THE PRODUCTIVITY INSTITUTE

Economic and Social Research Council

THEMATIC GUIDE 5

Industrial Clusters & Circular Economy:

Building Resilient, Competitive, and Sustainable Industrial Clusters

Authors:

Arman Mazhikeyev
Loughborough University
Jan Godsell
Loughborough University
Nigel Driffield
University of Warwick
Jonathan Duck
Amtico
Thomas Triebs
Loughborough University

Date:

August 2025

The Productivity Institute
Midlands Productivity Forum Thematic Guide 5

Note: This guide builds on the Midlands Insight Report published by The Productivity Institute in January 2025. It includes extended analysis, updated case studies, and new policy recommendations that were not part of the original publication.

Key words
Industrial clusters, Circular economy, Regional growth, Innovation ecosystems

Author's contacts

a.mazhikeyev@lboro.ac.uk

Acknowledgements
We would like to express our gratitude to the following field experts for their invaluable local insights on various aspects of specific challenges, initiatives and policies, which have significantly enriched this report:

- Charlie Hopkirk, West Midlands Combined Authority
- Lucie Andrews & Lisa Brewer, East Midlands Combined County Authority
- Yao Li, The Productivity Institute, Alliance Manchester Business School
- Phil Lovell, SmartParc
- Sarah Windrum, HORIBA MIRA Technology Park
- Matthew Rhodes, Camirus
- James Butcher, Innoscope
- Huw Edwards, Loughborough Business School

Additional thanks to the members of the Midlands Productivity Forum for their contributions during the interactive session on identifying and prioritising productivity challenges. Their insights and engagement have been invaluable in shaping this report.

Suggested citation

Mazhikeyev, A., Godsell, J., Driffield, N., Duck, J., & Triebs, T. (2025). Industrial Clusters & Circular Economy: Building Resilient, Competitive, and Sustainable Industrial Clusters, Thematic Guide No. 5, Midlands Productivity Forum, The Productivity Institute.

The Productivity Institute is an organisation that works across academia, business and policy to better understand, measure and enable productivity across the UK. It is funded by the Economic and Social Research Council (grant number ES/V002740/1).

The Productivity Institute is headquartered at Alliance Manchester Business School, The University of Manchester, Booth Street West, Manchester, M15 6PB. More information can be found on The Productivity Institute's website. Contact us at theproductivityinstitute@manchester.ac.uk

Introduction

The Midlands has a long tradition of industrial excellence, shaped by its rich history in manufacturing, engineering, and technological innovation. Over generations, industries such as automotive, aerospace, and food production have formed the backbone of the region's economy. Today, this industrial heritage remains a critical asset, offering a strong foundation for future growth and transformation through emerging sectors and innovation-driven clusters.

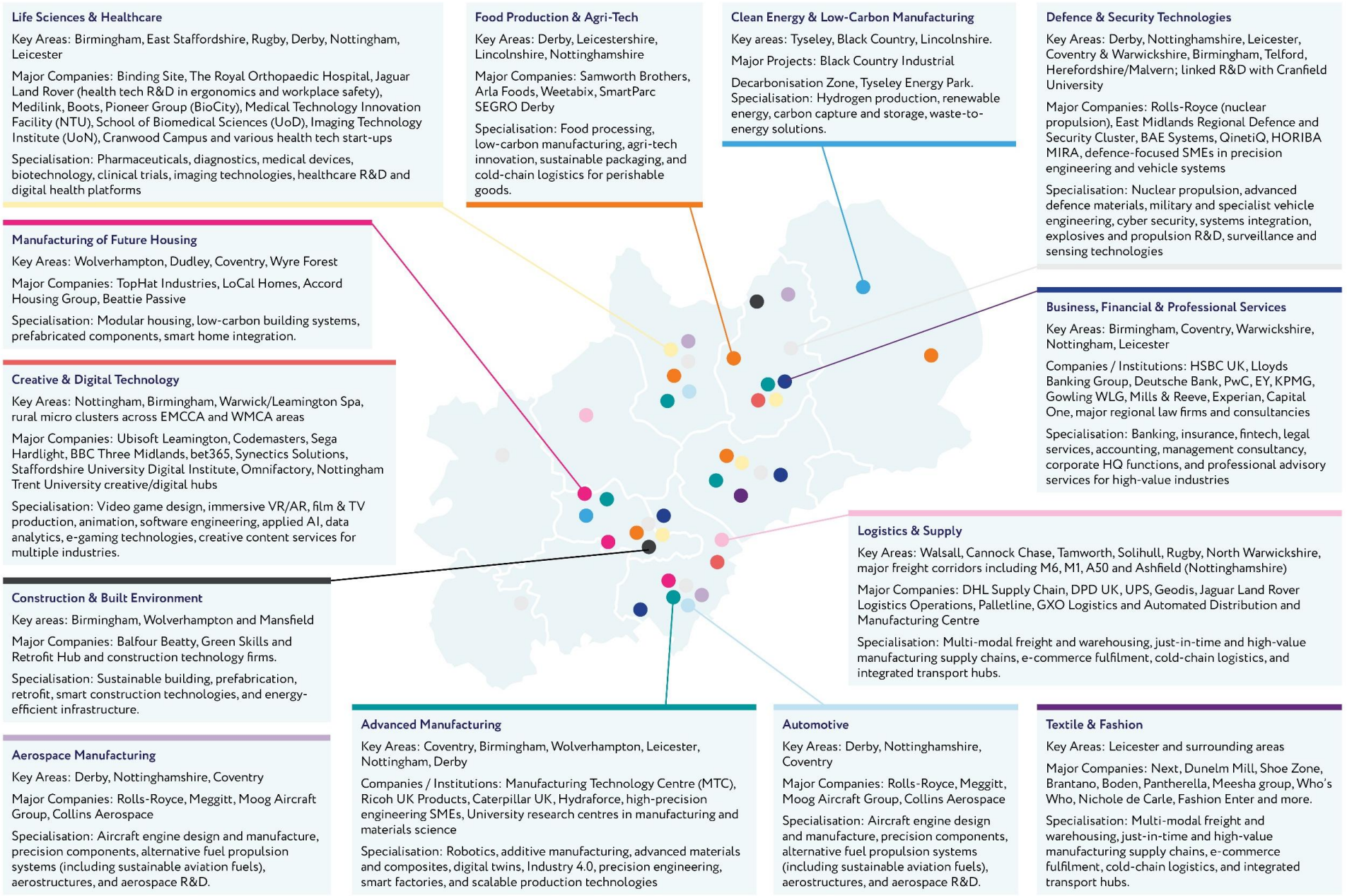
In the evolving post–Midlands Engine landscape, new collaborative mechanisms are emerging to strengthen regional cluster development. One example is the recent "Compact" between the East Midlands Combined County Authority (EMCCA) and the West Midlands Combined Authority (WMCA), which sets out a shared agenda for driving collaboration and delivery in priority cluster areas, including defence and aerospace. While still at an early stage, this agreement has the potential to create cross-boundary coordination that overcomes some of the governance fragmentation challenges faced by Midlands clusters [8].

As illustrated in Figure 1, the Midlands' industrial landscape is evolving. The map highlights the major industrial clusters distributed across the region, showing concentrations of economic activity in sectors such as **automotive and mobility technologies** (around Coventry, Warwickshire, and Leicestershire), **aerospace manufacturing** (centred in Derby and Nottinghamshire), **food production and agri-tech** (around Derby and Leicestershire), and **digital technologies** (notably in Stoke-on-Trent and Birmingham). It also shows important emerging cluster areas linked to **sustainable manufacturing**, **health technologies**, and **energy innovation**. While these clusters reflect the region's deep industrial capabilities, their distribution is often fragmented across administrative boundaries, limiting the potential for coordinated growth and shared infrastructure development. Nonetheless, the strengthening of sector-specific hubs signals a major opportunity to build a more integrated and resilient regional economy.

Despite their promise, many Midlands clusters still face significant challenges. Territorial and sectoral fragmentation, governance gaps, underinvestment, and slow transitions toward circular economy (CE) practices hinder their full development. Although these clusters play a critical role in driving regional innovation, productivity, and sustainable economic growth, inconsistent strategies and siloed operations often limit their effectiveness. Overcoming these barriers is essential if the Midlands is to capitalize on its industrial strengths and drive long-term prosperity.

This guide is structured to explore these issues in depth. It first reviews the current state of cluster development and highlights emerging examples of cluster and CE initiatives across the region. It then examines persistent structural challenges and identifies opportunities for policy interventions, investment models, and governance innovations. Finally, it offers practical recommendations to unlock the Midlands' full industrial potential through a more coordinated, resilient, and sustainable approach to cluster and circular economy development.

Figure 1: Industrial Clusters Map of the Midlands region



Source: The cluster map is an illustrative representation based on multiple datasets and reports [3, 4, 5, 10, 12–16]. Cluster locations were determined by triangulating employment and GVA data with recognised cluster initiatives, anchor institutions, and business park developments. This map is not intended to be an exhaustive list of all clusters in the Midlands.

Territorial and Sectoral Fragmentation of Clusters

The Midlands faces significant structural and operational challenges in fully capitalising on its industrial clusters. One persistent issue is the **territorial fragmentation** of cluster development across sectors and local authority (LA) boundaries. As noted in a previous insight report [1], "the complexity of local authority boundaries and the differing roles of MCAs often makes coordinated investment and strategy development more difficult."

A good example is MIRA Technology Park—a nationally significant automotive and mobility R&D cluster with over 40 businesses, including global OEMs such as Bosch, Toyota, and Jaguar Land Rover, alongside startups developing electric, hydrogen, and autonomous technologies. Despite its status as a strategic technology hub and potential anchor for local economic growth, the park faces difficulties accessing regional development support. Rather than being central to local growth agendas, its cross-boundary location—spanning Leicestershire and Warwickshire, neither of which are part of a Combined Authority—has left it caught between misaligned priorities and governance structures. This has limited its ability to access coordinated support and highlights how **administrative boundaries can become barriers to progress**.

With the Midlands undergoing further devolution—and new Combined Authorities emerging—other strategically important cluster areas and their tenants may face similar challenges. Without consistent governance and region-wide planning, there is a risk of **underutilising high-value assets** and weakening the investment case for long-term industrial development.

In addition to territorial fragmentation, the Midlands also suffers from **sectoral fragmentation**. While the region hosts strong clusters in automotive, aerospace, food manufacturing, and biomedical technologies, these often operate in silos with limited inter-cluster collaboration. Why is this happening? One reason is that the Midlands is not yet governed by a single, unified authority capable of overseeing regional industrial strategy and alignment—although the devolution process may begin to address this. As highlighted in the previous insight report [1], clusters in London and the South East benefit from greater integration and inter-sectoral collaboration. The density and co-location of diverse industries—fintech, green tech, health tech, and creative sectors—allow these regions to foster a stronger culture of innovation, knowledge spillovers, and collaborative spinouts.

According to Midlands Engine estimates [3], the region's manufacturing, automotive, and digital clusters contribute around 25% of regional GDP. Could that figure be higher if the region had a more coherent industrial strategy and coordinated delivery mechanisms in place? Likely so. Evidence shows that Midlands clusters often lack structured governance models [5], and fragmented strategies have prevented them from setting a clear direction or achieving sustained growth. For instance, the Midlands' automotive cluster—despite its heritage and supply chain base—has grown at just 3% annually, compared to 6% in the North West. The absence of an integrated development plan has also limited investment in **critical enabling infrastructure**, such as transport and digital connectivity. Improving **cluster governance and coordination** could raise output in these sectors by an estimated **10–15% over five years**, unlocking greater economic and innovation potential across the region.

The EMCCA–WMCA Compact [8] illustrates how Combined Authorities can align around shared cluster priorities. However, it will be important to ensure that such agreements extend benefits to the wider Midlands, not just the Combined Authority geographies, so that high-value clusters outside MCA boundaries are not left behind.

Case study 1: Horiba Mira Technological Park	
Located in the heart of the Midlands, Mira Technology Park is Europe's leading mobility innovation cluster, specializing in advanced automotive technologies including autonomous vehicles, cybersecurity, and green hydrogen. The park spans three local authorities, creating both opportunities and challenges for regional integration. With over 40 tenants, including global OEMs such as Jaguar Land Rover and Aston Martin, the park contributes £63 million in GVA annually but it has much greater potential to drive the regional economy up. At the moment, however, the park faces challenges such as a 'postcode lottery' for regional funding due to its location across multiple local authority areas, and difficulties with the apprenticeship levy, especially for SMEs. Scaling up is also hindered by length planning approval processes for extra industrial space, and companies find it more convenient to commercialize their technologies developed at the park elsewhere due to more attractive incentives abroad, like the US offering up to 40% of capital costs as a subsidy. Addressing these issues through better integrated support, streamlined incentives, and a focus on skills development could further enhance the park's significant economic impact.	" **Neither Leicestershire nor Warwickshire is part of a combined authority, meaning that MIRA Tech Park cannot align seamlessly with broader devolution agendas. This limitation affects tenants' ability to access regional growth programmes creating a "postcode lottery" situation"** Sarah Windrum Mira Technology Park

Investment for Cluster Formation

In addition to fragmentation, **chronic underinvestment** continues to undermine the potential of Midlands industrial clusters. Despite the region's rich industrial heritage and high concentration of advanced manufacturing, automotive, and digital technology assets, **investment flows remain disproportionately low** compared to other UK regions. According to Midlands Engine and UKRI estimates, only **5% of national R&D funding** in 2022 was directed toward Midlands-based clusters—well below their economic contribution to UK output.

This funding gap is compounded by the **fragmented and delayed nature** of public investment in the region. As one expert observed, "**funding often arrives in pieces, over long periods, and lacks coherence across sectors and localities**." This piecemeal approach not only reduces impact but also deters private co-investment, particularly in capital-intensive and innovation-driven sectors.

"Our spinouts spend 80% of their time fundraising and only 20% growing the business. In the US, it's the opposite. That difference is a productivity drag we cannot afford."
— Director of a Midlands-based regional investment fund

A major contributor to this problem is the **chronic failure in access to capital**. Compared to firms in the Golden Triangle, Midlands-based spinouts receive only 15 pence for every pound raised. This leads to **delays in scaling**, forcing companies to remain stuck in tech validation phases instead of moving into commercialisation and growth. In the US, equivalent firms often receive $20 to $50 million in seed

rounds—while their Midlands counterparts struggle to raise even £200,000. The missed opportunity becomes a **productivity cost**, as innovations fail to reach markets in time.

Moreover, a **lack of competition among venture capital firms in the Midlands** exacerbates the situation. With fewer VC players in the region, investment cycles are slower, terms are often less favourable, and founders can be forced to burn through cash before securing follow-up rounds.

There is also a marked **short-termism in investment behaviour**. High-potential, transformative technologies—such as fusion, hydrogen aviation, or advanced diagnostics—are overlooked in favour of **low-risk, quick-return projects** like beverage startups. This aversion to risk curtails the growth of globally scalable, high-impact sectors that the Midlands is uniquely positioned to lead.

These challenges are echoed in the *Place-Based Impact Investing White Paper* [2], which highlights a broader market failure to channel institutional capital into local economies. The report notes that allocating just 5% of Local Government Pension Scheme (LGPS) funds toward place-based investments could unlock over £16 billion—more than three times the size of the Levelling Up Fund—to support regional economic resilience and cluster formation. Yet, barriers remain, including a lack of awareness, appropriate financing vehicles, and capacity in local investment teams.

By contrast, competitor regions—both within the UK and globally—are deploying more **strategic, front-loaded, and mission-oriented investments.** The U.S. Inflation Reduction Act, for example, offers **up to 40% capital cost support** for clean tech manufacturers. In the Midlands, the absence of comparable mechanisms has made it harder to retain advanced R&D and prototype scaling within the region. Because of that highly promising firms frequently **take their innovations abroad** to scale under more favourable subsidy regimes. The problem is not a lack of ideas or potential. Traditional food cluster like **SmartParc SEGRO Derby** and emerging ITC cluster in Stoke on Trent (or **Digital Stoke)** demonstrate the region's readiness for cluster-based transformation when the right investment frameworks are in place. But without **a dedicated long term aimed regional investment support**, these success stories remain isolated.

Case study 2: 'Digital' Stoke as a rising digital cluster area	
Stoke-on-Trent's ICT sector has emerged as one of the most dynamic digital clusters in the Midlands. Despite limited historical recognition, the city's digital performance stands out: in 2022, ICT contributed 11.3% to local GVA—well above the UK average of 6.5%—and labour productivity reached £155,000 per employee, ranking 7th among 168 UK local authorities. Digital anchors such as bet365 and Synectic Solutions, alongside a growing creative economy at the Spode Pottery site and e-gaming capabilities at Staffordshire University, reinforce Stoke's position as a hub for immersive and applied technologies. The city also benefits from a digitally literate younger population with the potential to support the uptake of AI, AR, and 3D printing. Stoke exemplifies how smaller cities can lead in digital transformation, especially when creativity, education, and enterprise converge. Local strengths in simulation and gaming position the city to drive digital adoption across industries, reducing costs and time-to-market while boosting productivity. Recent research [?] found that Stoke's digital sector thrives on organic entrepreneurship, strong local creative heritage, and affordable infrastructure—yet faces challenges in attracting senior tech talent due to geographic perceptions and low national visibility.	"It is clear that "Digital Stoke" is not a one-firm phenomenon but is based on a wide range of firms in a range of sub-industries" City of Westminster, 2023

To maximise this potential, Stoke will benefit from improved infrastructure, talent retention strategies, and stronger ties to other innovation centres across the Midlands. With the right investment and visibility, 'Digital' Stoke could emerge as both a magnet for FDI and a model for digitally-led regional growth.	

Another example of an emerging Midland's cluster achieving international recognition is Super Tech WM. It is the UK's only professional services technology supercluster, has achieved the *Bronze Label* in European Cluster Management Excellence [11]. This recognition reflects a structured, industry-led approach to cluster development, backed by dedicated "cluster leads" and integrated with the region's Growth Plan priorities. Its success demonstrates how Midlands clusters can achieve international recognition through coordinated leadership and targeted delivery.

Slow Transition to Circular Economy

Another critical challenge is. While global and national priorities increasingly promote sustainability and decarbonisation, many Midlands clusters remain tied to traditional linear production systems and the transition to circular economy practices is slow. Sectors such as manufacturing, automotive, and food processing are particularly affected, where progress toward circularity has been incremental rather than systemic [4].

> Scope 1, 2 or 3 emissions or lifecycle assessments, SMEs respond more positively to concepts such as "resource efficiency", "cost reduction", and "reducing waste"
>
> James Butchar, 2024

One of the major barriers to progress—particularly for SMEs—is the **disconnect between the language of circular economy policy and the operational realities of small firms**. Field insights indicate that many SMEs are not engaging with sustainability frameworks because these are often perceived as overly technical or misaligned with their day-to-day priorities. Instead of talking about Scope 1, 2 or 3 emissions or lifecycle assessments, SMEs respond more positively to concepts such as **"resource efficiency"**, **"cost reduction"**, and **"reducing waste"**. A regional expert suggested that **reframing sustainability through financial and operational benefits**—such as energy savings or lower packaging costs—would increase SME uptake of circular practices.

Moreover, practical examples have proven more persuasive than theoretical models. One referenced case involved a global tech company replacing single-use packaging with reusable alternatives for their components. This seemingly minor change significantly cut waste and improved supply chain sustainability, serving as a compelling example of circular economy thinking in action. Similar practices—such as switching to LED lighting, automating shut-off systems, and adopting reusable input materials—can yield **double dividends**: financial savings and emissions reductions.

Yet, small businesses often **lack the internal expertise** or confidence to identify or implement such changes, particularly in fragmented industrial ecosystems. While industrial parks like SmartParc SEGRO Derby provide shared infrastructure and coordinated decarbonisation strategies, **most SMEs operate independently and cannot access this level of support**. As such, there is a growing case for **sector-neutral, place-based programmes** that offer hands-on workshops, tailored advice, and practical toolkits to embed circular economy practices into everyday business operations.

Some experts have also noted that the prevailing **assumption that sustainability always increases costs** is a critical misconception. In reality, circular economy models—such as shifting from disposable to returnable packaging, or upgrading legacy equipment to reduce energy intensity—can significantly lower

operational expenses. Overcoming this assumption through demonstration projects and peer learning could catalyse broader adoption of circular practices, especially in manufacturing-intensive areas.

In sum, for circular economy principles to gain traction among Midlands SMEs, **policy communication needs to be simplified**, support mechanisms made more practical, and successful examples widely shared. Rather than focusing solely on carbon accounting or high-level targets, interventions should centre on helping firms see tangible value in more sustainable production—financial, operational, and reputational.

The forthcoming Government Circular Economy Strategy, expected later in 2025, is likely to set new national priorities and standards that will directly impact manufacturing and industrial clusters. Positioning the Midlands as an early adopter could provide a competitive advantage and align the region with emerging regulatory frameworks.

.

Case study 3: Enabling Circular Waste Management in Construction – The Enva Approach	
The construction and demolition sector is responsible for an estimated **62% of the UK's total waste** output—making it both a challenge and an opportunity in the transition to a circular economy. A leading waste transformation company operating across the UK and Ireland, Enva has taken a distinctive approach to embed circular principles into one of the country's most resource-intensive sectors. Enva's work is underpinned by the **waste hierarchy**—prioritising reduction and reuse over recycling or disposal. Their operational schemes include: • **British Gypsum Take Back Scheme**: enabling the reuse of plasterboard and reducing gypsum waste in landfills. • **Pallet Loop**: promoting the return and reuse of timber pallets to reduce one-use packaging in construction logistics. • **PPE Recycling Initiatives**: converting personal protective equipment into reusable materials—an often-overlooked waste stream. These models demonstrate how **closed-loop systems** can be applied to construction supply chains, transforming waste into value. A key innovation is Enva's use of **AI-powered waste analysis (Grey Parrot technology)** to capture **real-time waste composition**. This not only improves data transparency but enables more targeted waste reduction strategies. Despite industry claims of over 90% diversion from landfill, real rates average around **87%**. Enva's approach exposes the "true cost of waste" and provides benchmarks for performance improvements. Their adoption of **PAS 402** (a standard for verifying recycling data credibility) further supports a cultural shift from mere compliance toward **performance-led circularity**. This case highlights how **specialist service providers can accelerate circular adoption** across clusters. Their operational scale, technical infrastructure, and regulatory foresight make Enva-	"**We are entering a period of unprecedented regulatory change—more change in the next two years than we've seen in the last twenty. Construction firms must prepare for reviews of waste classification rules (RPS 211 and 291), the rollout of digital waste tracking in April 2025, and significant reforms to waste carrier and broker licensing."** ***— National Business Development Manager, UK-based Waste Services Provider (Presented at the Sustainable Construction Forum, Nottingham Trent University, May 2024)***

type models replicable across Midlands clusters—particularly in construction, manufacturing, and facilities management.	

Policy Interventions Needed

Cluster Development Strategy: A well-defined cluster development strategy should focus on fostering collaboration among businesses, academia, and government. The Midlands Engine Report highlights that clustering in sectors such as aerospace, automotive, and life sciences can significantly enhance regional productivity. Clusters in advanced manufacturing currently account for over 15% of regional employment, but with an integrated approach, they could create up to 100,000 new jobs over the next decade

To address these challenges and unlock the full potential of the Midlands' industrial clusters, a coordinated cluster development strategy is essential. Strengthening governance and collaboration across industrial clusters could create opportunities for shared infrastructure, resources, and innovation, helping to optimize performance and efficiency. The Midlands has the potential to lead in advanced manufacturing, automotive, and food processing, but this requires a more cohesive approach to cluster management. Investment in innovation hubs and public-private partnerships will be key in breaking down silos and fostering collaboration. For example, establishing a regional cluster governance body could improve coordination between stakeholders in government, academia, and industry, enabling a more strategic and integrated approach to industrial development. By doing so, the Midlands could increase output by £1 billion annually in sectors such as advanced manufacturing and digital technologies.

The UK Government's Modern Industrial Strategy also offers a strategic framework for advancing cluster development. It identifies eight priority sectors, each with a dedicated sector plan, and provides opportunities to align Midlands cluster strategies with national sectoral priorities. The strategy also introduces "Industrial Strategy Zones," which integrate Investment Zones and Freeports into a single programme. These zones are designed to accelerate localised clustering by providing targeted incentives, as seen in the Coventry & Warwick Gigapark, which is fostering an electric vehicle and battery supply chain cluster [9].

Also, to harness the full potential of the Midlands' industrial clusters, reducing fragmentation caused by geographical and sectoral boundaries is crucial. This involves aligning the efforts of local authorities, industry, and academia within a unified framework that mitigates the complications arising from clusters spread across multiple jurisdictions. For instance, clusters experience obstacles in scaling operations due to differences in funding eligibility, policy priorities, and resource access across regions. Establishing an overarching Midlands Cluster Development Body could serve to standardize policies, facilitate cross-sector collaborations, and ensure equitable resource distribution, fostering a more integrated environment for growth. Such a body could also coordinate the use of devolved funding streams, ensuring that Growth Plans—like the recent WMCA Growth Plan—serve as operational delivery vehicles for cluster development, linking innovation, skills, and infrastructure investments at the local level [10].

Cost saving circular models: A shift toward a **circular economy model** is equally critical for the long-term sustainability and competitiveness of Midlands clusters. Circular economy principles—such as resource efficiency, recycling, and closed-loop systems—should be embedded into industrial processes across the region. Initiatives like the Black Country Industrial Decarbonisation Zones offer a blueprint for transitioning to net-zero carbon industrial hubs. These zones focus on energy-intensive industries and promote shared resources, collaborative R&D, and green energy solutions to drive down emissions and increase economic resilience. The Midlands' industrial clusters could benefit from adopting similar models, especially in automotive and manufacturing, where circular practices could lead to significant cost savings and reduce environmental impact. By implementing circular business models, the Midlands could improve waste management, reduce emissions, and achieve up to 30% cost reductions in industrial processes

Upskilling and Workforce Development: Workforce development is essential to equip the region's labour market with the skills necessary for supporting cluster growth and modern supply chains. A survey from PwC's Good Growth for Cities shows that skills shortages have negatively impacted 40% of businesses in the Midlands, especially in high-tech industries. Addressing this issue requires investing in targeted training programs that align with the needs of local industries.

By expanding apprenticeship schemes and university-business partnerships, the Midlands could reduce the skills gap by 15-20% in key sectors. This would directly contribute to an estimated £800 million in additional output per year, driven by increased labor productivity.

Catapulting R&D investments: Increasing investment in R&D and incentivizing private sector participation is also essential to drive innovation in Midlands industrial clusters. Strengthening existing R&D centres such as Catapult centres and improving access to R&D tax incentives can encourage more businesses to invest in innovation. A focus on emerging technologies such as digital automation, green energy, and biotechnology will help clusters like HORIBA MIRA and SmartParc scale up their operations. Furthermore, targeted funding to SMEs within these clusters can help to stimulate growth and innovation.

Expanding access to the Apprenticeship Levy for high-tech sectors could help bridge the skills gap by developing a workforce equipped with the necessary skills in green technology, cybersecurity, and biotechnology. A concerted effort to improve skills training, particularly in areas aligned with the green economy, will be critical to support the transition to a circular economy and ensure the region's industrial clusters remain competitive globally.

A regional investment fund, supported by both public and private sectors, could inject capital into emerging clusters. This would stimulate infrastructure development, boost R&D, and foster innovation-driven growth. If cluster governance is improved, the Midlands' economic output could rise by 5-8% annually over the next five years

The UK government's new industrial strategy, *Invest 2035: The UK's Modern Industrial Strategy*, lays out a 10-year roadmap to drive economic growth through innovation, green development, and enhanced productivity within regional clusters. This report's findings align closely with these national priorities, offering policy recommendations that could strengthen cluster-focused investments and foster sustainable growth across the Midlands. By synchronizing with *Invest 2035*, the Midlands can position itself at the forefront of advancements in advanced manufacturing, digital technologies, and other high-impact sectors.

References

1. Driffield N. The Midlands' Productivity Challenge: Exploring the issues. The Productivity Institute; 2022 Jan. Available from: https://www.productivity.ac.uk/wp-content/uploads/2021/10/PIP010-Midlands-Productivity-Challenge-FINAL-070122.pdf
2. Forster S, Hepworth M, Stanworth P. Scaling up institutional investment for place-based impact: The white paper 2021. The Good Economy, Impact Investing Institute, Pensions for Purpose; 2021. Available from: https://www.impactinvest.org.uk/resources/publications/report-scaling-up-institutional-investment-for-place-based-impact/
3. MEO. State of the Region: Executive Summary 2023. 2023 Dec. Available from: https://midlandsengine.org/wp-content/uploads/2023/12/ME_StateoftheRegion_2023.pdf
4. Midlands Engine. Ten Point Plan for Green Growth in the Midlands Engine. Midlands Engine; July 2021. Available from: https://www.midlandsengine.org/wp-content/uploads/2021/11/Ten-Point-Plan-for-Green-Growth-in-the-Midlands-Engine_V1-1.pdf
5. Midlands Engine. *Exploring the Investment Potential of Midlands Clusters: Appendix 1 – Literature Review and Case Studies* [Internet]. Nottingham: Midlands Engine Partnership; 2023 [cited 2025 Apr 20]. Available from: https://midlandsengineobservatory.org/wp-content/uploads/2023/03/Exploring-the-Investment-Potential-of-Midlands-Clusters-Appendix-1.pdf
6. Zymek R, Jones B. UK Regional Productivity Differences: An Evidence Review. Industrial Strategy Council; 2020. Available from: https://www.gov.uk/government/groups/industrial-strategy-council
7. Rhodes M, Duncan J. *Decarbonising Smaller Industrial Clusters across the UK: The West Midlands' Opportunity* [Internet]. Camirus; 2022 Jul [cited 2025 Apr 20]. Available from: https://proenviro.co.uk/wp-content/uploads/2022/07/Decarbonising-Smaller-Industrial-Clusters-West-Midlands-Camirus-July-2022.pdf
8. East Midlands Combined County Authority & West Midlands Combined Authority. *East & West Midlands Compact*. March 2025. Available from: https://www.eastmidlands-cca.gov.uk/content/uploads/2025/03/EMCCA-WMCA-Compact-FINAL.pdf
9. Department for Business and Trade. Invest 2035: the UK's Modern Industrial Strategy. Policy Paper. 23 June 2025. Available from: https://www.gov.uk/government/collections/the-uks-modern-industrial-strategy-2025
10. West Midlands Combined Authority. *West Midlands Growth Plan*. March 2025. Available from: https://growth.wmca.org.uk/
11. SuperTech WM. *SuperTech WM achieves Bronze Award status in European Cluster Management Excellence*. 2025 Jun 19. Available from: https://www.supertechwm.com/news/supertech-wm-achieves-bronze-award-status-in-european-cluster-management-excellence
12. Midlands Engine. Midlands Manufacturing Opportunities. Nov 2021. Available from: https://midlandsengine.org/wp-content/uploads/2021/11/Midlands-Manufacturing-Opportunities-Nov-2021.pdf
13. Midlands Engine. Vision for Growth. 2021. Available from: https://midlandsengine.org/news-events/midlands-engine-vision-growth/
14. Midlands Engine Observatory. Advanced Manufacturing. Available from: https://midlandsengineobservatory.org/advanced-manufacturing/
15. Midlands Investment Portfolio. Transport – Future Mobility. Available from: https://midlandsinvestmentportfolio.org/sector/transport-future-mobility/
16. Midlands Engine. State of the Region Factsheet. Nov 2023. Available from: https://midlandsengine.org/wp-content/uploads/2023/12/ME-Factsheet-SOR-23-November-2023.pdf