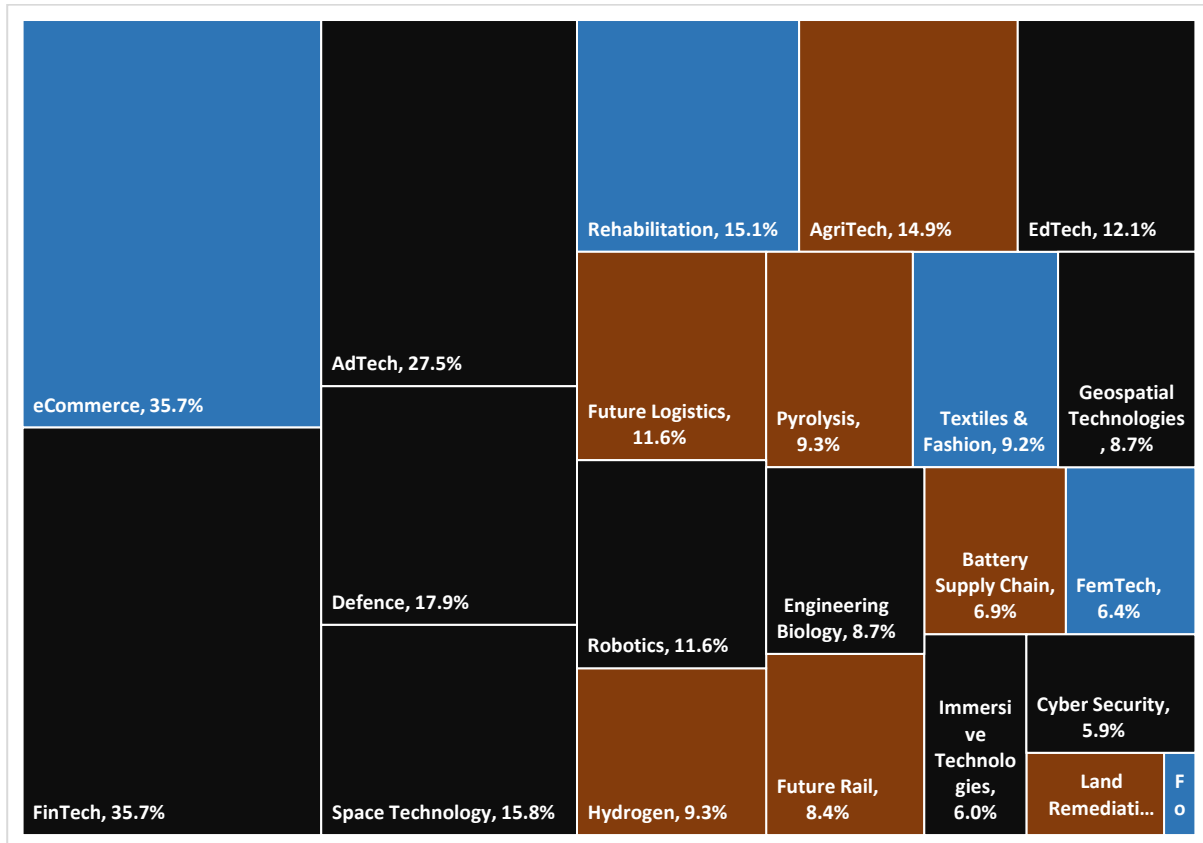
Based on HESA graduate data, the colour of the box corresponds to the category the opportunity belongs to: Blue = Consumer, Health & Market-Driven, Brown = Industrial & Sustainable Infrastructure, Black = Digital & Advanced Technologies

4. Qualitative Insights

4.1 Stakeholder Engagement Discussions

Key to the process of identifying emerging and future opportunities has been a series of **stakeholder engagement** sessions with key individuals across the WMCA region.

The aim of these sessions was to uncover actionable intelligence that would inform the WMCA about **future growth opportunities** and support the development of strategy for a vibrant, resilient regional economy.

The stakeholder engagement sessions were carried out from late January to mid-February 2025 including the representatives from:

- Industry associations, cluster and innovation support organisations working in the West Midlands and wider Midlands regions.
- Technology and industry experts at academic, research and technology organisations, including Catapult Centres.

Areas of expertise included: *Aerospace*; *Space*; *Quantum technology*; *Advanced manufacturing*; *Automotive electrification*; *Health technology*; *Transport/Mobility/Logistics*; *Built environment; Crea-tech; Connectivity and 5G; Cyber; Robotics, Automation Systems; pyrolysis technology; Agri-food technology; Net-Zero and Sustainability; Hydrogen; Cluster development; SMEs engagement and transition; Supply chain; Innovation policies.*

A total of 24 individuals were consulted in these sessions covering a variety of sectors and technology areas, sharing expertise and insights from stakeholder perspectives.

A list of questions and information guide used for the stakeholder engagement can be found in Accompanying Resource A4.1.

Through these discussions, we aimed to:

- Capture insights and qualitative intelligence on *emerging trends and drivers in the region*.
- Identify where businesses are beginning to develop *critical mass* and explore the factors fostering this growth.
- Understand the *competitive advantages* and *infrastructure requirements* needed to support the development of future opportunities.
- Uncover insights into *potential future opportunities* that align with *global megatrends* and *regional strengths*.

Key thematic areas discussed include: ***Emerging Trends and Signals, Future Possibilities, Sector Linkages, Barriers and Opportunities, Skills and Talents, Priority Actions.*** The following subchapters analyse the findings from the stakeholder engagement sessions in more detail.

An overview of the stakeholder engagement discussions is presented in Accompanying Resource A4.2.

4.1.1 West Midlands Opportunities Ecosystem - Characteristics and Emerging Trends

Insights from stakeholder engagement sessions highlight the need for **stronger cross-sectoral collaboration** to unlock the West Midlands' full economic potential. Stakeholders consistently note that the region's core industrial strengths - particularly in engineering, manufacturing, and materials science - are not confined to a single domain but are applicable across a wide range

of opportunity areas. These advanced manufacturing capabilities are seen as foundational to multiple emerging opportunity areas, including mobility, health technology, clean energy, and space. Unlocking the value of these shared assets will depend on more deliberate collaboration between sectors, enabling knowledge transfer, innovation diffusion, and more efficient commercialisation of technologies across the regional economy.

Stakeholders emphasise that **advanced manufacturing technologies** play a critical role across a wide range of sectors in the West Midlands, their importance is highlighted in Figure 14. These technologies are seen as fundamental to progress in opportunities such as aerospace, defence, space, healthcare, electric vehicles and batteries, future mobility, energy systems, the built environment, and agri-food. The region's ability to remain competitive and lead in these areas depends on the effective integration of manufacturing innovation.

There is a strong view that scaling up activity in the manufacturing base relies on the application of **enabling technologies**, including:

- **Robotics, cyber security, and artificial intelligence**, which are increasingly embedded in production processes

- **Financial and professional services**, which act as enabling capabilities for commercial delivery and market access

Figure 14: Advanced Manufacturing Technologies and Underpinning Enabling Technologies in Digital Economies

Advanced Manufacturing Technologies	Underpinning Enabling Technologies and Capabilities in Digital Economies	Key Sectors with scaling up opportunities
robotics/automation; additive manufacturing; advanced materials; quantum technology; immersive technologies; digital twin technology; logistics technology	*Robotics and Automation System (RAS)* *Cybersecurity* *Artificial Intelligence (AI)* *Financial & Professional Services*	automotive, aerospace, defence, space, electric vehicles, EV batteries, future mobility, energy systems, built environment, healthcare, agri-food, logistics, creative contents

However, stakeholders report that **adoption of these technologies remains limited**, particularly among small and medium-sized enterprises (SMEs). Cost, access to expertise, and limited awareness are cited as key barriers. Supporting greater uptake and technology adoption including digital engineering tools and techniques is considered essential to unlocking value, increasing productivity, and ensuring the region's industrial capabilities keep pace with technological change.

> *"Coventry and Birmingham are leading in self-driving vehicle trials (Midlands Future Mobility), providing crossover expertise for autonomous robots in logistics and warehousing".* Stakeholder Engagement discussion.

> *"....having enabling things like financial and professional services right within your region. So you can talk about investments and you can talk about the legal framework and the governance framework".* Stakeholder Engagement discussion.

> *"A list of clusters...our brand. Regionally we['ve] got Medtech. How do you solve a problem like keeping kids still [during] an MRA scan? Well, again, you could develop a game that's fun and engaging".* Stakeholder Engagement discussion.

Stakeholders note that **supply chains across the region are increasingly interconnected**, spanning research and development, emerging technologies, and manufacturing activity. The West Midlands' **manufacturing heritage continues to provide a competitive advantage**. However, they also recognise that manufacturing is **no longer a current strength in global value chains**, and risks falling behind without targeted intervention.

There is concern that **many domestic businesses are progressing through technology readiness levels (TRLs)** - demonstrating innovation capability - but are **not advancing through manufacturing readiness levels** at the same pace. As a result, parts of the value chain are being lost to other regions or countries. While overseas firms are **not currently choosing to manufacture in the West Midlands**, stakeholders observe that companies, particularly from **China and India**, are increasingly drawn to the region's **intellectual assets**. This highlights an opportunity to better leverage regional innovation capacity and retain more of the commercial value generated within local supply chains.

> *"Manufacturing is a cluster in itself, but it's really important that you've got that manufacturing end to end. So understanding the full supply chain and understanding that you know that right the way through".* Stakeholder Engagement discussion.

Stakeholders stress the importance of helping regional businesses **navigate the transition from declining industries to emerging opportunities**, particularly in the context of decarbonisation and industrial transformation. There is a clear need for **strategic support that enables companies to shift operations, skills, and investment** towards high-growth sectors such as clean energy, mobility, and advanced manufacturing.

Central to this transition is **affordable access to green energy**. Stakeholders consistently identify this as a critical enabler for future competitiveness. Without reliable and cost-effective low-carbon energy, many firms—particularly in energy-intensive industries—face significant barriers to growth, innovation, and long-term sustainability. Supporting businesses through this transition is essential to maintaining the region's industrial base and achieving wider net zero goals.

> *"The Plan for Growth is good, the supply chain transition programme is good. This policy support to transition from declining markets to growing ones, to help companies understand the opportunities in other sectors, is helping foster cross sector working that did not exist three or four years ago".* Stakeholder Engagement discussion.

> *"If we can't get affordable green energy for the region, manufacturing will literally die. This is by far the number one issue facing the UK today".* Stakeholder Engagement discussion.

> *"A lot of organisations also don't know how to use digital technologies / AI or follow low carbon / net zero driven manufacturing approaches so there are opportunities for automotive businesses to drive productivity improvements in other sectors through cross-sector learning / best practice sharing".* Stakeholder Engagement discussion.

Stakeholders highlight that **infrastructure rollout is not keeping pace with technological ambition**, particularly in areas such as 5G, smart mobility, and autonomous vehicle development. While the West Midlands is well-positioned to lead in these areas, **planning and investment are needed to unlock this potential**. There is also a growing need to develop **integrated data infrastructure and secure additional data centres**, particularly in support of emerging technologies like quantum. However, delivery is constrained by access to **land, energy, and water**, which require coordinated planning and regional prioritisation.

"For clean transport, [the West Midlands] need[s] regional investment in charging and zero carbon refuelling infrastructure". Stakeholder Engagement discussion.

Building on these infrastructure challenges, stakeholders also highlight that **the region lacks investment mechanisms that are sufficiently tailored to local needs**. In particular, **SME innovation and supply chain growth are not well served by current funding structures**. There is a need for **flexible, regionally aligned investment mechanisms** that can support earlier-stage innovation, help smaller firms scale, and build resilience within key sectors. Alongside this, stakeholders point to the importance of **stronger regional branding and strategic advocacy** to raise the profile of the West Midlands and secure greater access to both national and international investment opportunities.

Stakeholders recognise that the West Midlands benefits from **world-class research strengths**, particularly in fields such as quantum technology, aerospace R&D, and space innovation. However, they also express concern that **the commercialisation of this research - and its adoption within manufacturing processes - lags behind**. This gap limits the region's ability to translate scientific excellence into scalable businesses and competitive supply chains.

A recurring concern raised by stakeholders is the **mismatch between the region's skills supply and the needs of its SMEs**, particularly in high-tech and innovation-led industries. While the West Midlands produces a strong pipeline of **STEM and engineering graduates**, many leave the region in search of higher-paying roles elsewhere. At the same time, **R&D and innovation expertise remains out of reach for many small businesses**, which often struggle to compete on salary or recruitment capacity. Additionally, the **manufacturing skills pipeline requires strengthening**, with stakeholders calling for better integration of apprenticeships and vocational training into advanced sectors. Addressing these gaps is seen as critical to supporting SME growth, retaining talent, and ensuring the regional workforce is equipped for future economic demands.

"The need for specialists in automotive and battery technology, AI and data analytics, and manufacturing and engineering. And the importance of strong apprenticeship and skills development programmes to ensure a steady pipeline of expertise". Stakeholder Engagement discussion.

"Business skills in commercialisation and investment will accelerate growth. Universities and training centres must bridge skill gaps through upskilling and apprenticeships. A diverse, cross-sector workforce will ensure long-term success". Stakeholder Engagement discussion.

"Technological skills, corporate and management skills, as well as leadership skills are important for future development of cyber clusters. Talents need to learn how to govern businesses and how SMEs are operating". Stakeholder Engagement discussion.

There are challenges for businesses in the region to shift to **meet net-zero targets and support long-term sustainability.**

"Manufacturing businesses in the region that have already found ways to reduce the carbon footprint of their products, operations, supply chains, while other businesses are yet to". Stakeholder Engagement discussion.

"Automotive & electrification is facing an urgent need for a battery supply chain to stay competitive". Stakeholder Engagement discussion.

"The region is striving to improve zero-emission logistics, which is currently underdeveloped, and is experiencing growth in artificial intelligence and cloud

technologies, both of which are influencing mobility and other sectors". Stakeholder Engagement discussion.

"Aligning regional policy objectives with these developments, particularly in meeting net-zero targets, will ensure that investment priorities support long-term sustainability". Stakeholder Engagement discussion.

4.1.2 Emerging and Future Opportunities in the West Midlands Ecosystem
Beyond emerging trends, the challenge now is to ensure that advanced manufacturing technologies are effectively translated into sustained competitive advantage across the West Midlands. Stakeholder engagement discussions have helped to identify a set of **emerging and future opportunities** for the West Midlands, underpinned by **cross-sector collaboration, enabling technologies, and a strong emphasis on translation and transition.** These opportunities reflect the region's existing industrial capabilities while aligning with future demand and innovation potential.

1. **Leveraging Shared Industrial Capabilities through Cross-Sector Linkages**
   The region is well positioned to capitalise on **combinational opportunities** that connect advanced manufacturing with growth sectors. Stakeholders highlight several high-potential areas:
   - The development of **smart manufacturing** powered by robotics and automation, particularly in aerospace, space, and quantum technologies.
   - The advancement of **smart mobility**, enabled by 5G, autonomous vehicles, and robotics applied to transport and warehousing.
   - The potential for **future food resilience**, through stronger integration between agri-tech, food-tech, and logistics, supported by advanced manufacturing and automation solutions.

2. **Supporting Economic Transition through Enabling Capabilities and Skills Access**
   A successful transition to future opportunities depends on the region's ability to embed enabling technologies and enhance access to design and engineering expertise. Key areas include:
   - Increased demand for **robotics engineering, mechatronics, and AI**, supporting automation, machine learning, and autonomous systems.
   - Expanded adoption of **Industry 4.0 capabilities**, including predictive maintenance, digital twins, and cyber-physical systems.
   - Rising demand for **cyber security**, particularly in light of evolving geopolitical risks.
   - The importance of **skills programmes** that support the transition to electrification and low-carbon technologies, particularly in automotive and manufacturing.

3. **Building Innovation-Skills Ecosystems to Drive Translation and Transition**
   Stakeholders stress the need to strengthen **demand-driven innovation and skills ecosystems** that accelerate the translation of technologies and enable sectoral transition. Priorities include:
   - **Diffusion of transition capabilities** through regional supply chains, enabling businesses to adopt and adapt innovation.
   - Fostering **technology translation ecosystems** that better connect colleges, higher education institutions, research and technology organisations, and industry.
   - Scaling **demand-led innovation programmes**, such as innovation accelerators and initiatives led by the WMCA (e.g. Future of Energy Systems, Clean Futures), which

support businesses to decarbonise, access new markets, and improve operational efficiency.

"The emerging integration of cyber with other sectors such as finance, health, advanced manufacturing and thriving ecosystem...". Stakeholder Engagement discussion.

"The biggest thing that the West Midlands could offer to the agri-food-tech sector is that link to the engineering background and the heritage and the expertise that's there". Stakeholder Engagement discussion.

"If we can't get affordable green energy for the region, manufacturing will literally die. This is by far the number one issue facing the UK today". Stakeholder Engagement discussion.

4.1.3 Priority Actions

Through the stakeholder engagement process, **a clear set of priority actions have emerged** to support the development of emerging and future opportunities across the West Midlands. These actions reflect both the barriers currently faced by businesses and the interventions required to unlock growth, innovation, and long-term competitiveness. They are grounded in practical insights from industry and academia, and aim to guide strategic delivery over the coming years:

- **Accelerate enabling technology adoption**, particularly within SMEs. Advanced technologies such as robotics, additive manufacturing, cyber security, and artificial intelligence must be more effectively integrated into business operations to drive productivity and support industrial transition.
- **Enhance technology diffusion** through cross-sector learning and structured support for firms transitioning from declining to high-growth sectors. Programmes such as the Supply Chain Transition Programme provide a useful model for enabling adaptation and resilience.
- **Tackle infrastructure constraints** by securing investment in energy grid capacity, land availability, and digital infrastructure—including data centres—to support growth in quantum technologies, clean mobility, and advanced manufacturing.
- **Strengthen commercialisation pathways**, building on the region's world-class research strengths in areas such as quantum, space, and aerospace. Greater focus is needed on manufacturing readiness and scale-up support to translate research into viable regional businesses.
- **Address SME access to talent** by improving availability of skills in AI, software engineering, systems integration, and robotics (including ROS). Many small firms are unable to compete on pay or invest in training independently.
- **Improve visibility of innovation and transition support**, particularly for businesses that are unaware of existing initiatives related to decarbonisation, automation, or digital transformation.
- **Develop regionally tailored investment mechanisms** to better support early-stage firms, SME innovation, and supply chain development—aligned with sectoral priorities and net zero objectives.
- **Promote the West Midlands as a destination for innovation investment**, strengthening the region's external profile through coordinated branding and strategic advocacy at the national level.

Together, these priority actions provide a **clear roadmap for strengthening the West Midlands' position as a nationally and globally competitive innovation region**. They reflect both immediate and longer-term interventions needed to support business growth, enable transition,

and unlock the full value of the region's assets. Effective delivery will require coordinated effort across public, private, and academic partners, underpinned by place-based investment, skills development, and policy alignment.

4.2 International Comparator Analysis

Please note that this analysis was conducted in January 2025, prior to the publication of the WMCA's own analysis on international comparator regions. Whilst there are some differences in the regions across both project, there is still significant value in the analysis included here in identifying emerging and future opportunities.

To support strategic decision-making around future opportunity areas, a **comparative analysis has been undertaken of ten international city-regions** with similar economic, spatial, and demographic characteristics to the West Midlands Combined Authority (WMCA). The purpose of this analysis is to identify shared industrial strengths and explore future opportunities.

The comparator regions - spanning Canada, Australia, Japan, Mexico, and South Korea - include **Montreal, Greater Brisbane, Sapporo, Sendai, Monterrey, Okayama, and Dalseong**. Each region was selected based on its relevance to the WMCA in terms of industrial base, economic ambition, innovation capacity, and urban scale. The assessment considered both well-established clusters and emerging technologies within each area, with a particular focus on innovation-driven sectors and future growth opportunities.

The analysis confirms that the **WMCA's Plan for Growth clusters are strongly reflected internationally**, with several comparator regions hosting similar economic strengths. Montreal and Greater Brisbane stand out as the most aligned, each overlapping with five of the WMCA's identified clusters. These include areas such as future mobility, clean energy, health innovation, and advanced manufacturing.

Beyond cluster alignment, the research also identifies several **future-facing opportunities already being developed in these international regions**, which could inform and strengthen the WMCA's long-term economic strategy. Examples include:

- **Intelligent semiconductors and wireless communications** in Sendai and Sapporo, supporting advanced electronics and next-generation connectivity.
- **Electric vertical take-off and landing (eVTOL)** and **sustainable aviation technologies** in Montreal and Brisbane, contributing to the decarbonisation of flight and the development of advanced air mobility systems.
- **Advanced health innovation**, including **proton therapy** and **regenerative medicine**, in Sapporo and Greater Brisbane, positioning these regions at the forefront of personalised and precision healthcare.
- **Agri-food resilience**, with integrated **agri-tech**, **food-tech**, and **logistics** solutions evident in Montreal, Greater Brisbane, and Sapporo, responding to global food security and sustainability challenges.
- **Hydrogen and green construction technologies** in Brisbane, Okayama, and Dalseong, supporting energy transition and the development of low-carbon building materials and infrastructure.
- **Autonomous logistics** solutions being explored in Greater Brisbane and other innovation-led cities, leveraging automation and AI to transform freight and goods movement.
- **AR/VR/XR content creation** clusters in Montreal and Sapporo, supporting the growth of immersive media, gaming, and digital storytelling industries.

- **Sustainable aviation fuel (SAF) development**, including research, production, and supply chain readiness, particularly in Montreal and Brisbane, aligned with global decarbonisation goals in aviation.

Also, **11 of the long-listed emerging opportunities** analysed in **Chapter 3** are already present in at least one of the comparator regions. These include:
AgriTech, FoodTech, Cyber Security, Robotics, Space Technology, Geospatial Technologies, Evolution of Logistics, Defence, Hydrogen, Engineering Biology, Textiles and Fashion,

This alignment provides important validation for the WMCA's emerging opportunity areas and suggests that the region is well positioned to pursue **globally relevant and competitive sectors**. It also highlights the potential for the West Midlands to build strategic international partnerships—particularly in areas such as aerospace, quantum, clean energy, and health innovation—where peer regions are actively developing similar capabilities.

The analysis also demonstrates the importance of **international benchmarking** in shaping regional economic strategy. By looking beyond UK comparators, the WMCA can ensure that its opportunity mapping is informed by global market dynamics, innovation trends, and evolving industrial ecosystems.

A detailed version of the International Comparators analysis, including regional profiles and full methodology, is provided in Accompanying Resource A2.1.

5. Synthesising Results

5.1 WMCA and Local Authority Stakeholder Workshop

As part of the stakeholder engagement process, a workshop was convened with the WMCA and Local Authority colleagues to reflect on the interim findings of the clusters and opportunities research. The session focused on testing emerging insights, surfacing additional perspectives, and identifying potential blind spots in the ongoing analysis. A combination of discussion and interactive voting was used to assess both the perceived relevance and strategic fit of various opportunity areas.

Refining Definitions and Focus Areas
Participants emphasised the need to **refine and deepen definitions** of certain opportunity areas. For instance, *FinTech* and *Defence* were both identified as requiring clearer distinction, and there was interest in exploring innovation within *Textiles & Fashion* through a more material- or data-driven lens. Opportunities such as *Future Logistics* were seen as promising, with the Amazon Innovation Accelerator in Pendeford cited as an example of real-world innovation ecosystems that link enablers and users.

Cross-Cutting Technologies and Sector Integration
Attendees stressed the importance of identifying **interconnections across opportunity areas**, particularly where cross-cutting technologies such as **AI**, **drones**, and **robotics** could be applied to sectors like aerospace, manufacturing, traffic management, and agri-tech. Concerns were raised about over-reliance on "native strengths," prompting reflection on the balance between leveraging existing industrial capabilities and cultivating new growth areas. International examples (e.g. Portugal's aerospace cluster and the Netherlands' food exports) were referenced to illustrate how policy leadership and strategic coordination can build global competitiveness even in unexpected geographies.

Additional and Under-Explored Opportunities
Several participants identified **underrepresented or emerging opportunity areas** that warrant further exploration. These included:

- **Health and Life Sciences**, including *FemTech* and *MedTech*

- **FoodTech**, with a focus on packaging and resilience

- **3D bio-manufacturing**

- **Additive manufacturing** and its categorisation

- **Downstream space and satellite applications**, particularly geospatial data use in planning

- **Small Modular Reactors (SMRs)** and their supply chains

- **Drones**, with questions around whether this should be separated from traditional aerospace

- **Technology transition enablers**, beyond what can be captured through quantitative evidence

Challenges to Scaling Emerging Opportunities
Participants also outlined a range of **barriers to growth** that could hinder the impact of these opportunities:

- A mismatch between **application and capability** (e.g. using AI in manufacturing)

- The risk of **fragmentation**—too many small opportunities without strategic focus

- **High energy costs** and infrastructure constraints (e.g. land and property availability)

- **Regulatory lag**, particularly in sectors like drones and advanced tech

- Difficulties in **commercialising research** due to skills and funding gaps

- Labour shortages, particularly at **technician (SOC Level 4)** level

- **Immigration and visa regulations** restricting access to global talent

- Barriers to **business expansion**, especially for firms requiring large industrial spaces

Overall, the workshop reinforced many of the findings from the wider research while providing critical **on-the-ground insights** into local implementation challenges, sectoral nuance, and forward-looking areas of opportunity. The feedback has been used to support the refinement of the opportunity mapping and prioritisation framework, ensuring it is grounded in real regional needs and delivery potential.

Accompanying Resource A5.1 details findings from the workshop.

5.2 Prioritisation Framework

5.2.1 Why Prioritising Opportunities is Important

In a complex and evolving economic landscape, it is neither feasible nor strategic to support all emerging areas equally. **A structured approach to prioritisation is essential** to ensure that limited resources are focused where they can deliver the most meaningful economic impact. **A prioritisation framework supports the WMCA's ambition to build a more dynamic, inclusive, and future-ready economy** by identifying the most promising opportunity areas for targeted intervention.

Prioritisation enables the WMCA and its partners to **focus investment, policy levers, and programme delivery on those opportunities with the highest potential** for regional economic growth, innovation spillovers, and job creation. It offers a means of identifying where public funding can stimulate private investment and accelerate scale-up.

Furthermore, prioritisation provides a **framework for shaping future Local Growth Plans and regional economic strategy**. It ensures that economic development activity is aligned with wider policy goals such as net zero, levelling up, and industrial transformation. It also helps highlight where existing strengths can be enhanced and where foundational support is required to unlock untapped value.

5.2.2 Structuring the Prioritisation Framework

To enable a consistent, evidence-led comparison across opportunity areas, **a structured scoring framework has been developed**. This framework is designed to reflect relative performance across a balanced set of indicators, while also considering qualitative insights from stakeholder engagements and a review of relevant literature. The framework is aligned to the four ecosystems: Talent, Business, Innovation, and Investment & FDI.

Where appropriate data is available, each measure within these ecosystems has been assigned a RAG (Red–Amber–Green) rating based on how the WMCA performs relative to national benchmarks.

To ensure consistency and comparability, **each RAG rating has been assigned a numerical score** as follows:

- **Green (3 points):** Strong performance relative to national average
- **Amber (2 points):** Moderate or average performance
- **Red (1 point):** Weak or underperforming relative to national benchmarks

The score for each opportunity is derived by **converting all relevant RAG ratings into numerical values**. These scores are then summed within each ecosystem to produce a total ecosystem score per opportunity. The result is a weighted and transparent prioritisation framework that supports comparative analysis across a diverse set of emerging and established opportunity areas.

5.2.3 Applying a Weighted Scoring Method

To ensure that each ecosystem contributes proportionally to the overall prioritisation score, **a weighted scoring method has been applied**. This approach accounts for the fact that different ecosystems—Talent, Business, Innovation, and Investment & FDI—contain different numbers of individual measures, which could otherwise distort the final results.

After converting each RAG rating into a numerical score (Green = 3, Amber = 2, Red = 1), **a total ecosystem score has been calculated for each opportunity.** To standardise these totals, each ecosystem score is then divided by the number of measures within that ecosystem, producing an average score per measure. This step ensures that no ecosystem disproportionately influences the final ranking due to the volume of available data. The formula for this approach can be seen in Figure 15.

Figure 15: Prioritisation scoring formula

$$\text{Grand Total} = \sum \left(\frac{\text{Total Score for Ecosystem}}{\text{Number of Measures in Ecosystem}} \right)$$

This method enables **a balanced and transparent comparison between opportunities**, reflecting performance across a diverse range of metrics without privileging ecosystems with more indicators. As a result, the final prioritisation scores are representative of both the depth and breadth of an opportunity's regional economic potential.

The key benefits of this approach to prioritisation are:

- It ensures **fair comparison** across all ecosystems, regardless of the number of measures.
- It **prevents over-reliance** on ecosystems with more measures (e.g. Business).
- It provides **a balanced view** of opportunity strengths across multiple economic dimensions.
- It **supports evidence-based decision-making** for prioritising investments and interventions.

5.2.4 Integrating Qualitative Insights

Quantitative analysis offers a valuable, objective foundation for assessing the relative strength and performance of different opportunity areas. However, the **data alone does not fully**

capture the breadth of potential within the regional economy, particularly when considering emerging or rapidly evolving sectors. Certain opportunity areas may score lower against current quantitative indicators due to their nascency, the dispersed nature of activity, or a lack of established market maturity. Nevertheless, these same areas have been consistently highlighted through stakeholder discussions and the literature review process as critical to the West Midlands' future competitiveness. This reflects a broader understanding that **some opportunities are not yet fully realised but are strategically important** because of their potential to address major economic, environmental, or societal challenges.

For the Prioritisation Framework to remain relevant and forward-looking, **it is essential to adopt a perspective that goes beyond current performance.** It should consider how emerging industries align with both regional capabilities and anticipated future demand. This approach ensures that the WMCA remains agile and responsive to opportunities that will shape the future economic landscape.

To achieve this, **qualitative insights have been integrated into the prioritisation process** to better reflect the strategic importance of opportunity areas. Stakeholder engagement has provided valuable context on market dynamics, innovation potential, and policy relevance. In parallel, a review of relevant literature and strategy documents has further reinforced understanding of where growth opportunities may lie. These **qualitative perspectives have been combined with quantitative findings** to provide a more balanced and holistic assessment. The resulting analysis not only reflects the current state of regional opportunities but also **recognises the importance of positioning the WMCA** to capitalise on areas with significant future potential.

5.2.5 Prioritisation Results

The results of the quantitative prioritisation analysis as shown in Figure 16 highlight significant variation in the relative strength and readiness of opportunity areas across the WMCA region. These rankings reflect aggregate performance across four key ecosystems—Talent, Business, Innovation, and Investment & FDI—following the application of a weighted scoring methodology.

Future Logistics emerges as the highest-ranked opportunity, with a prioritisation score of 10.57. This reflects the WMCA's established strengths in transport, advanced supply chain infrastructure, and logistics innovation. It signals a mature and investable opportunity that is well-positioned to contribute to regional growth, export performance, and productivity.

Other top-ranking opportunities include **Defence** (8.57), **Land Remediation** (7.86), and **Future Rail** (7.57). These results highlight the economic potential of infrastructure and clean growth-related opportunities, underpinned by the region's industrial heritage, public-sector partnerships, and wider national policy priorities.

A number of innovation-led opportunities also perform strongly. **Engineering Biology** (7.14), **Cyber Security** (6.71), and **EdTech** (6.71) all rank within the top half of opportunities, indicating that these sectors are gaining traction and may offer significant potential for future scaling and innovation-led value creation.

Opportunities traditionally associated with consumer markets and health services sit in the mid-range of the rankings. **eCommerce** (7.00), **Rehabilitation** (6.71), and **Textiles & Fashion** (6.64) continue to play a role in regional employment and enterprise activity but may require

more strategic intervention to unlock their full economic contribution or improve innovation and productivity outcomes.

Lower-ranking opportunities include several in the digital and clean energy space. Despite their long-term strategic importance, **Hydrogen** (5.43), **Pyrolysis** (5.29), and **FinTech** (5.29) scored below average. This suggests these opportunities remain at an earlier stage of ecosystem development, and may benefit from targeted support to enhance business growth, investment readiness, or skills alignment.

Figure 16: Quantitative Prioritisation Analysis outcome
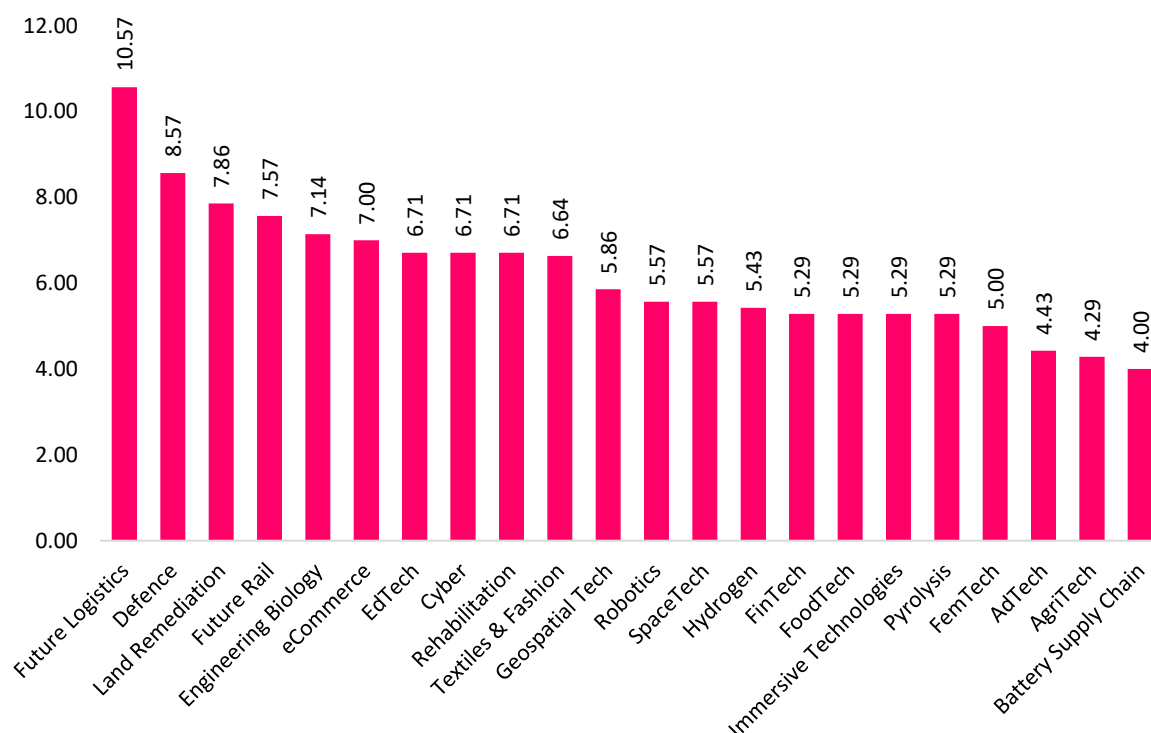
Score	Interpretation
8.5 – 12 (High)	Strong performers across ecosystems – top opportunities for strategic focus and investment.
6.5 – 8.49 (Medium)	Solid opportunities – potential for growth with targeted support or enabling actions.
4 – 6.49 (Low)	Lower-ranked – may require foundational support or have limited immediate potential.

As depicted in Figure 17: Prioritisation FrameworkFigure 17, when integrating qualitative insights to reflect strategic importance, **Future Logistics** remains as a standout priority. Stakeholders highlighted its critical role in enabling next-generation logistics (AI, automation, decarbonisation), its link to zero-emission mobility, and its interconnectedness with other growth sectors like Future Rail and Battery Supply Chain.

Although the **Battery Supply Chain** currently ranks lower in the quantitative assessment, it has been repeatedly identified by stakeholders as an urgent and strategically vital area for the West Midlands. As the automotive industry undergoes a rapid transition towards electrification,

ensuring that the region can support and scale battery-related activities has become essential to maintaining its competitiveness. Stakeholder feedback highlights significant concerns regarding existing gaps in local capability. If these gaps are not addressed proactively, there is a risk that investment and market share could shift to other regions, both within the UK and internationally, where supply chain ecosystems are more advanced.

Similarly, while **FinTech** does not rank among the highest performing opportunity areas in the quantitative assessment, qualitative evidence suggests it remains a key area of potential for the West Midlands, and particularly for Birmingham. The city has emerged as one of the leading centres for FinTech activity outside of London, underpinned by a combination of a growing technology ecosystem and access to a large and diverse talent pool. Although still developing in scale compared to London, the momentum behind FinTech points to a significant growth opportunity aligned with national trends towards digitalisation and financial innovation.

In contrast, areas such as **FemTech** and **AgriTech** currently represent more limited opportunities for the West Midlands, both scoring lower in the quantitative prioritisation assessment and being viewed as of lower strategic importance by stakeholders. Nevertheless, they remain areas to monitor. FemTech, while at an early stage of development, is growing and benefits from its connection to the broader HealthTech and Engineering Biology ecosystems, which are both recognised as important opportunity areas for the region. As innovation continues across health and life sciences, FemTech may present future cross-sectoral opportunities that warrant periodic review.

AgriTech, in comparison, is less well-aligned to the West Midlands' predominantly urban and industrial economy. Stakeholder feedback indicated that the region lacks a systematic understanding of AgriTech's technology needs, alongside relatively low levels of awareness about the sector and its potential role in supporting sustainable food systems and agricultural innovation. While this may make AgriTech a lower priority for immediate intervention, its relevance in rural and neighbouring geographies suggests that opportunities for collaboration and technology transfer should not be discounted entirely.

*Figure 17: Prioritisation Framework*

5.3 Interconnectedness of Emerging Opportunities

Emerging opportunities within the West Midlands Combined Authority (WMCA) economy do not exist in isolation - they are embedded in a wider ecosystem of traditional sectors, existing clusters, enabling technologies, and aligned policy frameworks. Understanding these interconnections is essential to designing integrated strategies for innovation, investment, and economic transition. A full breakdown of opportunity linkages can be found in Appendix 4. For the purposes of this section, the example of **Future Logistics** has been utilised to provide an illustration of how a single opportunity can act as a convergence point for multiple regional strengths and national priorities.

As can be seen in Figure 18, Future Logistics builds on the region's established assets in **traditional sectors** such as **Logistics** and **Rail**, which form part of the WMCA's industrial heritage and current employment base. These sectors provide the foundational infrastructure, workforce skills, and market networks that enable the growth of more technologically advanced logistics solutions.

Figure 18: Future Logistics as an Example of Interconnectedness
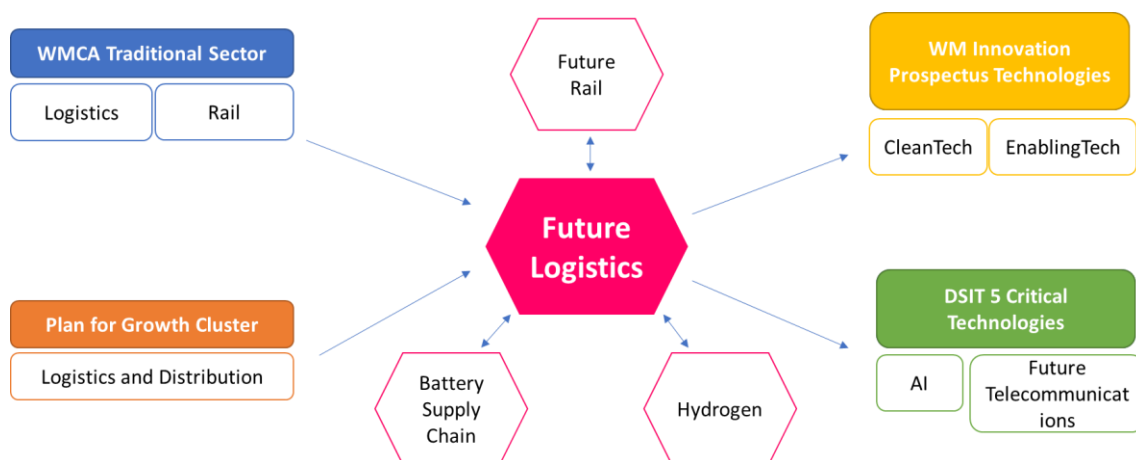
The opportunity also aligns closely with the **Plan for Growth cluster Logistics and Distribution**, reaffirming that this is not only a legacy strength but a platform for transformation. By embedding digital, green and autonomous technologies, Future Logistics is positioned to modernise and expand the value of this cluster while addressing future mobility and supply chain demands.

From a technology perspective, Future Logistics is supported by a range of **key technologies**. It connects directly to **CleanTech** and **Enabling Tech** outlined in the West Midlands Innovation Prospectus - both of which are vital to the decarbonisation and digitalisation of logistics systems. Moreover, it contributes to two of the UK Government's **DSIT five critical technologies**: **Artificial Intelligence (AI)** and **Future Telecommunications**. These technologies are central to enabling automation, optimisation, and smart infrastructure within logistics networks, positioning the West Midlands to lead in a nationally significant area.

Importantly, Future Logistics is also part of a wider web of **interrelated emerging opportunities**. It shares synergies with **Future Rail**, as both depend on enhanced mobility infrastructure and intelligent transport systems. It is closely linked to the **Battery Supply Chain**, which underpins electrified freight and vehicle fleets, and to **Hydrogen**, which offers alternative low-carbon transport energy solutions. These interdependencies create opportunities for coordinated investment and innovation support that span multiple sectors and technologies.

In addition, **Battery Supply Chain** also exemplifies interrelated opportunities for the future cutting across different geographies. These opportunities are found in the emerging supply chains for batteries, electric machines, and power electronics. The biggest opportunities include **Agratas**, Tata Group's global battery business, with anchor customers including Jaguar Land Rover. Agratas currently operates from **University of Warwick**, and is opening a research office in Oxford alongside a factory in Somerset. Oxford's proximity to the West Midlands facilitates strong commercial linkages, enabling efficient collaboration and the supply of components to regional businesses. This connectivity is expected to attract additional companies and investment to the area.

The **West Midlands** offers particular strengths in electrification research and development, supported not only by prominent institutions but also by a diverse network of smaller, less visible **companies** contributing to the innovation landscape. Importantly, the R&D ecosystem extends well beyond the boundaries of the West Midlands, highlighting the importance of **cross-regional integration** to fully realise growth opportunities.

This example demonstrates that opportunity areas should not be treated as discrete verticals but rather as **nodes within a dynamic, multi-dimensional ecosystem**. Strategic interventions must therefore consider how value can be amplified through cross-sector linkages, shared technology platforms, and complementary policy priorities.

5.4 Mapping Emerging Opportunities

To complement the quantitative and qualitative analysis presented in this report, a suite of spatial mapping tools has been developed to visualise the geographic distribution of emerging opportunity areas across the WMCA. These tools provide valuable insights into where clusters of activity are forming, how they relate to existing economic infrastructure, and where opportunities may exist to strengthen place-based interventions.

An **interactive mapping platform** has been created that enables users to explore the spatial footprint of each of the 22 emerging opportunity areas. The platform visualises the geographic distribution of businesses operating within these areas, alongside key economic and innovation assets such as business parks, R&D institutions, and university campuses. Users can interrogate individual opportunity areas and examine spatial relationships between industrial activity and supporting infrastructure. The interactive mapping can be accessed here.

To support more focused analysis, a series of **static hex-based heat maps** have also been produced - one for each emerging opportunity area. These maps show the number of companies within each 1km hexagonal grid cell across the WMCA geography. This allows for visual comparison across different opportunity areas, highlighting concentrations of business activity while controlling for variations in land use and population density. Accompanying Resource A.5.2. contains heat maps for each of the 22 emerging opportunities identified.

An example is shown in Figure 19, which visualises the spatial distribution of firms within the **Future Logistics** opportunity area. The map reveals a clear concentration of logistics-related businesses around **Birmingham**, **Coventry**, and key parts of the **Black Country**, including

Sandwell, **Wolverhampton**, and **Walsall**. Notably, several high-density cells are found in the Birmingham and Solihull corridor, close to major logistics hubs such as the M42 and Birmingham Airport, as well as in Coventry—reflecting the region's strategic connectivity and proximity to national freight routes.

Figure 19: Spatial Distribution of Companies within the Future Logistics opportunity area
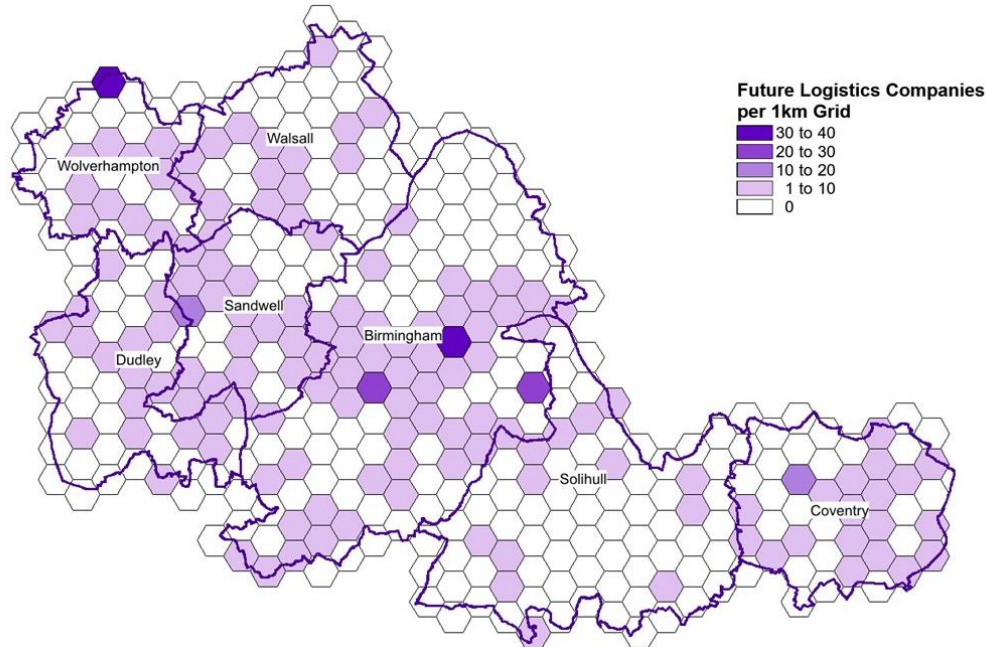
The map also shows a more dispersed pattern of lower-density logistics activity across areas like **Dudley** and **Solihull** suggesting that logistics-related growth is not limited to a single core but is instead emerging throughout the WMCA region. These spatial insights are particularly important when considering infrastructure investment, land use planning, and targeted support for business growth.

A full suite of static hex-based heat maps for each opportunity area are included in Accompanying Resource A5.2.

Taken together, these mapping tools provide the WMCA and its partners with a **place-based lens on industrial evolution**, supporting more targeted, geographically sensitive policy responses. They help to ensure that cluster development strategies and investment decisions are grounded in real spatial dynamics and aligned to the physical distribution of business activity and supporting assets.

5.5 Understanding Emerging Opportunities in Neighbouring Regions

While the WMCA is home to a diverse range of emerging opportunities, there is growing recognition that economic opportunity does not stop at administrative borders. **Neighbouring regions are developing complementary specialisms** that can enhance and mutually reinforce the WMCA's growth ambitions. Building closer links to these places can unlock synergies, improve supply chain resilience, and provide access to new innovation ecosystems.

One notable example is **Advanced Ceramics in Staffordshire**. With the area home to a globally recognised ceramics industry, advanced materials technologies have developed into a key strength, supported by industrial R&D into technical ceramics used in aerospace, medical

devices, electronics, and clean energy applications. This aligns strongly with WMCA strengths in Space Technology and Defence. Closer partnership could enable WMCA-based companies and R&D institutions to collaborate on developing and adopting next-generation materials, supporting regional ambitions in net zero, space, and medical technology supply chains.

Similarly, **Gaming in Leamington Spa** (often referred to as 'Silicon Spa') represents a thriving cluster of globally recognised creative and digital firms. Leamington's gaming ecosystem, ranging from indie developers to major studios, feeds into broader immersive technologies, which is also an emerging opportunity identified within WMCA. Strengthening links with this cluster could support creative-tech crossovers in areas such as health innovation (e.g. gamification for rehabilitation), skills development (e.g. immersive training environments), and cultural exports, thereby amplifying the region's offer in the growing global market for immersive and experience-driven technologies.

The above list of examples is not exhaustive – there are many other opportunities for cross-border collaboration. Together, these neighbouring strengths present clear opportunities for the WMCA to take a more outward-looking, networked approach to economic growth. By embracing closer collaboration with adjacent innovation ecosystems spanning advanced manufacturing, creative industries, the **WMCA can position itself at the heart of innovation in the Midlands**. This would strengthen supply chains, enable cross-sector innovation, and enhance regional competitiveness in global markets.

5.6 Future Opportunities Identification

Figure 20 brings together insights from the qualitative analysis of stakeholder engagement sessions, the international comparator study, and the supporting literature review to present a **consolidated view of future opportunity areas** for the WMCA. These opportunities reflect sectors and technologies that are not yet fully mature but are identified as having **significant potential to shape the region's long-term economic trajectory.** Each opportunity is defined, and an assessment is provided of how the WMCA is currently positioned to capitalise on it— highlighting both existing capabilities and areas requiring targeted intervention. This synthesis of evidence supports a forward-looking strategy for regional growth, innovation, and resilience.

The refined list of future opportunities demonstrates clear alignment between the West Midlands' industrial and innovation strengths and its potential to lead in high-value, globally relevant sectors. Opportunities such as **smart mobility**, **clean industrial transition**, and **advanced air mobility (eVTOL)** build on the region's existing assets in automotive, aerospace, and logistics, and signal strong prospects for innovation-led growth in transport and infrastructure.

Areas like **sustainable aviation fuel (SAF)**, **AR/VR/XR content creation**, and **autonomous logistics** highlight a growing digital and creative ecosystem with potential for expansion, provided the region can enhance access to specialist talent, commercial studio spaces, and enabling infrastructure. These are not yet mature industries locally but are viewed as areas of strategic relevance, particularly as global markets evolve and demand for immersive, low-carbon and automated solutions increases.

Figure 20: Future WMCA Opportunities

Future Opportunity	Definition	WMCA Positioning
Smart Mobility and Autonomous Transport	Development and deployment of 5G-enabled autonomous vehicles and logistics systems.	Strong transport and logistics base; emerging 5G testbeds and pilot programmes; requires infrastructure investment.
Clean Energy and Green Industrial Transition	Low-carbon technologies including hydrogen, battery systems, electrification, and green grid infrastructure.	Regional net zero ambition; industrial base transitioning to clean mobility; gaps in energy infrastructure and investment readiness.
Future Food Resilience	Integration of agri-tech, food-tech, and logistics to build secure, tech-enabled food systems.	Existing capabilities across agri-food and logistics; opportunity to link through automation and innovation ecosystems.
Defence and Dual-Use Technologies	Innovation that serves both civilian and military applications, including aerospace and secure technologies.	Established aerospace and cyber strengths; requires diversification and SME supply chain development.
Intelligent Semiconductors and Wireless Tech	Advanced electronics, including chips and next-gen wireless systems for connectivity and automation.	Not currently a regional strength; potential to grow linked to manufacturing and digital sectors.
eVTOL and Advanced Air Mobility	Electric vertical take-off and landing technologies for sustainable short-distance transport.	Aerospace R&D capabilities in the region; needs targeted investment and regulatory support.
Advanced Health Innovation	Specialised areas such as proton therapy, regenerative medicine, and precision diagnostics.	Strong academic base and NHS partnerships; requires improved commercialisation and specialist infrastructure.
Autonomous Logistics	Automated freight and delivery systems using robotics, AI, and connected infrastructure.	Logistics sector strength; robotics and cyber assets; infrastructure investment needed to enable deployment.
AR/VR/XR Content Creation	Development of immersive technologies for gaming, media, and enterprise applications.	Creative sector base in gaming and media; requires access to specialist talent and commercial studio spaces.

Future Opportunity	Definition	WMCA Positioning
Sustainable Aviation Fuel (SAF)	Production and use of alternative fuels to decarbonise air transport.	R&D capabilities in aerospace and low-carbon fuels; SAF development not yet regionally scaled.

The review of future opportunity areas provides a forward-looking perspective on the West Midlands' economic potential. By identifying areas where the region is already well-positioned (and where additional support could unlock substantial value) the WMCA can begin to focus delivery efforts around the **next generation of growth opportunities**.

The findings offer a strategic foundation for prioritisation, investment planning, and regional delivery. They highlight the importance of combining **local assets**, **international insights**, and **stakeholder intelligence** to ensure the West Midlands remains competitive, resilient, and at the forefront of industrial and technological transition.

6. Conclusion

The above findings provide a comprehensive assessment of emerging and future opportunities for the WMCA economy. By integrating robust quantitative analysis with targeted stakeholder engagement, international comparator research, and a detailed review of regional assets, the study has identified 22 emerging opportunity areas and outlined a shortlist of high-potential future opportunities. These insights offer a strategic evidence base to guide future planning, investment, and delivery.

Key findings indicate that the WMCA is home to a diverse set of opportunity areas, many of which build on the region's strengths in advanced manufacturing, engineering, logistics, and digital technologies. Opportunities such as Future Logistics, Defence, and Land Remediation rank highly across business, innovation, investment and talent indicators, reflecting their readiness for targeted support and scale-up. Meanwhile, other areas such as Cyber Security, Engineering Biology and EdTech are emerging innovation-led fields with strong potential but require foundational ecosystem support to reach maturity.

The interconnected nature of opportunities also presents prospects for growth. Many areas, such as Future Logistics, act as convergence points across legacy sectors, critical technologies, and national innovation priorities. These linkages underline the importance of adopting a systems-based approach to economic development, where value can be amplified through shared infrastructure, enabling technologies, and integrated policy interventions.

In identifying future opportunities—such as Autonomous Logistics, Smart Mobility, Future Food Resilience, and Sustainable Aviation Fuels—the research also offers a forward-looking perspective grounded in global benchmarking and regional capabilities. These areas reflect the West Midlands' capacity to lead in high-value, globally relevant sectors, provided that the necessary investments in infrastructure, skills, and innovation systems are made.

Despite the depth of analysis, several evidence gaps remain. In particular, better data is needed on firm-level innovation adoption, commercialisation pathways, and graduate retention by opportunity area.

Based on the findings of this study, several strategic recommendations emerge:

- **Prioritise high-performing and high-potential opportunity areas** - including Future Logistics, Defence, and innovation-led sectors - within Local Growth Plans and investment strategies.

- **Target support for underdeveloped but strategic opportunities**, such as Battery Supply Chain and Hydrogen, to build foundational capabilities and improve ecosystem readiness.

- **Strengthen diffusion of enabling technologies**, particularly among SMEs, through regional innovation accelerators and transition support programmes.

- **Develop tailored investment and skills strategies**, aligned to the needs of future opportunity areas and based on gaps identified in talent pipelines and infrastructure readiness.

- **Embed cross-sectoral collaboration and technology integration** into delivery mechanisms, leveraging shared industrial capabilities across manufacturing, clean energy, and digital domains.

- **Use the prioritisation framework** to guide evidence-based resource allocation, enabling the WMCA to focus on interventions that deliver the greatest economic impact, resilience, and inclusive growth.

Together, these insights and recommendations provide a strong foundation for the WMCA to shape its next phase of strategic economic development - building a region that is globally competitive, technologically advanced, and inclusive by design.

7. Appendices

Appendix 1 – Analytical Framework

Business Ecosystem

Including metrics linked to each opportunity such as the number of businesses, the number of high-growth companies and the number of major strategic companies (£100m+ annual turnover) and their vulnerabilities and resilience to global megatrends.

	Metric	Source	Contextualisation
1.1	Opportunity Business Count	Data City, 2025	• No. of companies in opportunity (trading and HQ'd address) • % of UK companies in this opportunity located in the WMCA • Location Quotients (LQs) of companies in opportunity
1.2	Estimated Gross Value Added (GVA)	Data City, 2025	• Estimated total GVA opportunity contribution • Estimated GVA per Employee in opportunity
1.3	Strategic Companies	Data City, 2025	• No. of companies with £100m+ turnover • % of UK £100m+ companies in opportunity based in the WMCA • Location Quotients (LQs) of companies' turnover in opportunity
1.4	High Growth Companies	Data City, 2025	• No. of companies with an average 20%+ growth • % of UK 20%+ companies in opportunity based in the WMCA
1.5	Incorporations since 2021	Data City, 2025	• No. of companies incorporated since 2021 • % of opportunity UK incorporations based in the WMCA
1.6	Foreign Owned Companies	Data City, 2025	• No. of foreign owned companies in opportunity • % of opportunity UK foreign owned companies based in the WMCA

Innovation Ecosystem

Including metrics linked to each opportunity such as the amount of Innovate UK funding received by businesses in the opportunity, major sector-related university R&D and innovation assets, opportunity spinouts and innovative companies deemed by the Data City platform.

	Metric	Source	Contextualisation
2.1	Opportunity Spinout Count	Data City, 2025	No. of spinouts in opportunity % of UK spinouts in this opportunity located in the WMCA
2.2	Innovative Companies	Data City, 2025	No. of highly innovative companies in opportunity % of UK highly innovative companies located in the WMCA
2.3	Companies who received Innovate UK Funding	Data City, 2025 & UKRI	Value of total Innovate UK grants % of total Innovate UK grants in this opportunity located in the WMCA
2.4	Opportunity Innovate UK Projects	UKRI, 2025	No. of Innovate UK projects per opportunity Value of Innovate UK projects received per opportunity
2.5	Innovation Assets	EIU	• No. of relevant Innovation Assets to this opportunity

Investment & FDI Ecosystem

Including metrics linked to each opportunity such as the number of investors located in the WMCA geography, fundraising volumes across total, seed and venture investment and the number of exporters and importers.

	Metric	Source	Contextualisation
4.1	Investors	Dealroom, 2025	• No. of investors located in the WMCA • % of UK investors located in the WMCA
4.2	Fundraising Volumes (Total)	Data City, 2025 & Dealroom, 2025	• Value of total investments to companies in this opportunity in the WMCA • No. of total investments to companies in this opportunity in the WMCA • % of UK investment value and total in this opportunity compared to the WMCA
4.3	Fundraising Volumes (Seed)	Data City, 2025 & Dealroom, 2025	• Value of total investments to companies in this opportunity in the WMCA • No. of total investments to companies in this opportunity in the WMCA • % of UK investment value and total in this opportunity compared to WMCA
4.4	Fundraising Volumes (Venture Capital)	Data City, 2025 & Dealroom, 2025	• Value of total investments to companies in this opportunity in the WMCA • No. of total investments to companies in this opportunity in the WMCA • % of UK investment value and total in this opportunity compared to WMCA
4.5	International Trade	Data City, 2025	• No. of companies in opportunity with export data • No. of companies in opportunity with import data • % of UK imports and exports in the WMCA

Talent Ecosystem

Including metrics linked to each opportunity such as the number of employees at businesses in the opportunity and location quotients, and the number of graduates in relevant fields from WMCA HEI providers.

	Metric	Source	Contextualisation
3.1	Estimated Employees	Data City, 2025	• No. of people employed in this opportunity • % of UK people employed in this opportunity located in the WMCA • Location Quotients (LQs) of employees in opportunity
3.2	University Graduates	HESA	• No. of University Graduates per opportunity

Appendix 2 – List of Areas Covered During Stakeholder Engagement Conversations

A total of 24 individuals were consulted in these sessions covering a variety of sectors and technology areas, sharing expertise and insights from stakeholder perspectives.

- Aerospace
- Space
- Quantum technology
- Catapult (Electrification)
- Clean Growth & Future mobility
- Transport/Mobility
- Net-Zero Carbon
- Biochar/ Pyrolysis
- Health tech
- Manufacturing sector organisation
- Catapult (Robotics and Automation)
- Catapult (SMEs and supply chain)
- Catapult (Advanced manufacturing)
- Catapult (Built Environment)
- Catapult (Cluster)
- Connectivity 5G
- Crea-tech
- Cyber
- Crea-tech
- Agrit-food-tech
- Tech park (Cluster)
- Innovation Alliance (Policy)

Appendix 3 – List of Accompanying Resources

A2 Methodological Approach

A2.1 International Comparator Analysis

A2.2 Global Megatrends

A3 Quantitative Analysis

A3.1 Emerging Opportunities Taxonomy

A3.2 Data Analysis Spreadsheet

A4 Qualitative Insights

A4.1 Stakeholder Engagement Information Note and Discussion Guide

A4.2 Stakeholder Engagement Findings

A5 Synthesising Results

A5.1 Findings from WMCA-LA Workshop

A5.2 Emerging Opportunities Heat Map

Appendix 4 – Opportunity Linkages

Opportunity	Group	Traditional Sector Linkages	Plan for Growth Sector Linkages	WM Innovation Prospectus Technology Linkages				DSIT 5 Critical Technologies Linkages				
				Clean Tech	Med Tech	Creative Tech	Enabling Tech	Artificial intelligence (AI)	Engineering biology	Future telecommunications	Semiconductors	Quantum technologies
eCommerce	Consumer, Health & Market-Driven	Retail, Business, Professional & Financial Services	Professional and financial services				✓	✓				
FoodTech	Consumer, Health & Market-Driven	N/A	N/A	✓				✓	✓			
FemTech	Consumer, Health & Market-Driven	Life Sciences & Healthcare	Health-tech and med-tech		✓			✓				
Rehabilitation	Consumer, Health & Market-Driven	Life Sciences & Healthcare	Health-tech and med-tech		✓			✓	✓			
Textiles & Fashion	Consumer, Health & Market-Driven	Retail, Creative & Cultural	N/A			✓			✓			
AgriTech	Industrial & Sustainable Infrastructure	N/A	N/A	✓				✓				
Future Logistics	Industrial & Sustainable Infrastructure	Logistics & Transport Technologies	Logistics and distribution	✓			✓	✓		✓		
Future Rail	Industrial & Sustainable Infrastructure	Advanced Manufacturing, Logistics & Transport Technologies	N/A	✓				✓			✓	

Opportunity	Group	Traditional Sector Linkages	Plan for Growth Sector Linkages	WM Innovation Prospectus Technology Linkages				DSIT 5 Critical Technologies Linkages				
				Clean Tech	Med Tech	Creative Tech	Enabling Tech	Artificial intelligence (AI)	Engineering biology	Future telecommunications	Semiconductors	Quantum technologies
				✓				✓			✓	
Battery Supply Chain	Industrial & Sustainable Infrastructure	Advanced Manufacturing, Low Carbon and Environmental Technologies	Smart Energy Systems, Electric Light Vehicles and Battery	✓				✓			✓	✓
Hydrogen	Industrial & Sustainable Infrastructure	Low Carbon & Environmental Technologies	Smart Energy Systems	✓				✓			✓	
Pyrolysis	Industrial & Sustainable Infrastructure	Low Carbon & Environmental Technologies	N/A	✓				✓			✓	
Land Remediation	Industrial & Sustainable Infrastructure	Construction, Low Carbon and Environmental Technologies	Future Housing	✓					✓			
FinTech	Digital & Advanced Technologies	Business, Professional & Financial Services	Professional and financial services				✓					✓
AdTech	Digital & Advanced Technologies	Business, Professional & Financial Services, Retail	Creative content production and gaming			✓	✓	✓		✓		

Opportunity	Group	Traditional Sector Linkages	Plan for Growth Sector Linkages	WM Innovation Prospectus Technology Linkages				DSIT 5 Critical Technologies Linkages				
				Clean Tech	Med Tech	Creative Tech	Enabling Tech	Artificial intelligence (AI)	Engineering biology	Future telecommunications	Semiconductors	Quantum technologies
EdTech	Digital & Advanced Technologies	Business, Professional & Financial Services, Public Sector inc. Education	Professional and financial services			✓		✓				
Immersive Technologies	Digital & Advanced Technologies	Creative & Cultural	Creative content production and gaming			✓		✓		✓		
Cyber Security	Digital & Advanced Technologies	Business, Professional & Financial Services	Digital Economy				✓	✓		✓	✓	✓
Robotics	Digital & Advanced Technologies	N/A	N/A				✓	✓			✓	✓
Space Technology	Digital & Advanced Technologies	Advanced Manufacturing, Logistics & Transport Technologies	Aerospace	✓								✓
Geospatial Technologies	Digital & Advanced Technologies	Logistics & Transport Technologies	N/A	✓						✓		
Defence	Digital & Advanced Technologies	Advanced Manufacturing	Aerospace				✓	✓				
Engineering Biology	Digital & Advanced Technologies	Life Sciences & Healthcare	Health-tech and med-tech		✓				✓			