Advanced Connectivity Technologies: Market Scoping Analysis

Research report for the Department for Science, Innovation & Technology (DSIT)



Contents

Key Fin	dings1
1. Intr	oduction4
1.1.	Research Context and Background4
1.2.	Methodology5
1.3.	Data Sources and Limitations9
2. See	ctor Profile and Definition12
2.1.	Definition and Taxonomy12
2.2.	Sector Profile
3. Eco	onomic Contribution
3.1.	Estimated Revenue and Gross Value Added18
3.2.	Estimated Employment19
3.3.	Comparison and Benchmark21
4. Loo	cation
4.1.	Regional Analysis
5. Inv	estment Landscape
5.1.	Venture Capital and Private Investment25
6. Re	search and Innovation
6.1.	R&D Expenditure
6.2.	Grants and Participation

Key Findings

In May 2025, the Department for Science, Innovation and Technology (DSIT) commissioned Perspective Economics to undertake a short mapping exercise exploring the size and scale of the UK Telecoms ecosystem. This exercise included a review of the overall telecoms ecosystem, and identification of firms aligned to the field that government has identified as one of its critical technologies - 'Advanced Connectivity Technologies' (previously known as Future Telecoms).

This analysis employs a tiered approach, capturing both established telecommunications (typically aligned to SIC 61, with identification of other relevant firms) and firms identified as actively involved in the provision or development of Advanced Connectivity Technologies (ACT). The latter typically encompasses novel evolutions of infrastructure that carry digitised data, such as, photonics, satellite communications technologies, the most advanced 5G wireless systems and other developments bridging towards 6G. However, there is no clear line that can be drawn for ACT alone so a 'hybrid' classification is also applied to identify established firms that also appear to overlap both categories i.e. they develop or utilise Advanced Connectivity Technologies as a proportion of their wider established telecoms activities.

The research team undertook multiple stages to identify, classify, and enrich the data on relevant firms.

We note that this research has been undertaken as part of a rapid review and therefore captures an initial assessment of the market.

Key findings include:

Sector Scale

- The research identifies 11,812 active telecommunications firms registered in the UK in 2025.
- This includes:
 - 344 firms that have been tagged as wholly ACT related (i.e. the focus or main activity of the firm appears to include the provision of ACT within the telecoms supply chain).
 - A further 2,430 'established telecoms' firms actively involved in ACT activity that are tagged as 'hybrid' i.e. they offer **both** established products and services in the sector and are actively involved in developing and investing in advanced connectivity. This includes some of the UK's largest telecoms firms (such as Vodafone, BT and Virgin Media O2) that invest in next-generation technologies, whilst also servicing core telecoms infrastructure.
 - This suggests that almost one in four (23%, 2,774) of the telecoms firms identified align fully or partially to the ACT definition used within this study.
- The wider set of firms (9,038, 77%) are tagged as 'established' telecommunications firms.

Economic Contribution

- Based on the most recent data (as set out in the methodology), we estimate that in 2024, that UK registered telecoms companies (as defined in this study) generated a combined £101.7 billion in reported global revenue and £43.2 billion in Gross Value Added (GVA).
- This covers all known revenue and GVA from domestic and international activity as reported by the UK entity within their most recent annual accounts to Companies House. Further detail is set out in Section 1.3 and 3.1.
- Review of known revenue and GVA data among UK registered firms suggests that established telecommunications firms account for £95.8 billion in revenue and £41.6 billion in GVA, while core ACT firms contributed £5.9 billion in revenue and £1.6 billion in GVA in 2024.
- Three of the established firms (Vodafone, BT, and Virgin Media O2) account for approximately 75% (£32 billion) of direct sectoral GVA.
- The research also estimates the proportion of GVA that could be ACT-related within the 'hybrid' established firms that appear to offer or develop ACT in the market.
- This approach suggests that up to a further £9.6bn (rounded) of GVA reported by established UK-registered telecommunications firms could be attributable to ACT related activity. This is an experimental estimate only based on weightings at a firm level estimated by Perspective Economics' review of web and trading data.
- This, in combination with the direct GVA measured for the dedicated UK-registered ACT firms (£1.6bn, rounded) suggests that ACT activity within the telecommunications sector could have generated approximately £11.1bn (rounded) in GVA in 2024, and that approximately £1 in every £4 in direct GVA within the telecoms sector could be mapped to ACT activity. This also suggests that up to £26.2bn of UK-registered telecoms revenue could be ACT related.
- The research also finds that, within the telecoms sector, SIC-based approaches can capture most of the established economic value but exhibit limitations in mapping emerging areas.

Employment

- To estimate sectoral level employment, annual accounts from UK registered companies were reviewed, which may capture international headcount for large firms.
- UK registered telecoms firms reported approximately 266,000 FTEs in 2024, of which, an estimated 17,000 FTEs are employed in core ACT firms.
- Further, review of employment under SIC 61 only on this basis suggests approximately 180,000 FTEs across the telecoms ecosystem. This broadly aligns against previous employment estimates set out with the DSIT Economic Estimates for Telecoms (2023-24) of 179,000 UK-filled jobs (including both full and part-time). This consistency provides additional confidence in the research approach.

Location

- The regional distribution of all telecoms firms in 2025 suggests a slightly higher concentration in London and the South East (43% of firms, compared to 34% for all UK businesses).
- Review of ACT firms by registered location highlights that London and the South East also demonstrate higher proportional counts, collectively representing 53% of identified firms (compared to 43% for the wider sector).
- Scotland also has a stronger proportional ACT presence (8% of firms) compared to wider telecommunications representation (4%), potentially highlighting specialisation in advanced connectivity. This is also apparent in the South West (10% versus 7% general).

Business Models

 The majority of telecommunications firms in 2025 appear to be service-dominated (49% of firms); however, ACT firms typically concentrate on areas such as equipment (27%), R&D (18%), and specific domain applications, such as satellite communications (17%) based on best-fit classification.

Investment Patterns

- Between 2018 and 2024, 59 ACT firms secured 200 investment deals totalling £1.57 billion, while 97 established telecommunications firms raised 194 deals totalling £2.41 billion. This highlights almost £4bn raised by telecoms firms through Venture Capital (VC) and external investment since 2018.
- In 2024, ACT firms raised £108 million across 27 deals (down 27% from £148 million in 2023), suggesting sustained investor interest despite wider challenging investment conditions.
- 18% of ACT firms secured external investment compared to 1% of established telecommunications firms.

Research and Innovation

- Total R&D expenditure reached £1.4 billion in 2024, with £847 million from established telecommunications and £511 million from ACT firms.
- 126 firms received 392 public grants totalling £193 million between 2018 and 2024, with ACT firms securing £118 million (61%) across 313 grants.
- Small ACT firms secured 228 grants totalling £74.2 million (38% of all grant funding).

1. Introduction

1.1. Research Context and Background

In May 2025, DSIT commissioned Perspective Economics to undertake a short mapping exercise exploring the size and scale of the UK Telecoms ecosystem, with a specific focus on better understanding the economic impact of companies involved in developing or deploying Advanced Connectivity Technologies. This exercise included:

- A review of the 'official' telecommunications sector (as classified under SIC 61). <u>DSIT's Economic Estimates</u> provisionally estimate the telecommunications sector contributed £34.4 billion to the UK economy in 2023. The research covered in this report utilises a different methodology to provide more granular estimates of the performance of telecoms sector for 2025.
- Please note that as this study uses a different methodology (as set out in Section 1.2), any comparisons or benchmarks should be treated as indicative rather than fully comparable.
- Identification of firms within the telecoms sector considered to offer products or solutions aligned to 'advanced connectivity technologies (ACT, formerly called future telecoms)'. This is one of the five critical technologies set out within the <u>DSIT Science</u> <u>and Technology Framework</u>.

Advanced Connectivity Technologies (ACT) were defined by DSIT as "technologies that enable the transmission of data in our increasingly digitised economy and society – connecting both people and things. These include technologies that make up advanced wireless systems, such as 5G and the transition to 6G, non-terrestrial networks, advanced optical networks, the growing integration of AI – and in time quantum – with communications." This includes areas such as quantum communications, photonics, RF solutions, low-orbit satellite, and emerging technologies that could be part of 6G. A full definition and classification approach are set out in Section 2.

This document explores the number of relevant firms identified across the telecommunication sector and estimates the proportion of firms that may be classified into 'advanced connectivity' based upon review of company trading data. It explores related revenue, employment, Gross Value Added, and investment activity for relevant firms.

1.2. Methodology

In order to understand the telecoms sector within the UK, the research team has taken a 'broad' and 'narrow' approach to help identify relevant firms and enable classification and enrichment. The following stages were undertaken:

Stage 1: Sector Definition(s):

The research team sought to identify as many relevant firms as possible for this study (to ensure that relevant firms are not omitted from the analysis), and to provide a thorough baseline for subsequent classification (e.g. reviewing if firms are in scope and what they provide in relation to telecommunication products or services).

DSIT provided a dual-definition for purposes of this study:

- Broad definition (All Telecoms): In line with the <u>DSIT Economic Estimates (2023)</u> the telecoms sector is defined as any active firm under the following Standard Industrial Classification (SIC) code:
 - o 6110 Wired telecommunications activities,
 - o 6120 Wireless telecommunications activities,
 - o 6130 Satellite telecommunications activities,
 - 6190 Other telecommunications activities.
- Advanced Connectivity Technologies (ACT) definition applied: "Advanced Connectivity Technologies are the range of cutting-edge technologies that enable the transmission of data in our increasingly digitised economy and society – connecting both people and things. These include technologies that make up advanced wireless systems, such as 5G and the transition to 6G, non-terrestrial networks, advanced optical networks, the growing integration of AI – and in time quantum – with communications."

The scope of Advanced Connectivity Technologies is considered to include a combination of the four SIC codes above, and additional technologies and search terms listed below:

- Quantum Communications
- QKD (Quantum Key Distribution)
- Photonics (PIC)
- Hollow core fibre
- Radio Frequency (RF) Solutions
- Large Scale Compute
- High Performance Compute
- Semiconductors (Design/Hardware)
- Advanced materials
- Low-Orbit Satellite (LEO, MEO, GEO)
- High Altitude Platforms/UAVs

- Cloud Telco
- MMWave
- Sub Terahertz/Massive MIMO
- Network Function Virtualisation
- Network Virtualisation
- Software-defined networking (SDN)
- 6G
- LPWA Network
- Open RAN
- SDWAN
- Free Space Optics

- Edge Computing
- Quantum Communications
- Fibre Optics

- Hollow-core Fibres
- Satellites

The research team utilised this working definition to develop a long-list of approximately 150 relevant search terms to identify additional firms potentially in scope. However, in subsequent phases, to be considered relevant for 'Advanced Connectivity Technologies', each firm has undergone individual review to consider its alignment to using these technologies within the context of telecommunications (to help prevent false positives in other sectors such as semiconductors or advanced materials). We note this is a non-exhaustive list of key word search terms and additional technologies to capture the forward looking and emerging nature of ACT.

Stage 2: Longlisting Process:

The research team identified:

- **SIC61**: Approximately 20,400 active firms with a primary or secondary SIC code 61 (Telecommunications).
- **Baseline analysis**: In 2023, the research team undertook internal modelling to review c. 600 firms considered relevant to ACT and wider connectivity. These firms were subject to additional review.
- Secondary datasets: The research team also reviewed existing sources such as Beauhurst to identify other firms (outside of SIC) that mentioned provision of telecommunications or related terms, and wider industry lists.
- Web data: The research team holds web data on millions of UK firms, including registered and trading names, websites, and products, services, and descriptions in their own words. This can enable identification of relevant firms.

Stage 3: Data Cleaning and Refinement:

Approximately 32,000 firms were identified as potentially relevant following the web matching process; the research team subsequently refined this to remove false positives and duplication and verify active trading status and relevancy. This includes a basic review of description data, trading status, and web presence – removing any firms with limited evidence of trading or relevance to telecommunications provision. Additional cleaning was also undertaken to remove any notable duplication, low-quality data, and to verify matching between datasets.

Stage 4: Web Enrichment and Data Validation:

The research team undertook additional web review and searches to further review whether each firm should be included within the study. This included use of internal Natural Language Processing (NLP) and Anthropic Claude 4 Sonnet to review text data, identify relevance to the definition and taxonomy, and determine whether firms should be included or excluded from the study, and if they align to the broad definition of telecoms, or the advanced connectivity definition.

The research team also undertook final matching of all firms identified and considered in scope to an appropriate registered entity. The team removed subsidiary entities to reduce the risk of double-counting wider economic estimates for the sector. The team also identified firms with a relevant SIC that could be scoped as telecommunications; however, review of trading data suggested these may not be in scope (e.g. where a firm identifies with a SIC code but provides a different service e.g. retail) or have a clear trading presence (e.g. a registered business, but no or limited evidence of trading in the sector). This included c. 3,900 firms under SIC61, where web and trading data review highlighted that their primary activity may not be as relevant to telecoms provision.

Stage 5: Analysis and Reporting:

The research team identified 11,812 active firms considered active and relevant to the study (all telecoms providers with an active presence, with additional review). This includes 7,049 firms where the research team has identified a registered entity, confirmed a trading presence and relevance to the study (with web data), and a further 4,763 firms with a relevant SIC code that had more limited data, but are considered in scope based on basic review.

For those with sufficient web or description data, the team has classified these whether they appear 'dedicated' i.e. primarily offer products or services related to telecoms (e.g. ISPs, connectivity), or 'diversified' i.e. also offer wider products or services not related to telecoms (e.g. large consultancy firms).

Firm description, trading, and accounts data was also used to tag companies whether they offered or developed solutions linked to the ACT taxonomy (see Table 2.1), and whether they were a 'core' ACT firm (i.e. only or mainly provide ACT related solutions to market), or an 'established' telecoms firm with some involvement in or mention of ACT as part of their wider business (hybrid), or considered less in scope with respect to ACT, but still included in a telecoms market study (this three-tiered approach is set out in Figure 1.1). The research team gathered extensive trading and web data for each firm where possible and used a bespoke Python script drawing on natural language processing and the use of agreed LLMs to enable classification and segmentation. This was agreed with DSIT and subject to analyst review.

The team identified known revenue, employment and Gross Value Added for firms that provide full accounts (see section 1.3 for data sources). Where a firm provides full accounts, this can include revenue, employment or GVA values that relate to the accounts filed by the whole firm. For example, a Public Limited Company (PLC) may report global activity through their UK entity. Conversely, a multinational firm headquartered outside of the UK that has UK operations may solely or primarily report UK-related activity through their UK entity only.

As such, the research team report the values as filed by UK registered entities and have reviewed and adjusted some of the largest employment values to remove any potentially significant outliers. All final data has been shared with DSIT and used for analysis within this report.

The team have not estimated these values for any firms that do not provide this data (where they are not required to file full accounts). As such, this provides a baseline for the sector that can be analysed over time, consistent with prior estimates.

Please note that each company has been checked for active status as of May 2025, and all web and text data was gathered in May 2025. This study utilises company accounts from the most recent financial year. This typically relates to company accounts published in 2024; however, individual firms will have different account reporting timeframes. The number of firms and firmographics are considered accurate as of May 2025, and aggregate measures such as revenue, GVA, employment and investment reflect the research estimates for the most recent full year (2024).





Overall, this study considers the 11,812 active deduplicated firms, with segmentation applied where appropriate to the research.

The table below also sets out where firms have been tagged as dedicated or diversified. Where insufficient web data is available, but a firm is in scope of SIC61, this is assumed to be dedicated. This ensures that the research team capture revenue, employment, GVA, investment and R&D activity for dedicated firms only to avoid including non-telecoms related activity (i.e they only or mainly focus on telecoms provision), and this can be segmented for core firms developing ACT, established telecoms firms involved in using or engaging with ACT, and the wider telecoms sector. However, the use of these tags mean that policy can consider the full telecoms ecosystem and explore the sectoral data by what firms offer to the market, and the extent to which their business model focuses on telecoms provision. We summarise the breakdown below:

Туре	Core ACT	Hybrid (Established Telecoms firms with some ACT activity)	Established (non- ACT)	Total
Dedicated	272	2,204	8,319	10,795
Diversified	72	226	719	1,017
Total	344	2,430	9,038	11,812

Table 1.1 Number of Companies by Classification Type, 2025

1.3. Data Sources and Limitations

Companies House:

Companies House data provides a key foundation for identifying registered UK businesses within the telecommunications sector. We extracted all active firms with primary or secondary SIC code 61 (approximately 20,400 firms). While comprehensive in capturing registered entities, this data source has some limitations:

- SIC Code Accuracy: SIC codes are often self-assigned and may not accurately
 reflect a company's current activities. Many relevant firms may also be assigned
 against other SIC codes. Companies House data also typically provides limited
 information about product or service offerings beyond broad SIC categorisation
- Data Completeness: Active firms may have limited or non-verifiable trading data Annual accounts are subject to proportionality depending on company size and scale. As such, revenue, employment and Gross Value Added (GVA) may only be available for a relatively small proportion of the sector (large or medium firms)
- **Reporting timeframes:** A time lag in annual accounts reporting (typically 9 to 21 months) and variance in company reporting requirements may mean that company level data can vary in timeframe. However, this analysis uses the most recent financial accounts available at the time of analysis on a firm-by-firm basis, to estimate the most recent aggregate values within the reporting period.
- Geographic scope of reported values: Each company identified has been matched against the most relevant UK registered entity, with values extracted from UK entity annual accounts. Crucially, the geographic scope of these reported values may vary by entity structure:
 - Some UK-registered entities (particularly larger PLCs) may report consolidated global figures, meaning their revenue, employment or GVA may include substantial international operations. Conversely, UK subsidiaries of

foreign multinationals may report primarily UK-focused activity through their UK filing entity. Other entities may report mixed UK and international operations, potentially reflecting revenue from domestic and international markets.

 The research team report values as filed by UK registered entities without adjustment for geographic scope, except where employment figures were reviewed for some very large global firms to remove potentially significant outliers. Further research into UK-specific employment and revenue allocation could be undertaken to provide more granular geographic insights regarding revenue and employment breakdowns by UK region and international activity.

We also supplemented primary data sources with wider databases including **Beauhurst** (a leading platform for tracking investment data and growth indicators for scale-ups and high-potential businesses, and **BvD FAME** to review detailed financial information for companies filing full accounts.

Web Data

Web data can be used to help verify and enrich relevancy to telecoms provision, including review of company websites, news and press releases, and commercial descriptions. This enables identification of telecommunications activities beyond SIC classifications and verification of trading status. However, limitations include:

- **Incomplete coverage**: Approximately 7,049 of the 11,812 firms had sufficient web presence for detailed analysis, with many smaller providers lacking discoverable digital footprints (e.g. only had a registered entity with no clear website)
- Website accessibility: Some company websites were non-functioning (e.g. expired domains). Further, the review of firms respects relevant web crawling protocols, meaning that web data is not collected for those that restrict automated data collection
- **Data cleaning**: Significant effort is required to accurately match web domains to Companies House registered entities, particularly where firms operated multiple domains or brands, or where trading names differ from registered names
- Websites can cover multiple entities within corporate groups; as such, the research team undertook deduplication of subsidiaries across the full dataset
- LLM analysis limitations: While we use Large Language Models (LLMs) to efficiently process large volumes of web content, this approach may introduce potential biases in classification decisions, varying confidence levels in technology identification, and the need for human-in-the-loop verification of LLM-based classifications. Further, as this is a rapid review of evidence, LLMs have been used to review all available text data to verify relevancy and estimate initial high-level proportionality with regard to ACT activity. Additional verification (e.g. with survey data or employment estimates) could be utilised in future research to test these findings. As such, this approach should be treated as experimental, but can provide insight into market dynamics at pace, and to a high quality.

As such, this approach provides valuable insights beyond traditional data sources and represents a snapshot at a specific point in time (May 2025).

1.4. Acronyms Used in this Report

Acronym	Full Term
ACT	Advanced Connectivity Technologies
BERD	Business Enterprise Research and Development
DASA	Defence and Security Accelerator
DSIT	Department for Science, Innovation and Technology
FTE	Full Time Equivalent
GEO	Geostationary Earth Orbit (satellite)
GVA	Gross Value Added
IoT	Internet of Things
ISP	Internet Service Provider
LEO	Low Earth Orbit (satellite)
LLM	Large Language Model
LPWA	Low Power Wide Area (network)
MEO	Medium Earth Orbit (satellite)
MIMO	Multiple Input Multiple Output
ONS	Office for National Statistics
PIC	Photonic Integrated Circuit
QKD	Quantum Key Distribution
R&D	Research and Development
RF	Radio Frequency
SDWAN	Software-defined Wide Area Network
SDN	Software-defined Networking
SOC	Standard Occupational Classification
SIC	Standard Industrial Classification
SME	Small and Medium Enterprise
UAV	Unmanned Aerial Vehicle

2. Sector Profile and Definition

2.1. Definition and Taxonomy

This research applies a dual-definition approach to capture both the established telecommunications sector and firms aligned to Advanced Connectivity Technologies (ACT).

Telecommunications Sector (Broad Definition):

The telecommunications sector is broadly defined as businesses engaged in the provision of telecommunications services or infrastructure. This includes:

- Established telecommunications providers (aligned to SIC 61):
 - 6110: Wired telecommunications activities
 - 6120: Wireless telecommunications activities
 - o 6130: Satellite telecommunications activities
 - o 6190: Other telecommunications activities
- **Telecommunications providers** operating under alternative SIC codes but demonstrating significant telecommunications activities through web evidence and commercial descriptions

This definition broadly aligns with previous DSIT Economic Estimates but extends beyond standard industrial classification to capture relevant firms that may be insufficiently classified, as well as reviewing firms under SIC61 that may have limited evidence of providing telecommunications products or services.

Advanced Connectivity Technologies (ACT)

Previously known as Future Telecoms, ACT is defined by DSIT as "technologies that enable the transmission of data in our increasingly digitised economy and society – connecting both people and things. These include technologies that make up advanced wireless systems, such as 5G and the transition to 6G, non-terrestrial networks, advanced optical networks, the growing integration of AI – and in time quantum – with communications."

For analytical purposes, we have operationalised this definition by identifying firms actively engaged in developing or deploying specific technologies within the following taxonomy, where used within the context of telecommunications. The research team has used review of trading descriptions, and Natural Language Processing to identify where firms appear to be using these technologies within a telecommunication approach.

Network		Transmission		Ph	Physical Layer Specialised		Supporting			
Infrastructure						Co	nnectivity	Те	chnologie	es
٠	Open RAN	•	6G	٠	Fibre Optics	•	Quantum	٠	Large	Scale
•	Edge Computing	•	MMWave	•	Hollow-core Fibres		Communications		Compute	/High

Table 2.1 ACT Taxonomy, 2025

٠	Network	٠	Sub	٠	Radio Frequency	٠	QKD (Quantum		Performance
	Function		Terahertz/Massiv		(RF) Solutions		Key Distribution)		Compute
	Virtualisation		e MIMO	•	Photonics (PIC)	•	Satellites	•	Semiconductors
•	Software-defined	•	Free Space			•	Low-Orbit		(Design/Hardwar
	networking		Optics				Satellite (LEO,		e)
	(SDN)	•	LPWA Network				MEO, GEO)	•	Advanced
•	Cloud Telco	•	SDWAN			•	High Altitude		materials
							Platforms/UAVs		

Source: Taxonomy Developed by DSIT, and used for this research

Classification Approach

Companies were classified using a multi-stage process:

- 1. Initial identification through SIC codes, web data matching, and industry listings
- 2. Verification of relevance through review of company descriptions and activities
- 3. Classification into categories:
 - Core ACT Providers: Firms demonstrating clear evidence of involvement in one or more ACT technologies
 - Established Telecoms with ACT provision (Hybrid): Firms providing established telecommunications services, that appear to utilise or develop some ACT elements
 - **Established Telecoms (non-ACT)**: Firms providing established telecommunications services without significant ACT elements
 - Out of Scope: Firms with telecommunications SIC codes but limited evidence of relevant activity (or evidence to suggest not in scope) – removed from the final set

4. Assessment of Focus:

- Dedicated: Firms primarily focused on telecommunications (all or most of apparent business activity)
- **Diversified**: Firms with significant but not primary focus on telecommunications

This taxonomy and classification approach enables consistent analysis of both the established telecoms sector and the emerging technologies shaping its future, providing DSIT with a comprehensive view of the UK's telecommunications ecosystem in 2025.

In line with wider sectoral studies, this analysis is focused upon organisations that include all of the following attributes:

- Have a clear presence within the UK market, through a UK registered business that reports to Companies House on an annual basis
- Demonstrate an active provision of commercial activity (e.g., through the presence of an active website / social media presence)

- Provide telecommunications products or services to the market (i.e., sell or enable the selling of telecommunications solutions to other customers) – aligned to the taxonomy
- Have identifiable revenue or employment within the UK related to telecommunications
- Appear to be active at the time of writing (i.e., have not, or are not in the process of dissolution)
- Are not charities, universities, networks, and individual contractors (non-registered) which are all excluded for analysis purposes

2.2. Sector Profile

This section explores the 11,812 firms in scope of the analysis. This includes 11,468 firms that appear to align closely to the 'established telecoms' definition, and 344 firms within the core Advanced Connectivity Technologies definition. We explore size, dedicated or diversified status, and key product or service offering below.

Size

Based on Companies House and FAME data, within the UK the vast majority of all businesses are Small and Medium Enterprises (SMEs), and it is therefore to be expected that the majority of registered businesses within the sector are small (17%) or micro (77%) in size (Figure 2.1). The UK is also home to over 200 large telecoms firms with significant economic activity (as explored in Section 3).

Size classifications have been applied to all firms within the dataset using available turnover and employment data. Where revenue data is not available due to filing requirements, employment data is typically available via FAME, with these firms usually classified as micro entities. It should be noted that comprehensive turnover and employment data is only available for approximately 851 companies (those filing full accounts), with size classifications for the remaining firms based on available partial data.



Figure 2.1 Estimated Size of All Telecommunications Firms, 2025

Source: Perspective Economics, n = 11,812

Figure 2.2 explores the estimated size of firms within Advanced Connectivity Technologies. Whilst this is a smaller sample (n=344), it highlights how almost a quarter of firms (23%) are either large (10%) or medium (13%) potentially reflecting inward investment into the UK from significant technology firms involved in new telecoms technologies. It also highlights how ACT firms are twice as likely to be small (36%) than the broader sector (17%) potentially indicative a significant base of firms for further growth, innovation and engagement (as discussed in Section 5 and 6).





Dedicated and Diversified Status:

Within this research, we attempt to categorise firms by whether they are either:

- Dedicated (or 'pure-play'), i.e., all or most of the business' activity, revenue or employment can be attributed to the provision of telecommunications products or services
- Diversified, i.e., the firm provides some evidence of providing relevant products or services, but this is not the main focus of the commercial entity (e.g. consultancies or technology firms that offer other solutions)

This delineation is used to ensure that the statistics in this report are aligned primarily to 'dedicated' firms to capture metrics that are closest to the sectoral scope, without including measures from wider sectors. Table 2.2 highlights that the majority of telecoms providers in scope appear 'dedicated' (91%) in scope, reducing to 79% for ACT firms. This is expected given the overlap of these technologies into areas such as space, energy, semiconductors, and security etc.

Source: Perspective Economics, n = 344

Table 2.2 Dedicated and	Diversified Estimates, 2	2025
-------------------------	--------------------------	------

	All (Known)	ACT
Dedicated	91%	79% (272)
Diversified	9%	21% (72)

N = 11,812 (estimate), n = 344

Classification by Product and Service:

Where possible, the research team has also reviewed web data available for the majority of firms to understand the market composition with respect to core products and services. Figure 2.3 highlights that service providers represent the largest segment of activity (49%), followed by Systems Integration (12%), Infrastructure (11%), and Equipment Vendors (9%) collectively accounting for nearly a third of all firms. Network Operators account for approximately 7% of the sample.





N = 5,398 dedicated with web presence

For ACT (Figure 2.4), this highlights that Equipment Vendors (29%) constitute the largest category, reflecting the focus on hardware and connectivity underpinning these firms. This is followed by firms with a UK focus on R&D (19%, compared to 1% for all telecoms firms), and satellite communications (19%). Software also plays an important role (with 14% of ACT).



Figure 2.4 Product and Services – Main Classification (Core ACT Firms), 2025

N = 323 with web presence (of 344)

3. Economic Contribution

3.1. Estimated Revenue and Gross Value Added

The research team has reviewed the 11,812 relevant UK registered firms and identifies known financial data for 851 companies (where firms report revenue and employment data due to filing requirements based upon size).

These 851 firms account for all known sectoral revenue (£101.7bn) and are the only companies with known financial data from filed accounts. We have explored estimated values from database provider BvD FAME for remaining firms, which collectively account for less than 10% of known revenue (£9.3bn estimated across remaining firms compared to £101.7bn in known full accounts). For analytical purposes, we use known filed data only rather than third-party estimates.

Further, 424 firms have also provided sufficient data to estimate firm-level Gross Value Added (including operating profit, remuneration, amortisation and depreciation) and collectively represent firms generating 94% of known sectoral revenue. As such, this exercise captures most of the economic activity underpinned by the telecoms sector.

Please note these values cover all known revenue and GVA from domestic and international activity as reported by the UK entity within their most recent annual accounts to Companies House.

In the most recent financial year (2024), accounts data¹ suggest reported:

- Telecommunications Sectoral Revenue: £101.7bn reported by 851 firms
- Gross Value Added: £43.2bn reported by 424 firms

Туре	Revenue	Firms with	GVA (£bn)	Firms with
	(£bn)	known revenue		estimated GVA
Established	£95.8bn	783	£41.6bn	371
Telecommunications				
Core Advanced	£5.9bn	68	£1.6bn	53
Connectivity				
Technologies (n = 344)				
Total	£101.7bn	851	£43.2bn	424

Table 3.1 Summary of Reported Sectoral Revenue and GVA estimates, 2024

Review of Gross Value Added (GVA) data also highlights how:

¹ Please note we only explore revenue and GVA data where known within company accounts. This approach prioritises filed accounts rather than use of third-party estimates for firms that do not include revenue or profitability within their public accounts.

- UK registered firms with a Primary SIC classification of 61 (Telecommunications) have a combined reported GVA of £34bn (286 firms)
- Firms that do not have a Primary SIC 61 but have demonstrated relevance to the Telecommunications sector have a combined GVA of £9.2bn (138 firms) This includes, for example, where relevant telecommunications firms (e.g. VMED O2 UK LIMITED) are classified under SIC70100 (Activities of Head Offices)
- GVA distribution analysis highlights a significant concentration of economic contribution among major providers. Approximately three-quarters (£32 billion) of the direct GVA is generated by just three firms: Vodafone, BT, and Virgin Media O2

However, the research team also sought to estimate the ACT-related GVA generated by firms with a 'hybrid' classification (i.e. established firms that also demonstrate involvement with ACT as part of their wider business).

In order to estimate the proportion of GVA that ACTs may underpin, the team applied an estimated proportion against each of the 2,430 hybrid firms (of which 218 had an estimated GVA value that could be weighed against). For example, review of an established firm's trading data might suggest a '20% weighting' if the activity appeared underpinned by ACT technologies etc. To undertake this apportionment, the team reviewed company level data in relation to the products and services provided (using web data), and explored incidence and relevance of ACT provision within each firm on a 'high', 'medium', 'low', or 'null' basis based upon mentions and use cases for ACT. The benefit of this approach is that it can seek to identify and estimate the broad contribution of ACT within large established firms, as the 'core' ACT estimate of £1.6bn for core ACT firms may be a significant underestimate of the overall ACT activity in the wider telecoms ecosystem.

This approach suggests that up to a further £9.6bn of reported GVA within established UK-registered telecommunications firms could be attributable to ACT related activity. This is an experimental estimate only based on weightings at a firm level estimated by Perspective Economics' review of web and trading data.

This, in combination with the direct GVA measured for the dedicated ACT firms (£1.6bn), suggests that ACT activity within the telecommunications sector could have generated approximately £11.1bn (rounded) in GVA in 2024, and that approximately £1 in every $\pounds 4^2$ in direct GVA within the telecoms sector can be mapped to ACT activity. Further, applying this proportion of sectoral activity for revenue may also suggest that up to £26.2bn of sectoral revenue could also be underpinned by ACT activity.

3.2. Estimated Employment

The research team has reviewed company accounts from 2024 to identify sectoral level employment. We only identify employment for firms marked as 'dedicated' and where employment values are available (n = 5,567 in the BvD FAME platform) to help prevent over-

² £11.1bn ACT related GVA (estimate) divided by all telecoms GVA (estimate) (£43.2bn) = 26%

estimation. The employment figures are sourced from the annual accounts of UK registered entities which may capture international headcount for large firms.

Employment data analysis highlights a significant workforce across the telecommunications ecosystem. After adjusting for global outliers (particularly for multinational operators like Vodafone), the data suggests approximately 266,000 FTEs employed with these UK registered firms, of which, we estimate that 'core ACT firms identified in this research collectively employ 17,000 FTEs within their UK registered entities'.

Further, review of employment under SIC 61 only on this basis suggests approximately 180,000 FTEs across the telecoms ecosystem. This broadly aligns with previous employment estimates set out with the <u>DSIT Economic Estimates for Telecoms</u> (2023-24) of 179,000 filled jobs (including both part and full time) in the UK. This consistency provides additional confidence in the research approach.

3.2.1. Occupations in the Telecoms Sector:

Lightcast data, which draws on sources such as the Business Register and Employment Survey and Annual Population Survey, in addition to wider labour market web data, provides additional insight into the occupational composition of the telecommunications workforce, covering an estimated 220,800 FTEs within SIC 61 in the UK 2025.



Figure 3.1 SOC Occupations with SIC61, 2025

Source: Lightcast (2025) n = 220,800 employees (estimated)

This figure aligns with our adjusted estimates, offering further validation of the sector's size and scale. As shown in Figure 3.1, the telecommunications workforce demonstrates a wide occupational profile, including:

- Science, Research, Engineering and Technology Professionals (SOC 21) constitute the largest occupational group at 21%, highlighting the sector's core technical skills base including telecoms and network engineers, AI, software, and security engineers and more.
- Customer Service Occupations (SOC 72) represent 15% of the workforce, reflecting a significant consumer-facing element of telecommunications services
- Business and Public Service Associate Professionals (SOC 35) (12%) and Administrative Occupations (SOC 41) (10%) together account for approximately onefifth of sectoral employment.

This occupational distribution reveals important considerations for workforce development within the sector. The prominence of technical professionals (21%) underscores the sector's requirement for highly skilled engineering and research capabilities, particularly crucial for the development and maintenance of advanced network infrastructure. Firms involved in Advanced Connectivity Technologies will often require niche technical experience that can often be in limited supply or face recruitment competition from other sectors. Conversely, the substantial proportion of customer service (15%) and administrative roles (10%) may also face transformation through automation and Al-driven service delivery. Major operators BT have already begun exploring future workforce models with a reduced workforce size.

3.3. Comparison and Benchmark

Our comparative analysis of sectoral metrics against existing benchmarks demonstrates the value of exploring this sector using both traditional and enhanced approaches. Within this data, for firms with a relevant SIC based classification following deduplication, the estimates demonstrate strong consistency with established measures. For example:

- SIC related employment figures at a firm level in the dataset (180,000 FTEs) align closely with DSIT Economic Estimates (179,000 UK filled jobs) for Telecoms.
- The reported GVA contribution from primary SIC 61 firms (£34 billion) correlates with previous DSIT <u>Economic Estimates for Telecoms</u> (£34.4bn in 2023 in current prices)
- While these figures suggest broad consistency, we note that differences in data sources, methodology and time periods mean direct comparisons should be interpreted with caution.

Using an extended methodology to identify firms outside of SIC 61 with relevancy to telecoms also captures additional economic activity that may be considered:

- Total employment reaches 266,000 reported FTEs (2024) when including telecommunications firms outside traditional SIC boundaries
- This represents an increase in the workforce of up to 48% beyond conventional classification approaches

• The increased overall GVA contribution of £43.2 billion (across all identified firms measured in this study) compared to £34 billion (SIC 61-only firms within this study) suggests a 27% higher economic contribution than SIC-restricted analysis

We find that existing methodologies can effectively capture major market participants, particularly the dominant operators generating the majority of employment and GVA. However, these approaches demonstrate limitations in capturing emerging market dynamics and can include firms that may not be fully relevant or may omit firms that are.

Further, building a company level dataset enables enhanced granularity to help identify and monitor how the market is evolving. For example, Advanced Connectivity Technologies, are not captured by a SIC approach, but we estimate this currently comprises 344 firms employing 17,000 FTEs within their UK entities, represent a strategically important segment that traditional industrial classification, keywords, or company comparison approaches may fail to capture.

These firms frequently operate at the intersection of telecommunications, computing, and specialist technology, often classified under alternative SIC codes despite clear telecommunications relevance. As such, this analysis suggests that whilst standard SIC-based benchmarks provide a foundation for monitoring telecommunications activity, they present limitations for understanding sectoral evolution and granular activity.

4. Location

4.1. Regional Analysis

Figure 4.1 sets out the registered locations of all active telecommunications firms (n = 11,812 in scope) by region. This is based on registered company locations from Companies House data. The regional distribution largely reflects broader UK business registration, however, suggests a slightly higher concentration in London and the South East (43% of firms, compared to 34% for all UK business counts³).



Figure 4.1. Registered Location of all Telecommunications Firms, 2025

Source: Perspective Economics, n = 11,812

³ Please note that UK business population estimates use a different methodology which may affect this comparison.



Figure 4.2. Registered Location of all Core ACT Firms, 2025

Review of Advanced Connectivity Technologies firms by registered location highlights that London and the South East demonstrate higher proportional counts for ACT firms, collectively representing 53% of identified firms (compared to 43% for the wider sector). The East of England also maintains consistent representation (10%) across both ACT and wider telecommunications classification, highlighting the importance of R&D intensive cities such as Cambridge.

Scotland also has a stronger proportional ACT presence (8% of firms) compared to wider telecommunications representation (4%), potentially highlighting some specialisation in advanced connectivity. This is also apparent in the South West (10% versus 7% general).

Source: Perspective Economics, n = 344

5. Investment Landscape

5.1. Venture Capital and Private Investment

This section draws upon the Beauhurst platform which tracks announced and unannounced investments in high-growth firms from across the UK. The research team has matched Company Registration Numbers and Company Names identified within this current analysis with the platform to identify 394 fundraisings associated with 160 tracked (and currently active) firms between 2018 and 2024. Analysis of external investment activity across the telecommunications ecosystem reveals differentiation between established telecommunications and Advanced Connectivity Technologies segments.

The dataset captures 394 fundraising rounds across 160 active firms since 2018, distributed as follows:

- 59 ACT firms secured 200 investment deals totalling £1.57bn
- 97 Telecommunications firms raised 194 investment deals totalling £2.41bn

This distribution reveals a fundamental divergence in investment intensity: approximately 18% of identified ACT firms (over 1 in 6) have secured external investment since incorporation, compared with just 1% of wider telecommunications firms. ACT firms additionally demonstrate significantly higher investment activity, averaging 3.4 deals per company compared to 2 deals per established telecommunications recipient. The relatively low proportion of established telecommunications firms securing venture investment (1%) may reflect differences in business model characteristics rather than sectoral weakness.

For example, many established telecommunications providers operate with sustainable service-based revenue models requiring limited external capital. Further, established telecommunications firms may access capital through alternative mechanisms including debt financing, reinvestment of operating profits, or strategic mergers and acquisitions to achieve growth.

Conversely, ACT firms may demonstrate higher external capital requirements, reflecting areas such as the need for intensive R&D expenditure necessary to develop new technologies, and extended commercialisation timelines, particularly for deep technologies including quantum.

Figure 5.1 explores the number and value of VC deals undertaken by ACT and established telecoms firms between 2018 and 2024. Please note annual investment can be subject to skew, particularly where a firm raises a substantial round. This is reflected in 2019 by OneWeb (now Eutelsat OneWeb) which raised over \$1.25bn. However, this highlights how:

- Investor demand is resilient for ACT firms, typically averaging 30 deals per annum
- Investment activity has reduced between 2023 and 2024, with deal values reducing to £108m across 27 deals (reduction in deal values by 27%) for ACT, and to £116m across 19 deals for wider telecoms firms (by 74%).

 The comparative investment resilience demonstrated by ACT firms within the challenging 2024 funding landscape⁴ suggests continued investor interest, reflecting recognition of long-term strategic value and potential market impact.



Figure 5.1. VC Investment Raised by core ACT and Wider Firms, 2018 - 2024

Source: Perspective Economics analysis of Beauhurst data

⁴ Since 2022, external investment into private firms has reduced across sectors, as interest rates have risen to address inflation, and as firm-level valuations have been revised. The Beauhurst Equity Investment Update highlights that, for example, the amount raised by UK private companies across all sectors in H1 2023 (£5.9 billion) is 56% lower than that raised in H1 2022 (£13.5 billion).

6. Research and Innovation

6.1. R&D Expenditure

Analysis of research and development expenditure (identified through company accounts) across the telecommunications ecosystem reveals substantial innovation investment, with 72 identified firms reporting combined R&D expenditure of £1.4 billion in the most recent financial year (2024). We note this is a relatively small proportion of the firms in scope, as this only tracks where firms report R&D expenditure within their accounts. However, it provides a useful indication of R&D expenditure activity.

The distribution of R&D investment between established telecommunications and ACT segments highlights:

- Established Telecommunications: £847 million (61% of total R&D) across 48 firms
- Advanced Connectivity Technologies: £511 million (39% of total R&D) across 24 firms

These figures are closely aligned to the ONS Business Enterprise Research and Development statistics, which highlights that <u>business expenditure on R&D in</u> <u>Telecommunications (under SIC61 only</u>) was £1,195m in 2023 accounting for 2.4% of all business expenditure on R&D. Further, this increased from £958m in 2022 (an increase of £237m, or 25%).

The increase in Telecommunications BERD of £237m accounted for 17% of the overall increase in UK BERD (from £48.6bn to £50bn) between 2022 and 2023, reflecting the importance of supporting R&D in next generation telecommunications technologies.

We find that Advanced Connectivity Technologies play a key role in this growth, as well as their partnerships with broader firms and the wider economy. When contextualised against sectoral economic contribution (in GVA), these figures highlight levels of R&D intensity across the categories:

- ACT firms: 31.9% of sectoral GVA (£511m against £1.6bn)
- Combined telecommunications sector: 3.2% of sectoral GVA (£1.4bn against £43.2bn)

We note that the above estimates are significantly influenced by levels of R&D data coverage. We find that 7% of ACT firms (24 of 344) versus 0.4% of traditional telecommunications firms (48 of 11,468 including hybrid firms) report R&D expenditure in their most recent accounts. This coverage potentially reflects both the research-intensive nature of many ACT firms and their reporting requirements, though we note that caution should be exercised when considering R&D intensity across categories.

Within the 72 firms, we find that BT Group (£726m in the most recent financial year) and Qualcomm (£454m) make up the vast proportion of R&D spend.

The data also shows significant R&D activity from ACT firms such as MTK Wireless (£20.2m), All.Space Networks (£14.7m), Satixfy UK (£6.9m) – with a focus on chip design,

satellite communications, and wireless systems, as well as established firms such as Gamma Communications (£19.7m), and Inmarsat (£16.9m) with focus on research on infrastructure optimisation and service development.

6.2. Grants and Participation

Public grants can also be a key source of funding and income generation for early-stage firms seeking to develop novel telecommunications technologies. Analysis of public grants data (matched using Company Registration Numbers using Beauhurst, and tracking comprehensive datasets such as Innovate UK grants) suggests that 126 of the firms identified (c. 1%) have received 392 public grants totalling £193 million between 2018 to 2024. This includes:

- Advanced Connectivity Technologies: £118 million (61% of total) across 313 grants to 83 firms
- Established Telecommunications: £75 million (39% of total) across 79 grants to 43 firms

This distribution reveals concentrated public grants for innovation among ACT, with one in four (24%) receiving a grant at some stage for innovation since 2018. Further, these firms received approximately 80% of total grants (313 of 392) despite constituting just 3% of the identified telecommunications ecosystem. ACT firms also demonstrate greater levels of grant acquisition, averaging 3.8 grants per recipient compared to 1.8 for established telecommunications firms.



Figure 6.1. Grant Income by Core ACT and Wider Firms, 2018 - 2024

Advanced Connectivity Technology (ACT)

Established Telecoms

Source: Perspective Economics analysis of grant funding (Beauhurst)

Disaggregation by company size highlights that:

- Small ACT firms are among the most prolific grant recipients, securing 228 awards totalling £74.2 million (38% of all grant funding).
- Large ACT firms received substantial individual grants (£25.6 million across 11 awards), suggesting strategic concentration in capability development
- Micro-firms demonstrate more modest grant access across both segments.

The data also highlights that Innovate UK represents the primary innovation grant source, providing £80.3 million across 285 awards (predominantly supporting smaller firms and early-stage innovation), with wider support from bodies such as DSIT (for gigabit connectivity), UK Space Agency (satellite communications), and the Defence and Security Accelerator reflecting the need for secure communications and areas such as post-quantum cryptography.

Review of the grants data also highlights domains such as IoT and Connected Devices, digital twins, advanced mobility, security and quantum, photonics, and satellite and 6G

research may be priority areas for public funding – across a wide range of funders to stimulate both innovation and infrastructure development.

[END]