



Executive Summary

Private Networks

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 organisations.

Many are in rural, hard to reach or remote locations – as in the case of mining operations – where public mobile coverage is limited. Others – like ports, airports and manufacturing facilities – are forced to compete with millions 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

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

By guaranteeing connectivity, private networks enable a vast range of performance-enhancing applications and use cases across multiple sectors. Typical use cases for private network 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.** Assure operational continuity 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, 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.





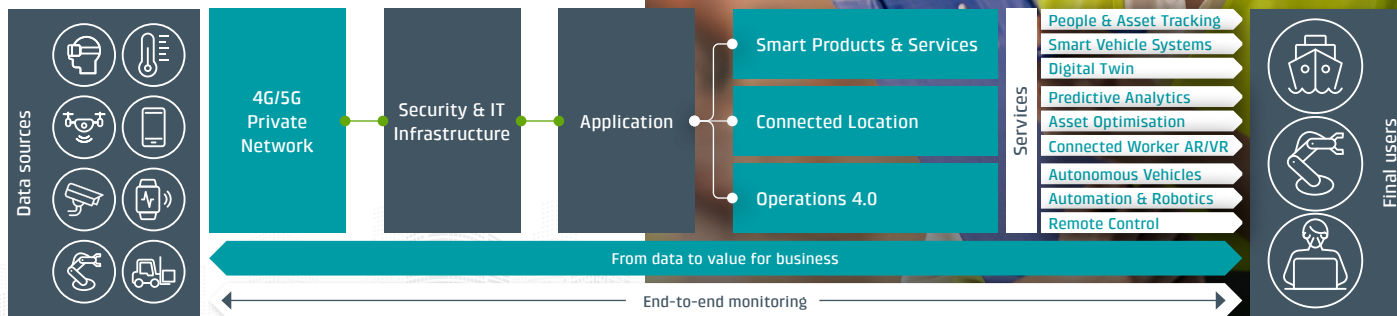
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Collaborating to achieve the desired outcomes

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.machinmetrics.com/blog/the-real-cost-of-downtime-in-manufacturing> - May 2018



Business impact of automation

Using the example of a port authority environment, it is possible to get a true sense of the benefits that a private network-powered automation strategy can deliver to the business.

| Description | Example | Impact | |
|---------------------------------|--|--|--|
| Automated equipment | <ul style="list-style-type: none"> • Consistent operations with low variability • No downtime | <ul style="list-style-type: none"> • Operating expenses could fall by • Productivity could rise by | <ul style="list-style-type: none"> • 25-55% • 10-35% |
| Equipment control systems | <ul style="list-style-type: none"> • Control over systems and processes makes operations smoother and provides more information on decision making | <ul style="list-style-type: none"> • Predictive maintenance (Cranes & Vehicles) | <ul style="list-style-type: none"> • 30-50% reduction in downtime |
| Terminal control tower | <ul style="list-style-type: none"> • Includes terminal operating system, decision making tools, advanced analytics, digital platform and interface to the port community and customers • Handles demand forecasting, workflow management, scheduling, optimisation, monitoring and control | <ul style="list-style-type: none"> • Real-time berth planning (48% of container ships arrive more than 12 hours behind schedule) | <ul style="list-style-type: none"> • Up to 8% increase in EBITDA |
| Human machine interaction | <ul style="list-style-type: none"> • Technologies such as augmented reality, virtual reality, direct robots, automated guided vehicles • Augmented reality can speed up complex tasks such as maintenance | <ul style="list-style-type: none"> • Major use cases for virtualisation of operations | <ul style="list-style-type: none"> • Training • Expert support • Maintenance • Collaboration |
| Interaction with port community | <ul style="list-style-type: none"> • Seamless exchange of data along the supply chain making systems more efficient • Real-time connectivity and digitisation are key for collaboration between stakeholders | <ul style="list-style-type: none"> • Terminal operators proportion of automation value pool • Other ecosystem parties share of automation value pool | <ul style="list-style-type: none"> • ~20% • ~80% |

Source: Mckinsey & Company: Container shipping: The next 50 years (October 2017), and The future of automated ports (November 2018)

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 revenues of more than €1.5Bn, and drawing on our extensive 5G, public safety and smart city expertise, you can count on 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,
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