Future telecommunications 'New Economy' cluster snapshot

INSIGHTS

The global telecommunications (future telecoms) market is predicted to grow rapidly from £1 trillion in 2020 to £2.4 trillion by 2030, underpinned by the critical nature of communications infrastructure and continued technological transformation with the application and inception of 5G, 6G, and Open RAN (Radio Access Networks) among others.

Reflected in the UK's **Wireless Infrastructure Strategy (2023)** and **Digital Strategy (2022),** digital infrastructure is crucial to unlocking opportunities for growth and prosperity. Current and future telecoms are an integral element of this, demonstrated through UK government targets such as ambitions for nationwide 5G coverage, funding for 5G innovation regions, a 6G strategy, and a 10-point plan for rural communities – including improved broadband coverage.

Parts of the Midlands are at the forefront of the development, testing and delivering of future telecoms. For example, the West Midlands Combined Authority area and Shropshire were recently selected as **5G Innovation Regions.** The former being the UK's first region-wide 5G test-bed (West Midlands 5G is part of the **UK Telecoms Innovation Network).** Furthermore, Solihull will be home to the state-of-the-art **£80m UK Telecoms Lab (UKTL)**, demonstrating the strength of the West Midlands in particular. The West Midlands ranks second only to London for digital infrastructure in **TechUK's 2023 Local Digital Index** and has the highest overall for 5G mobile coverage. The West Midlands is now the UK's best connected region with 65% 5G coverage across providers.

This strength, supported by Midlands-wide university assets and a strong business base, provides a strong foundation for the Midlands telecoms cluster and its ability to support UK-wide growth, and the application of future technologies.

INSIGHTS

Importantly, the region can contribute to the national need to protect digital infrastructure in terms of security and resilience.

This document attempts to pull together available information about telecommunications in the Midlands[1], produced by Midlands Engine Observatory. Due to the rudimentary data on certain aspects of the sector, the findings should be taken with some caution.

"Future telecommunications" is one of the five critical technologies identified in **the UK Science and Technology Framework (2023)** and the **International Technology Strategy**.

These define Future Telecommunications as:

"Evolutions of the infrastructure for digitised data and communications".

Future telecommunications refers to evolving technologies and networks which will enable faster, more efficient, and advanced communications often involving emerging technologies such as 5G and 6G, the Internet of Things (IoT), and artificial intelligence (AI), to connect both people and devices, building on existing telecommunications technology that has long been a critical part of a societal infrastructure.

Methodology

This document's evidence collection has followed a similar process to the recent Midlands Engine **"Exploring the Investment Potential of Midlands Clusters"** report and its individual cluster snapshots.

It has been supported by the expertise of The Data City, especially its Real-Time Industrial Classifications (RTIC) methodology. The principal data source is the **Telecommunications RTIC**, utilising The Data City's AI-driven tool to identify companies operating in new economy clusters.

This tool allows us to investigate cluster features at the local level, helping us

understand economic value and the firms driving it. The Data City identifies companies in the telecommunications RTIC as those that have a specific focus and/or product offer related to the telecoms supply chain, including related to 5G radio access networks, broadcasting and fibre connectivity.

The Midlands Engine Observatory has collated further relevant evidence from other sources to supplement the insight provided by The Data City**.** From now on, telecommunications is referred to as "telecoms" for ease, reflecting the sector as it is today and incorporating the future telecoms cluster highlighted as a potential growth area.

Cluster in context

1,200+ businesses - 17.5% of the UK total. 64% growth since 2013

43,000 jobs - 8.4% of the UK total

106 high growth companies (15.4% of the UK)

36 companies with £100m+ turnover

6% of Midlands university graduates (over 8,000 total) in 2021 studied subjects relevant to telecoms, including from 4 of the top 25 UK universities for Computer Science.

1. For the purposes of this document, the "Midlands" is defined as the 65 Local Authorities that form the Midlands Engine Partnership geography; slightly different to the traditional West Midlands and East Midlands regional (ITL1 geographies).

Business ecosystem[2]

1,247 total businesses active in the Midlands

- 17.5% of the UK telecoms business population; with 64% growth between 2013 and 2022.

- 36 strategic (£100m+ turnover) companies.

- 28.6% of the strategic telecoms companies in the UK have a Midlands location.

106 high growth companies[3]

- 15.4% of the high growth telecoms companies in the UK have a Midlands location.

342 incorporations between 2017 and 2022

- 16.4% of UK telecoms incorporations between 2017 and 2022 have a Midlands location.

- 124 telecoms companies in the Midlands are identified as "scale-ups" and a further 53 as "large scale-ups".

Telecoms companies by company stage (UK and Midlands)			
Company stage	**UK companies**	**Midlands companies**	**Midlands % of UK**
Seed	0	0	N/A
Start-up	1,386	217	15.7%
Scale-up	774	124	16.0%
Large scale-up	363	53	14.6%
Unicorn	4	0	N/A
Established	1,798	347	19.3%
SME	2,787	506	18.2%
Total	**7,112**	**1,247**	**17.5%**
Linked to university spinout	**14**	**0**	**N/A**

Cumulative growth of Midlands telecoms companies (2000 – 2022)
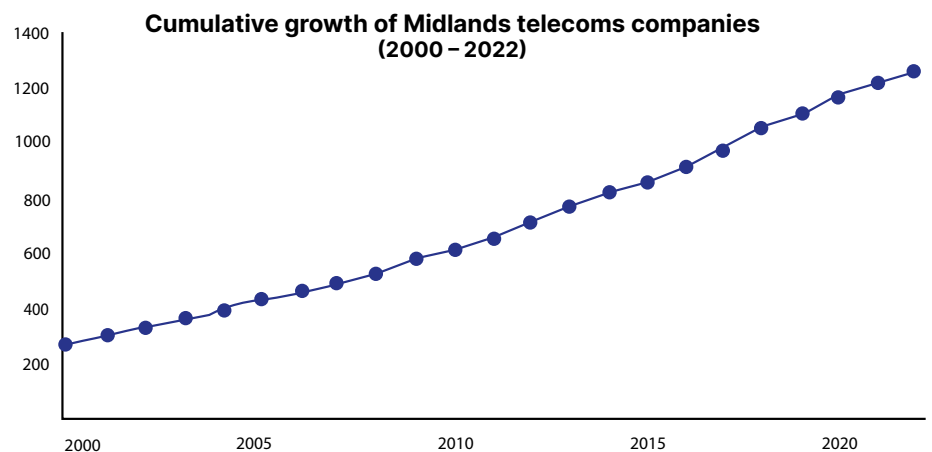
Midlands telecoms companies include:

BT (Region-wide)
BT employs over 12,000 people in the Midlands, delivering almost £1.5bn in Gross Value Added (GVA) according to an **independent assessment**. The company employs over 4,000 people in Birmingham alone, the most of any local authority area outside London.

Telent Technology Services Ltd (Warwick)
Telent is a leading technology company and specialist in the design, construction, support and management of the UK's critical digital infrastructure, drawing on decades of experience in mission critical communications and technology.

Airband Community Internet Limited (Worcestershire)
Airband are broadband specialists with an ambition to build the largest non-urban broadband network for hard-to-reach communities across the UK.

Sherwood Electronics (Nottingham)
Founded in 1993, Nottingham based Sherwood Electronics Ltd has grown to establish itself as a world-class supplier and manufacturer of standard and bespoke cable assemblies.

One Connectivity Limited (Derbyshire)
One Connectivity are the UK's leading experts in business communication, collaboration and IT services. They are a service provider delivering complete solutions to all businesses.

Exascale Ltd (Telford)
Established in 2009, Exascale is a UK business internet service provider (ISP), data centre and cloud solutions provider. The firm provides connectivity, cloud, infrastructure, voice and business services including ultrafast gigabit full fibre to homes or business in Telford, Shropshire and West Bromwich in the West Midlands.

2. The Data City 2023
3. Estimated 20%+ company growth percentage per year

Innovation ecosystem

Project funding

When searching for projects containing "Tele", "4G", "5G", and "6G" on all projects on **UKRI's Gateway to Research dataset** since 2017, Midlands universities received £4.5m (4.5% of UK) funding. The top 5 Midlands university recipients of these awards are:

- University of Warwick: £1.6m+
- Aston University: £798k+
- Loughborough University: £637k+
- University of Birmingham: £581k+
- Nottingham Trent University: £179k+

Relevant high-performing HEI research

There are 4 Midlands universities with high Research Excellence Framework performance in relevant subjects[4]:

- University of Birmingham
- University of Nottingham
- Loughborough University
- University of Warwick

Since 2018/19 the Midlands Engine has received over £12.6m (9.6% of UK) innovation funding with an average award of £225.1k[5]

Telecoms innovation projects funded by these sources include:

Silicon Carbide Power Conversion for Telecommunications Satellite Applications
University of Warwick; £750k -
Silicon carbide (SiC) power electronics offer the potential to enhance efficiency and save space in space vehicles, particularly for telecommunications satellites. This project aims to develop radiation hard SiC devices, such as Schottky diodes and MOSFETs, optimized for space applications, with the goal of modernising power systems and potentially expanding RF channels in satellites.

Joint Wireless Communication and Sensing by Holographic Surface Transceivers (INTEGRATE) BT Group; £265k
The project aims to develop integrated communication and sensing networks for 6G wireless technology, focusing on theoretical foundations, algorithm development and architectural innovations.

Advanced Optical Frequency Comb Technologies and Applications
Aston University; £1.7m
The project will enhance UK capabilities in key strategic areas including optical communications, laser technology, metrology and sensing, including the mid-IR spectral region, highly important for healthcare and environment applications, food, agri-tech and bio-medical applications.

Talent ecosystem

43,168 estimated employees across identified telecoms companies[1] - 68.4% of all UK telecoms employees

8,385 graduates in relevant subjects[7] - 6% of Midlands graduates studied relevant subject to telecoms, although it is unclear if there are any specific telecoms courses at Midlands universities.

Spatial concentrations of talent in the Midlands include Birmingham, Coventry and Nottingham, as seen from the map opposite.

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4. REF 2021 GPA >3.0 in any of Computer Science and Informatics; Mathematical Sciences
5. Innovate UK Award Data, using 'Tele' to search for projects.
6. The Data City 2023
7. Graduates from relevant subjects 2021 (HESA): Information technology; Mathematics; Computer science; Information systems; Software engineering; Artificial Intelligence; Computer Games and Animation; Business Computing; Others in computing

Innovation assets

1. UK Telecommunications Lab: a state-of-the-art £80m facility to be opened in Solihull and run by the National Physical Laboratory (NPL)

2. West Midlands 5G (WM5G)

3. The 5G Connected Forest project (Sherwood Forest)

4. The Communications Systems Laboratory (University of Warwick)

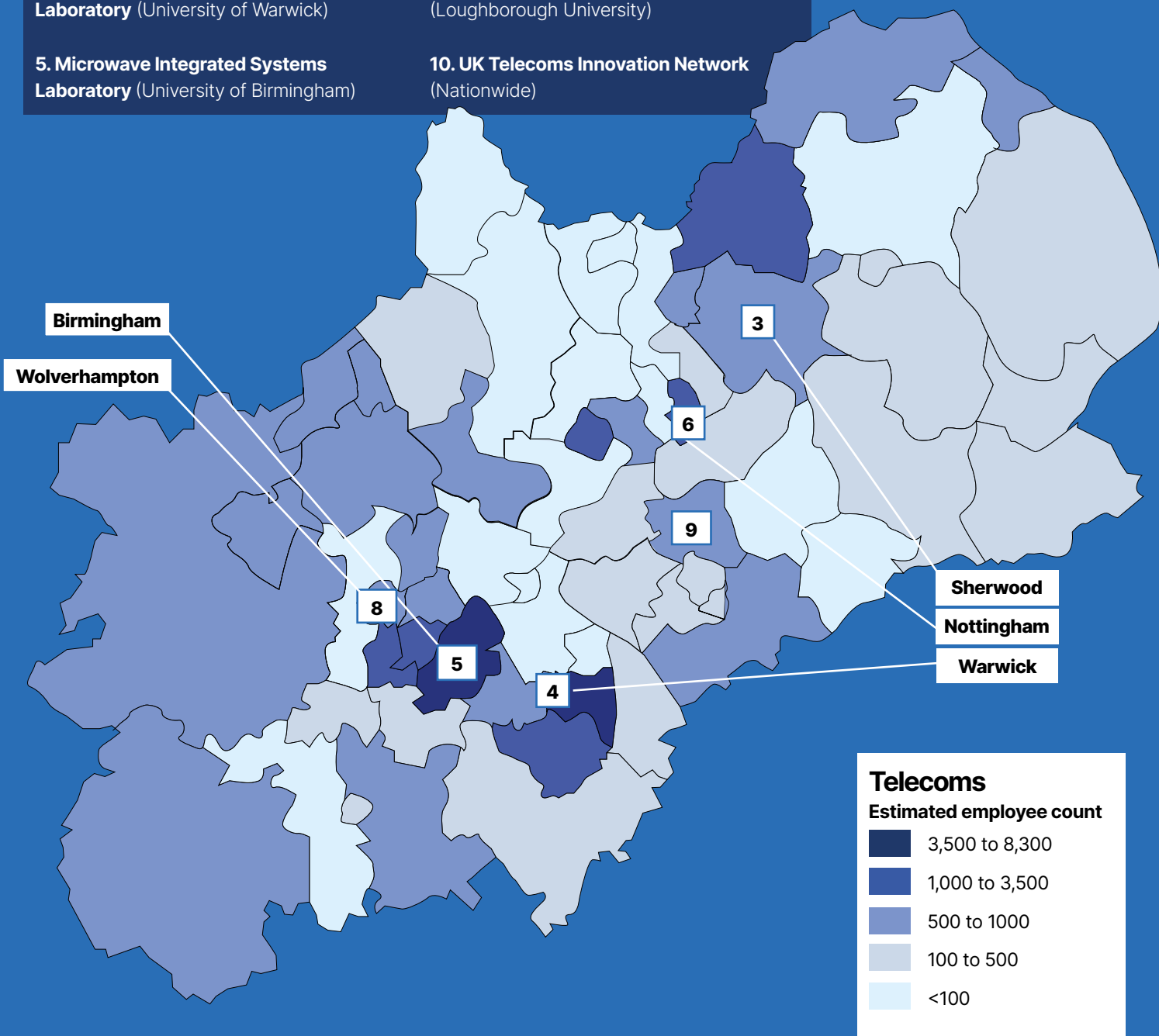**5. Microwave Integrated Systems Laboratory** (University of Birmingham)

6. The SWIFt Lab (Nottingham Trent University)

7. Digital Innovation Centre (Nottinghamshire)

8. The Centre for Future Networks and Autonomous Systems (University of Wolverhampton)

9. 5G Research Centre (Loughborough University)

10. UK Telecoms Innovation Network (Nationwide)

Birmingham

Wolverhampton

Sherwood

Nottingham

Warwick

Telecoms
Estimated employee count

- 3,500 to 8,300
- 1,000 to 3,500
- 500 to 1000
- 100 to 500
- <100

Investment ecosystem[8]

Encompassing telecoms, internet of things (IOT) and connected device technology, Wavteq finds the following about Midlands investment in digital industries:

Investment Metric	Investment Amount
FDI CapEx 2017-21	$323m; 14% of UK total
DDI CapEx 2017-21	$6.9m; 3% of UK total
Fundraising volumes	Mean av. £563,821 fundraising investment; £42.2m in 75 investments (inc. £1.9m across 28 seed investments; £21.3m across 25 venture investments).
FDI jobs 2017-2021	1,352 jobs; 24% of UK total
DDI jobs 2017-2021	218 jobs; 12% of UK total
FDI projects 2017-2021	13 projects; 11% of UK total
DDI projects 2017-2021	3 projects; 6% of UK total.

Wavteq forecast $7.58bn FDI CapEx in this cluster in the UK in 2025.

Telecoms services and internet of things (IoT) companies in the Midlands received 2.31% of the total equity received in the UK from 2017 to 2021 by high growth companies in this sector, despite making up 15.3% of the sector's business population. These companies also received just 4.51% of all grant money received by companies in this sector.

The Midlands has received a relatively low level of funding in telecoms despite it representing a high portion of the UK's industry, receiving just 2% of total equity by high-growth companies, and 5% of all grant money received by companies in relevant sectors (2017-2021).

£261.1m worth of investment funding identified within telecoms companies registered or active in the Midlands since 2009[9]. Companies who received investment include:

- **Airband Community Internet Limited** (Worcestershire)
- **Lightspeed Broadband** (Lincolnshire)
- **Journeo PLC** (Leicestershire)
- **Wavenet Limited** (Solihull)

8. Wavteq 2022; note broader digital sector definition than just telecoms.
9. Dealroom and The Data City, 2023

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