



Executive Summary

Private Networks for Manufacturing

Connecting assets and people.
Delivering transformation.




Putting Private Networks to work

Increasing safety, boosting security and accelerating digital transformation.

With digital transformation and ever-smarter operations promising new levels of efficiency, business performance and competitive advantage, the need for guaranteed connectivity across your sites is critical.

While it's the applications that ultimately deliver the business value – the automated processes, remote control operations and smart sensor data feeding advanced analytics engines – it's the communications infrastructure that enables operational continuity and underpins your success.

To drive this transformation, the right coverage and capacity is required to ensure round-the-clock real-time connectivity. Cellnex UK's resilient and built-for-purpose 4G and 5G Private Networks deliver your use cases by connecting your applications, assets and people.



As one of the largest telecommunications providers in Europe, and a market leader for Private Network deployment, Cellnex offers an assured, end-to-end solution.

Why Private Networks?

The scale and complexity of many of today's industrial facilities and operations means that conventional public network and WiFi options struggle to meet the connectivity needs of manufacturers.

Facilities may be located in rural, hard to reach or remote locations where public mobile coverage is limited. Others, in more urban areas, are forced to compete with many thousands of consumers for wireless bandwidth.

WiFi networks offer an alternative. However, these are less secure, less able to support seamless mobility of connected devices, and can often be prone to interference or contention problems caused by other systems using the same radio frequencies. Added to which, deploying WiFi networks at scale requires extensive cabling and device infrastructure that can be costly to install and difficult to maintain.

In contrast, a purpose-built, dedicated 4G or 5G private network – designed and optimised for the specific requirements of your assets, equipment and people – overcomes the coverage, capacity and contention limitations common to both public mobile and WiFi networks.

In short, a Private Network will deliver the low latency, high bandwidth connectivity that today's industrial applications need.





Key features of a Private Network in manufacturing operations

Purpose-built 4G/5G network delivering the coverage and capacity you need, where you need it

Enables automation, AI and robotics to increase efficiency, streamline operations and reduce cost

Guaranteed, always-on connectivity eliminates service outages and assures continuity of operations

Delivers the ability to track and monitor assets and employees to increase site and worker safety

Secure, private spectrum restricts access from outside and delivers data protection and compliance as standard

Managed by a single, experienced partner to cut through the complexity, deliver a bespoke solution and eliminate investment risk

Eight business critical applications

Private networks enable a vast range of performance-enhancing applications and use cases across the manufacturing and industrial spectrum – from interconnection of R&D centres for secure exchange of information right through to the deployment of wireless production lines on the factory floor. Typical use cases of private network's guaranteed connectivity include:

- 1 Data analytics.** Monitor operations in real-time and utilise smart sensor data – increasingly in combination with artificial intelligence and machine learning – to make fast and well-informed decisions.
- 2 Video surveillance and geolocation.** To secure sites and show the location of workers. 'Wrong place' alerts can be sent to keep people away from dangerous operations.
- 3 Tracking moving assets.** Leverage autonomous vehicle technology and software guidance systems to provide 360° situational awareness of mobile assets.
- 4 Automation.** Monitor independently operating robots and enabling the removal of manual repetitive tasks.
- 5 Predictive maintenance.** Ensure the operational continuity of key assets through assisted and proactive maintenance.
- 6 Environmental monitoring.** Use sensor data to assess air quality for CO₂ or other contaminants such as chemicals, gases and flammable liquids, and trigger alerts.
- 7 Workforce health.** Receive feedback data from in-vehicle cameras and personal health devices to continually 'health check' workers in hazardous or high-stress environments.
- 8 Emergency management systems.** Enable safety options such as 'person down' applications, including live video streaming for remote medical triage.

A collaborative approach to partnership

Against a background of growing competitive threats, increasing regulatory compliance and the need to streamline operations and reduce costs, manufacturing organisations are investing in Private Networks to ensure operational continuity through a new generation of digital services and applications.

Cellnex specialists will work with you to build your Private Networks business case based on your specific operating environments, locations and use cases – and offer flexible commercial solutions to suit your financial model.



Our experienced team will work with you to understand your business objectives, conduct detailed site surveys then deliver back a Private Network blueprint tailored to your specific sites and use cases – considering both coverage and capacity needs.

As a technology-neutral provider, we partner with appropriate third-party equipment and applications providers to deliver a complete lifecycle of services to drive continuity of operations and maximum business value.





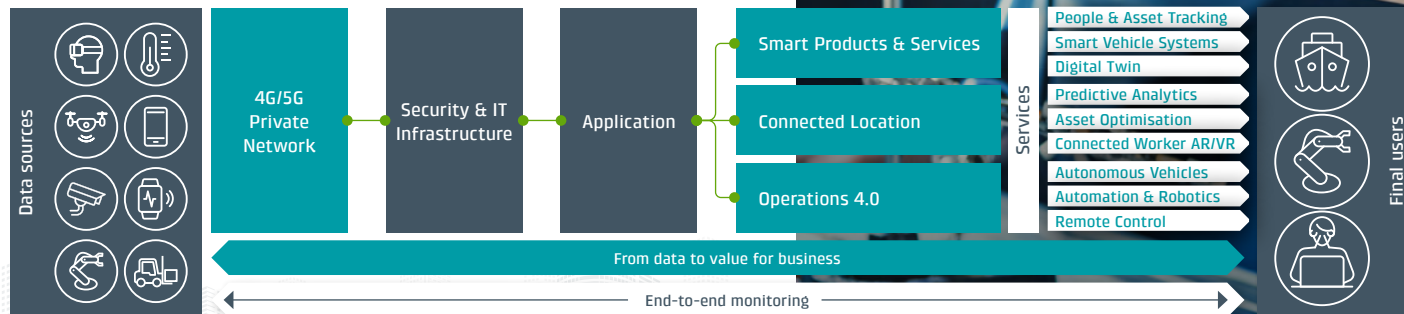
Continued

Collaborating to achieve the desired outcomes

From project design and engineering, through coverage and capacity planning to operational monitoring and ongoing performance optimisation, we're with you all the way.

The criticality of continuous operations

Of the 82 percent of manufacturing companies that have experienced unplanned downtime over the past three years, outages lasted an average of four hours and cost an average of \$2 million.¹



¹ <https://www.machinemetrics.com/blog/the-real-cost-of-downtime-in-manufacturing> (May 2018)



Business impact of automation

Incorporating technologies such as robotics or IoT into the digitisation of production lines can significantly impact bottom line performance. While the metrics vary based on the specific operating environment, commonly seen returns include:

Manufacturing costs	▼ 10-20%
Logistics costs	▼ 10-20%
Inventory costs	▼ 30-50%
Complexity costs	▼ 60-70%
Maintenance costs	▼ 10-20%

The technologies driving this impact must be supported by dedicated communications networks, with guaranteed bandwidths to enable digitisation throughout the value chain. To explore the business value of a more connected environment, get in touch with our Private Networks specialists at PrivateNetworks@cellnnextelecom.co.uk

No one knows Private Networks better

Together with market-leading provider Edzcom, a wholly owned subsidiary of Cellnex, we have deployed more Private Networks in more places than anyone else – supporting the mission-critical operations of major industrial customers across Europe.

As a UK Critical National Infrastructure Provider and one of Europe's leading telecommunication companies with annual revenue of more than €1.5Bn, and drawing on our extensive 5G, public safety and smart city expertise, you can count us to be with you for the long term.

1995

Mission critical Private Network deployed in Catalonia for public safety and emergency services

2007

Private Network delivered for the Barcelona underground's train operating company

2018

4G Private Networks deployed in Finland for Boliden Mining and Port of Oulu

2020

Edzcom became a wholly owned subsidiary of Cellnex

2020

5G Private Network deployed at BASF's chemical plant in Tarragona, Spain

2021

Cellnex UK secured an agreement to deploy a 5G Private Network at Bristol Port



For more information,
contact our specialist team at:

PrivateNetworks@cellnextelecom.co.uk

www.cellnextelecom.co.uk