Ordnance Survey

Roadmap to telco growth

Unlock the potential of private 5G with accurate location data from OS Data.

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Private 5G needs smart data

Telecom providers have a common challenge. Traditional consumer and enterprise markets are mature, competition is fierce, and carving out opportunities for growth is hard. To secure new revenue streams, telcos must identify areas where demand is growing and margins are stronger.

Private 5G is quickly emerging as one of these opportunities. It promises secure, high-performance networks that can be tailored to the needs of individual enterprises. But the opportunity alone cannot deliver success. Telcos must be smart, in identifying the right sites, customers, and projects to target for new private 5G infrastructure.

Without the right insight, errors in approach can quickly lead to wasted investment, poor performance, and long delays.

This is where location data plays a pivotal role. With accurate, trusted visibility of the built and natural environment, telcos can target the right opportunities, design more accurately, and deploy private 5G networks with greater confidence.

This eBook sets out how location data supports every stage of private 5G rollout. It explores the scale of the opportunity, highlights the six biggest challenges telcos face, and explains how accurate data can help overcome them.

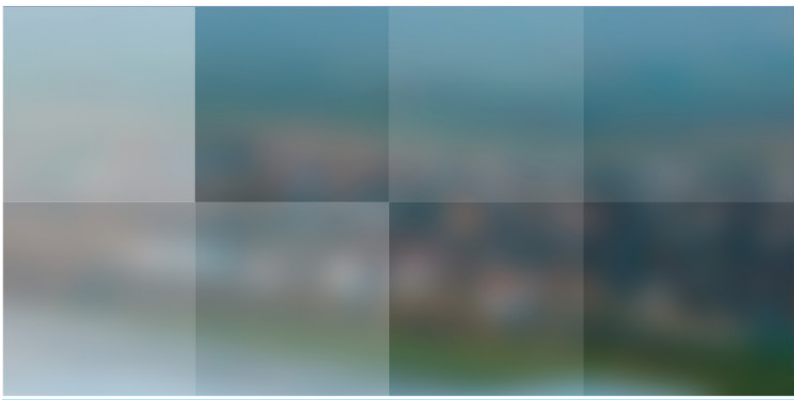
02

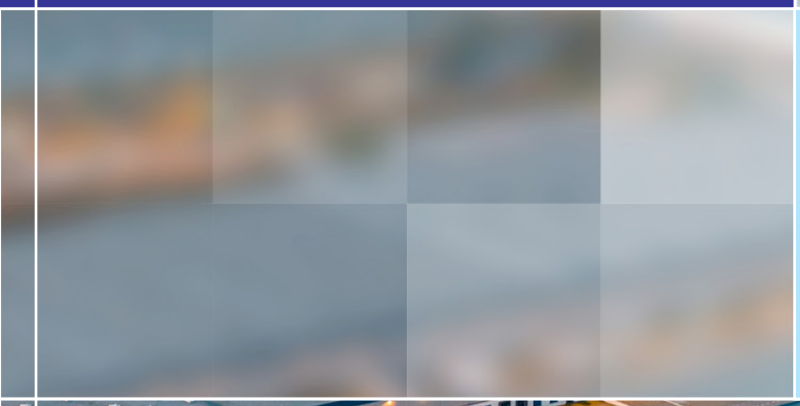
The telco opportunity

Private 5G adoption is spreading quickly. Organisations across the UK are starting to see the advantages of dedicated networks that can deliver the security, reliability, and performance that public networks can't always guarantee.

$102.5 billion

Value of the global private 5G market by 2034, up from $4.9 billion in 2025.[1]





65.4%

Compound annual growth rate of private 5G IoT connections from 2024 to 2030.[2]

The opportunity is even more urgent in specific, high-value sectors:

Manufacturing: Smart factories rely on always-on connectivity to link sensors, machines, and workers in real time. Private 5G provides the necessary reliability and low latency.

Logistics: Ports, warehouses, and supply chains demand seamless coordination of workflows and assets. Private networks will support connected vehicles, real-time asset tracking, and automated handling systems.

Healthcare and education: Campuses and hospitals need secure, high-capacity networks to power critical applications, whether telemedicine or remote learning hubs.

As adoption grows, telcos need to move urgently to establish themselves as leaders and capture market share. But rolling out private 5G is not straightforward. Identifying the right opportunities demands time and investment, and selecting the wrong site can quickly erode margins. Unpredictable environments, infrastructure, and regulatory complexity make planning and deployment difficult, while the risk of poor coverage or delays adds to the pressure.

To overcome these barriers, telcos need clear, reliable insight. Location data provides a foundation to help plan with confidence and deliver private networks where they will have the greatest impact.

03

Six challenges to private 5G success

1. Coverage and performance planning

Private 5G networks are expected to deliver reliable coverage in environments that often include dense structures, obstacles or interference. A misjudgement in site selection or network design can result in coverage gaps or unnecessary over-provisioning, both of which raise costs and impact the experience of customers.

Location data helps telcos to:

→ Assess terrain features such as hills or valleys.

→ Analyse line of sight and potential sources of interference.

→ Highlight risks of environmental damage, such as flooding.

This level of data precision helps telcos to be confident in site selection and ensure that network design is optimised from the outset.

2. Spectrum management

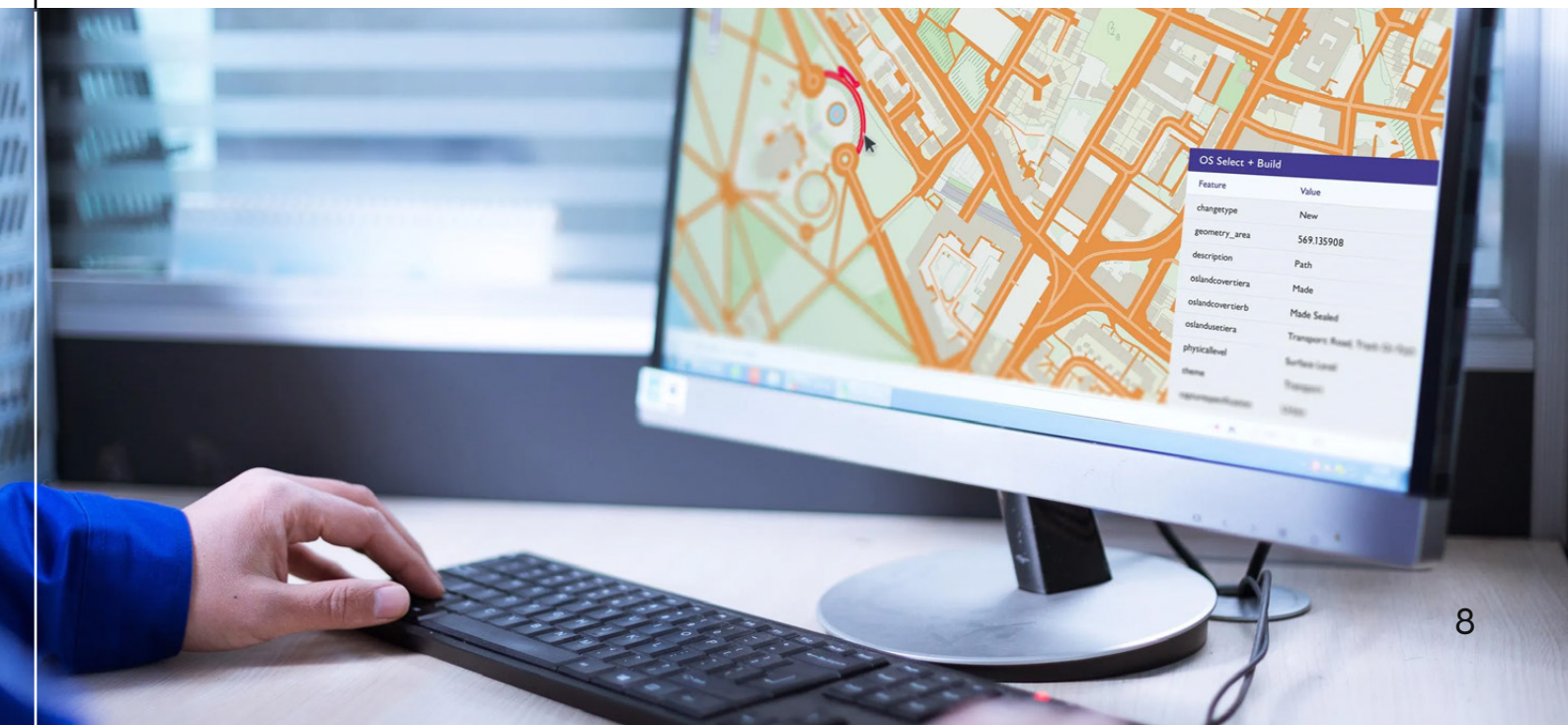
Private networks have to coordinate spectrum use carefully, to avoid interference with public services or neighbouring private deployments. This is even more complex when projects span multiple jurisdictions or are subject to different regulatory frameworks.

Comprehensive location data supports spectrum management by enabling telcos to map existing network infrastructure such as radio masts and broadcast equipment. This intelligence enables telcos to minimise interference risk when planning, as well as ensure that deployments will comply with local regulations.

3. Deployment complexity and delays

The physical rollout of private 5G can be slowed down by limitations to site access, the need for planning approval and the involvement of multiple stakeholders. Urban areas or regulated environments face even greater complexity – making it harder to build momentum and deliver private 5G infrastructure.

Location data helps by providing clear visibility of land and property ownership, based on current and historical data. Telcos can identify access routes and potential restrictions with a connected picture of every location, to make site applications and project delivery more likely to succeed, with less uncertainty and faster time to completion.



4. Integration with existing infrastructure

Private 5G does not exist in isolation. It has to work seamlessly with enterprise IT, operational technology, and telco infrastructure. Without accurate visibility, integration can be time-consuming and costly.

Location data helps by pinpointing existing cell sites, fibre routes, and utility networks. These insights allow telcos to plan integration efficiently and avoid disruptive surprises during deployment.

5. Regulatory and compliance hurdles

As each industry operates within its own regulatory environment, it's important for telcos to account for specific safety, data privacy, and operational rules – and work in compliance with environmental and ESG requirements. There are other safety concerns, such as radio frequency exposure, that have to be monitored and managed in order to keep teams and local populations safe.

Location data supports compliance by:

→ Providing detail on the proximity of sites to schools, hospitals, and other sensitive areas.

→ Enabling analysis of radiofrequency exposure relative to existing infrastructure.

→ Reducing the need for repeated site visits by equipping teams with authoritative data remotely.

This shortens approval times for new private 5G projects, while supporting ESG goals by requiring fewer physical interventions.

6. Customer education and expectations

Enterprise customers often have limited understanding of what private 5G can deliver or how long deployments take. It's imperative to manage expectations around project scope, timelines, performance and connectivity capabilities, to keep relationships positive and profitable.

Location data helps by providing customers and end users with clear, visual insights into network planning, project progress and performance. Mapping and other information can inform on common concerns such as coverage range, signal barriers, and projected timelines, making it easier to communicate realistic outcomes, reduce uncertainty and avoid frustration. This strengthens trust and positions the telco as a consultative partner in the process.

04

Location data: The missing piece

Throughout all these challenges there's a common thread. Successful private 5G deployments are not about only spectrum, equipment, or technical expertise, but about being able to make the right decisions, faster and with greater confidence. That requires authoritative information that reflects the real-world conditions on the ground.

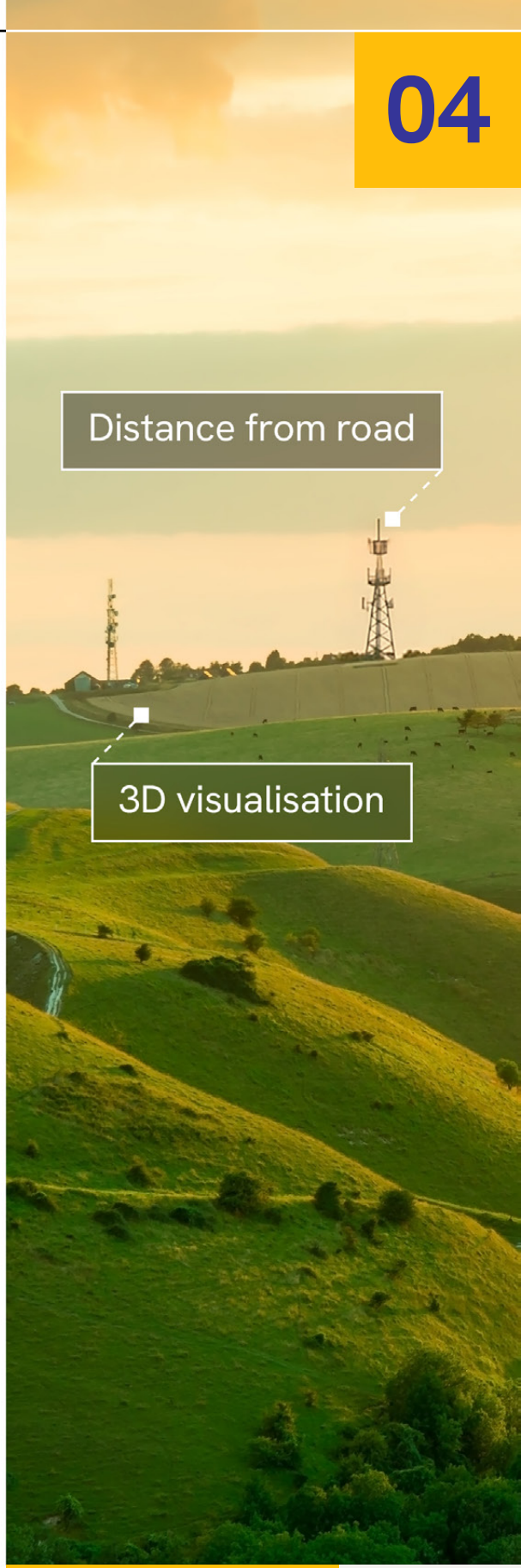
Accurate, up-to-date geospatial data supports telcos throughout the full lifecycle of private 5G planning, deployment and management:

→ Identifying opportunities with data that shows where the demand is strongest and where deployments are most viable.

→ Planning with insights into how networks can be designed to account for terrain, buildings, and infrastructure.

→ Deployment with data that shows the permissions, stakeholders, and risks that need to be considered.

→ Operation with data to help understand how ongoing performance can be monitored and optimised.



05

Why telcos put their trust in OS Data

Private 5G is a high-stakes business for telcos. Mistakes are expensive, so trusted data is critical.

OS Data offers:

→ Nationally authoritative, government-backed location data.

→ Unmatched levels of detail on buildings, land use, transport, and infrastructure.

→ Ready-to-integrate datasets that reduce deployment risks and costs.

→ A collaborative relationship that works with telcos as strategic partners, not data providers.

Our combination of accuracy, authority, and partnership is a reliable foundation for telcos to plan, deploy and manage private 5G networks successfully, capture the market opportunity and achieve growth.

06

Location data and the future of UK connectivity

Private 5G is only one part of the UK's digital transformation. The next decade will add further requirements for nationwide 5G coverage, fibre expansion, preparation for 6G and more. Each of these ambitions depends on robust data on the natural and built environments where these networks will operate.

Location data is key to this journey. By supporting smarter planning, faster deployment, and more sustainable operations, it underpins the future of UK connectivity and the ability to deliver world-class networks.

Get in touch

Private 5G offers an opportunity for growth, but success depends on making the right decisions from the outset. With authoritative location data, telcos can reduce risk, accelerate deployment, and unlock commercial value.

Learn how OS can support →

Find out more at os.uk

Additional resources

Learn more about how OS Data supports telecoms providers →

Explore our location data products and services →

Try OS sample data for yourself →

1 https://aws.amazon.com/marketplace/pp/prodview-6m7asjllevcdc#overview

2 https://iot-analytics.com/private-5g-2024-key-growth-trends-use-cases-forecast