5G private networks

Enabling the wireless business revolution

February 2021

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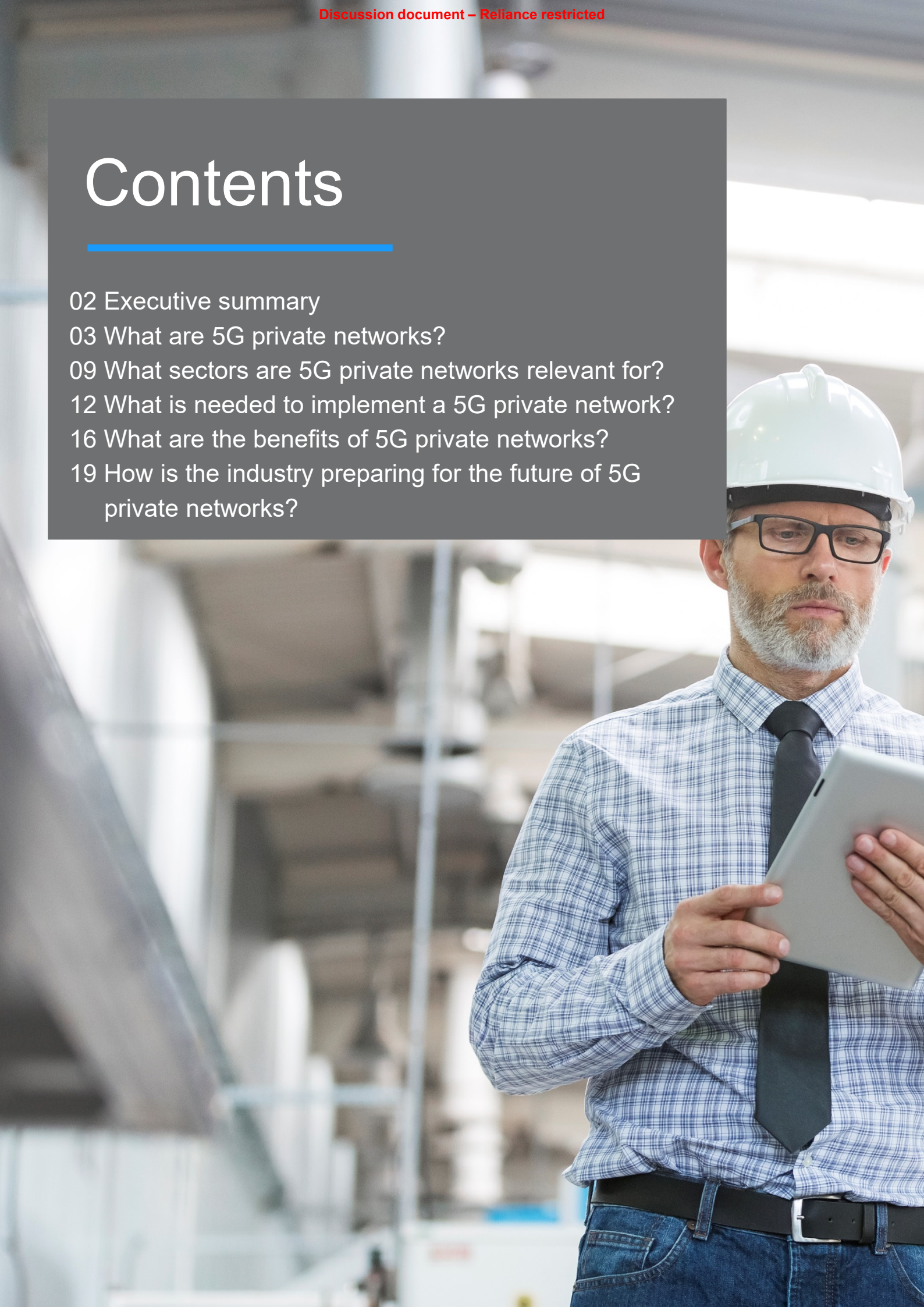


Executive summary

LTE and 5G private networks are already changing how businesses function in some sectors. Applications for more advanced 5G private networks are still being developed, but what is certain is the benefits they can bring will fundamentally change how businesses operate. To get ahead of the curve, businesses need to understand how this future will impact their business models so they invest and adapt accordingly. The wireless private network supply chain needs to stabilise and work with industry, regulators and policymakers to ignite Industry 4.0.

01 5G private networks have the potential to fundamentally change how businesses operate

02 A coherent, industry led approach is required to unlock the full potential of 5G private networks and to educate businesses on the opportunities

03 Developing a 5G private network strategy is vital to maximise the coverage, security, safety and operational benefits they bring

04 Regulators and policy makers need to ensure their decisions support 5G private networks to generate the widescale benefits they can bring

05 Businesses should recognise the drivers for implementing 5G private networks go beyond financial benefits

This report is based on a combination of insights gained through our unique access to market leading network experts, publicly available data and information, and EY's extensive experience in advising clients in the telecoms sector.

5G PRIVATE NETWORKS ARE PREDICTABLE, RESILIENT AND GIVE USERS FULL CONTROL

Public wireless networks

A public wireless network is shared across multiple users. For example, mobile users are connected to a public network provided by a mobile network operator (MNO), which covers a wide geographic area. In the UK, four MNOs (Vodafone, EE, Three and O2) cover the majority of the country, with customers of each operator accessing the network on spectrum shared with other users. The other commonly used public network is Wi-Fi.

Since network capacity is limited, the performance of a public network can be impacted by other users of the network in close proximity, resulting in lower speeds, high latency and other technical issues during times of peak demand. Public networks therefore do not deliver the predictability and quality of service required for mission critical applications.

Private wireless networks

We define 4G/LTE and 5G private networks as a wireless networks deployed using standardised cellular technology for a specific purpose, and closed to the public. 4G/LTE and 5G private networks offer dedicated capacity to a single user, removing the risk of interference associated with public wireless networks. 4G/LTE and 5G private networks offer connectivity solutions in a specific local area, such as a warehouse, factory or office space, where the user requires resilient and reliable communications, with full control of the network.

4G/LTE and 5G private networks provide businesses with the opportunity to radically reimagine their connectivity solutions, tailoring the network to their bespoke business needs. Hybrid public/private networks connect an organisation's private network with the public network for maximum flexibility.

5G private networks offer seamless connectivity and gives full control to the end user

5G private networks have a range of benefits for users

Reliable coverage

Consistent, predictable coverage across outdoor areas, ensuring mobile devices remain connected to the network

Dedicated capacity

Greater availability of predictable capacity to allow use of multiple applications at any time without interruptions

Improved quality

Better connectivity, fast response and transfer of big data in real time revolutionises the use cases for industry

Increased flexibility

Completely wireless applications allow for maximum flexibility in workspace design and reconfiguration

Enhanced security

Data can be stored, analysed and encrypted locally to prevent cyber attacks and protect sensitive information

Greater control

Bespoke design for specialised use cases, with user-defined policies for full control without external interference

Source: EY modelling and analysis, EY experts, research and interviews with industry experts

5G PRIVATE NETWORKS WILL BENEFIT FROM CAPABILITIES NOT POSSIBLE BEFORE

Previous wireless industrial applications have relied on Wi-Fi, but Wi-Fi cannot offer the guaranteed capacity, reliability, low latency and security required for critical operations, and performs poorly outdoors for applications where wide coverage is an issue. LTE could solve some of the coverage issues, but does not benefit from the same ultra low latency and reliability possible on 5G.

How 5G compares to other technologies

Metric	Wi-Fi 6	LTE/4.9G	5G "light" (today)	5G "ambition" (longer term)
Downlink speed	up to 9,600 Mbps	1,000 Mbps	>1,000 Mbps	>10,000 Mbps
Latency	<100 ms	10 ms	<10 ms	<1 ms
Spectrum range	2.4GHz and 5GHz	800 MHz to 2.6 GHz	700 MHz to 3.7 GHz	600 MHz to 28+ GHz

5G benefits from lower latency than LTE and Wi-Fi 6, opening up new applications and possibilities across a 5G private network. The increased download speed and throughput of 5G in comparison to other technologies also makes it suitable for high density applications, where large data throughput requires processing in a short period of time.

The possibilities of 5G private networks

Network slicing and edge computing are two of the key technological advancements enabled by 5G:

Network slicing

5G will enable the core network to be virtually separated, allowing multiple networks to be created on top of a common shared infrastructure.

Network slicing will maximise the flexibility of 5G networks, and optimise the utilisation and cost of running and maintaining them.

Edge computing

5G will enable edge computing, which is when processing is brought closer to the end application or device. Traditionally, processing happens in a data centre or the cloud.

Data can be analysed closer to source, reducing feedback lags and increasing the insight generated from massive data sets.

The three pillars of 5G

There are three key strands of 5G which are driving use case development.

1. **Enhanced mobile broadband**

   Speeds more similar to superfast broadband connection will enable applications like 3D/4K video and immersive gaming

2. **Ultra reliable and low latency communications (URLLC)**

   URLLC will enable mission critical applications in the automotive, healthcare and public safety industries

3. **Massive Internet of Things (IoT)**

   5G will accommodate a high connection density to enable applications like smart cities, agile manufacturing and tracking

Source: EY modelling and analysis, EY experts, research and interviews with industry experts, 3GPP

5G PRIVATE NETWORKS WILL ENABLE RADICAL REINVENTION OF BUSINESS PROCESSES

LTE and 5G are transforming industrial private networks. LTE and 5G can deliver the quality, reliability and security that could previously only be guaranteed through fixed connections, coupled with the transformative possibilities of wireless.

5G private networks are still at a nascent stage and the use cases are evolving. Today's demands – for reliable coverage, sensors enabling predictive maintenance, big data vendors and increasing automation – can be met by today's technologies, with Nokia believing that 85-90% of today's industrial applications can be run on LTE. With required infrastructure upgrades, these applications can evolve to 5G after it is standardised for industrial use later in 2020, and when devices and software are more widely available in 2021.

Following standardisation, 5G offers enterprises the opportunity to revolutionise their activities, completely rethinking end-to-end processes to understand how they can be reconfigured and optimised by 5G.

ocado

Ocado built its LTE private network to overcome the challenges of using Wi-Fi to connect robots in the picking and packing facility.

Wi-Fi did not meet the latency and speed requirements to control over 1,000 robots across a 150-metre radius.

> "While building a robot can be a relatively straightforward task, creating a swarm of thousands of robots and making sure you can communicate with every single one in a tenth of a second is a whole different ball game."
> – Wireless team leader, Ocado

Enabled by LTE and 5G today	Enabled by 5G of the future
Predictable, reliable wide area coverage across a mining site, with multiple sensors enabling real-time productivity measurement and predictive maintenance, and autonomous vehicles to increase efficiency	Reimagining the mining site as enabled by 5G, redesigning automated vehicles to be precisely targeted and optimised for the environment, increasing productivity, with ultra low latency sensors and unmanned mining significantly reducing accidents
Connected retail stores using multiple sensors for real-time inventory tracking and automatic restocking, demand forecasting to optimise stock, autonomous vehicles to fulfil orders, and the possibility of dynamic pricing	HD cameras identify a customer on entry, enabling a highly personalised experience with automated customer service, with wireless technology providing flexibility to reconfigure spaces and offer virtual and augmented reality experiences
Predictive maintenance enabled by sensors, increasing automation of processes minimising human error and increasing productivity, and big data analytics enabling real-time diagnostics	Highly flexible factories with minimal fixed components, with high density of connected sensors and ultra HD videos allowing for precise remote diagnostics, and maintenance carried out automatically by autonomous robots following detection of faults by sensors

Source: EY modelling and analysis, EY experts, research and interviews with industry experts

> “Articulating technical specifications to an audience interested in the real life applications of 5G remains challenging”
>
> **– Commercial leader, 5G equipment vendor**

SPECTRUM ACCESS IS KEY TO UNLOCKING THE POTENTIAL OF 5G PRIVATE NETWORKS

Regulators and governments are exploring spectrum management policies that provide access to enterprises that historically would not have applied for spectrum licences to due the high associated costs.

Today, MNOs are vital gatekeepers for access to spectrum

Regulators license spectrum to MNOs on an exclusive basis. Enterprises can access spectrum for LTE and 5G private networks directly via an MNO, with MNOs bringing expertise in managing regulatory and technical issues. 'Network slicing' allows MNOs to create multiple virtual networks over the same spectrum as their public networks to ensure end-to-end quality, enabling use cases that span multiple sites.

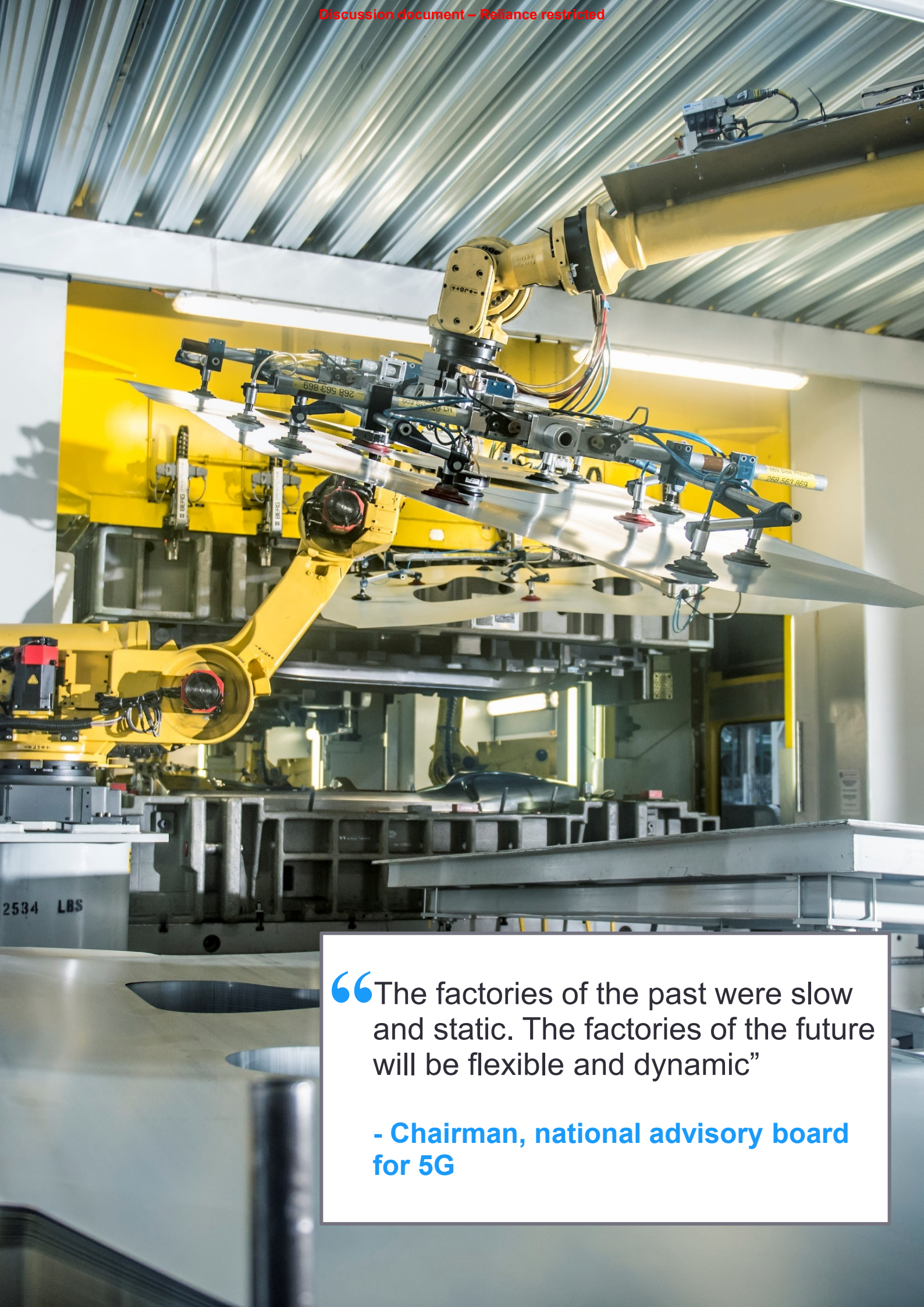
But spectrum is increasingly being made available directly to enterprise

Spectrum management authorities are increasingly looking to provide enterprises with direct access to spectrum to facilitate take up of 5G private networks – for example in the UK, Germany and Japan. Spectrum is licensed for use in a specific locations. Direct allocation to enterprise allows industrial users to exploit the benefits of 5G private networks independently of MNOs, increasing competition and driving innovation.

And licence-exempt spectrum has a role to play

Licence-exempt spectrum bands are shared by users that meet certain technical requirements. Frequencies within the band can also be allocated dynamically to users to minimise interference, as in the US. Unlicensed spectrum is useful when private networks are limited in reach and the risk of interference is lower. But some users may have requirements for guaranteed capacity and quality of service standards that cannot be met by licence-exempt spectrum.

Source: EY modelling and analysis, EY experts, research, interviews with industry experts, Ofcom



> “The factories of the past were slow and static. The factories of the future will be flexible and dynamic”
>
> **- Chairman, national advisory board for 5G**

5G PRIVATE NETWORKS ARE ALREADY IN USE IN A RANGE OF DIFFERENT SECTORS

5G private networks give businesses the potential to radically and dynamically reinvent their processes, production lines and operations, driving significant efficiency gains. Business across sectors are already seeing the benefits of implementing 5G or advanced LTE private networks.

Manufacturing

Nokia's 'factory of the future' leverages a 4.9G/LTE private network to manufacture telecoms products including 5G base stations. Connected Autonomous Intelligent Vehicles (AIVs) transport material from storage to the production line, while sensors monitor processes to allow real-time troubleshooting and data analytics. Nokia reports significant annual improvements including >30% productivity gains and 50% savings in product delivery time to market. In Nuremberg, Siemens has set up a 5G private network to trial industrial application including automated guided vehicles (AGVs), smart production and flexible manufacturing. And Ericsson has automated processes in its cellular IoT-based LTE smart factory, reducing manual maintenance work costs by 50% and projecting to break even on the project in less than two years.

Ports

Ericsson and China Unicom have enabled a trial at the port of Qingdao in China of a 5G-connected automated crane, operated from a central location, used to transport shipping containers. The trial indicated that up to 70% of labour costs can be saved when a harbour uses a 5G automation upgrade. Plans for Singapore's Tuas Port, due to open progressively from 2021, envisage enabling a similar centralisation model to control a range of unmanned vehicles, along with sensors to monitor processes and allow predictive maintenance.

Automotive

Audi has partnered with Ericsson to trial a 5G private network on its production line, including using an industrial robot to install airbags. Robots in facilities are typically connected by wires but implementing a 5G private network allows Audi to completely rethink its production line with maximum flexibility. Safety sensors with a very low latency time ensure robots and humans can safely work alongside one another. Mercedes has also used 5G to optimise its production processes, including tracking products on the production line and analysing performance data in real time.

Aircraft hangars

Lufthansa has partnered with Vodafone to trial a 5G private network in one of its airport hangars, allowing engineers to more precisely conduct inspections and repairs via video link using virtual and augmented reality (VR and AR). Sensitive data does not leave the aircraft hangar, ensuring high levels of security. The spectrum is licensed directly to Lufthansa.

Healthcare

The Department of Veteran Affairs partnered with Verizon, Microsoft and Medivis (a medical technology company) to launch one of the first 5G-enabled hospitals in the world in California. 5G will support a range of clinical use cases, including providing detailed 3D medical images of a patient's anatomy for carers as they treat patients, the potential for telesurgeries with physicians consulting remotely during surgery, as well as AR applications with detailed information on the patient.

VR/AR

A private 5G network will be installed by SK Telecom at the Korea Military Academy campus in Seoul to allow VR and AR technologies to be used in military training. The network will support further use cases, including fitness data analytics for trainees.

#1 Manufacturing ranked industry with highest potential for 5G private networks in UK	**78%** of industry experts rated ports as highly relevant for 5G private networks
88% of industry experts rated automotive as highly relevant for 5G private networks	**89%** of industry experts rated warehouses as highly relevant for 5G private networks

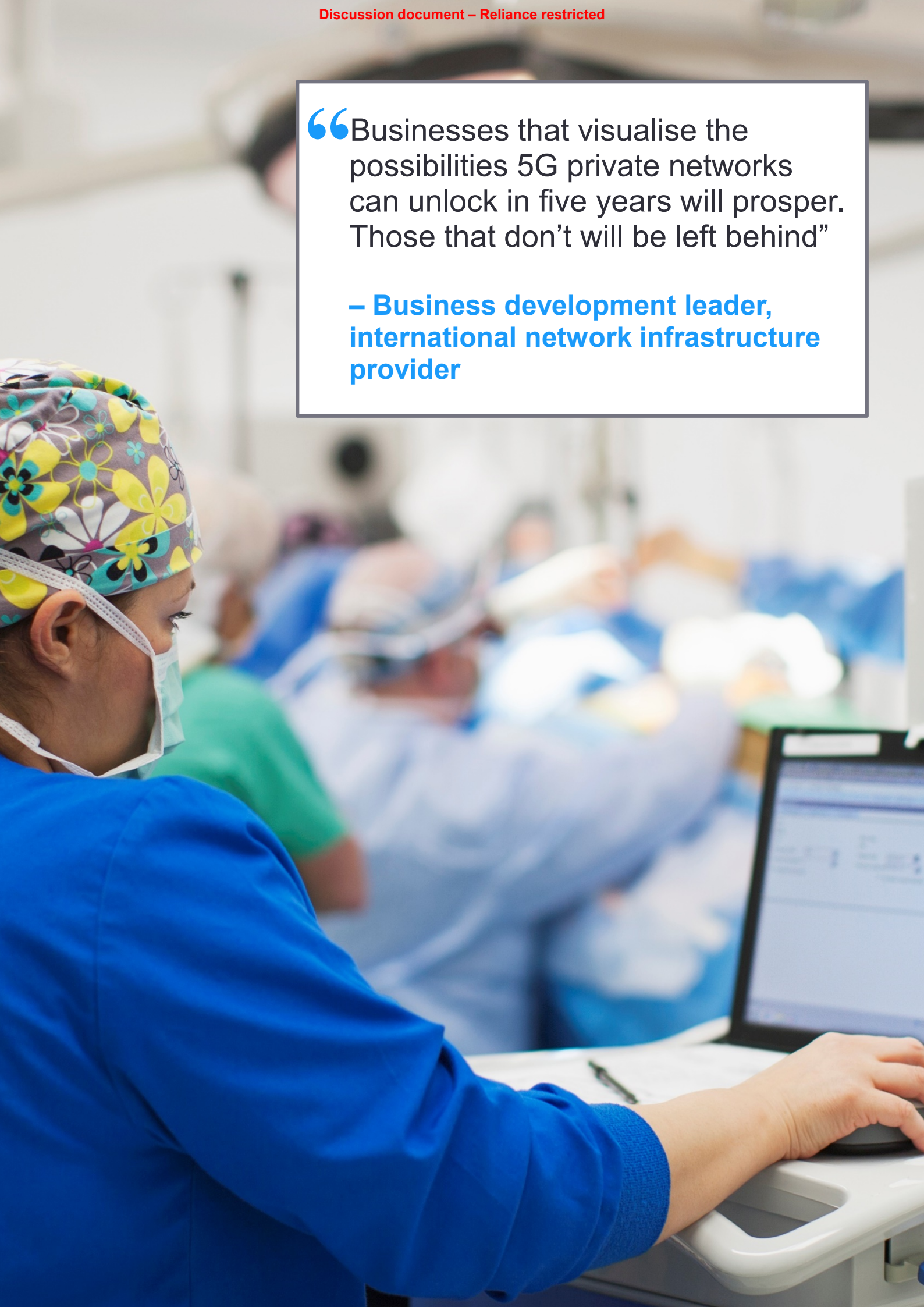
Source: EY modelling and analysis, EY experts, research and interviews with industry experts

WE ESTIMATE THE TOTAL UK 5G PRIVATE NETWORK MARKET TO BE WORTH OVER £8BN

Our research suggests the potential UK market size for 5G private networks is significant. We have analysed the key industries where conditions mean private networks are viable to establish the UK 5G private network market. This includes the market for private network infrastructure, integration and associated devices. Other parts of the 5G private network supply chain will also benefit as the private network ecosystem evolves, and could include providers of private network applications, system integration, maintenance and managed services.

Key sector	Use cases	Estimated total UK market size
Manufacturing	UK manufacturing output is over £160bn annually and 5G private networks can improve operational efficiency and increase manufacturing flexibility.	Up to £4.4bn
Warehouses	There are currently 1,500 large (>100,000 sq. ft) warehouse units in the UK where 5G private networks can improve distribution efficiency.	Up to £2.0bn
Airports	There are 40 commercial airports in the UK where 5G private networks can improve safety and security.	Up to £55m
Ports	40 ports in the UK account for 70% of the total transport tonnage handled in the UK. 5G private networks can improve asset tracking and security.	Up to £80m
Healthcare	There are approximately 1,200 hospitals in the UK where 5G private networks can enhance communication reliability.	Up to £1.7bn
Other	There are several other sectors which can benefit from 5G private networks including mining, defence, public safety and agriculture.	

Source: EY modelling and analysis, EY experts, research and interviews with industry experts



> “Businesses that visualise the possibilities 5G private networks can unlock in five years will prosper. Those that don’t will be left behind”
>
> **– Business development leader, international network infrastructure provider**

DIFFERENT PLAYERS PROVIDE KEY ELEMENTS TO ENABLE 5G PRIVATE NETWORKS

There are several components required to design and implement a 5G private network. Traditionally, MNOs have rolled out large scale wireless access networks, but specialised system integrators and traditional 5G equipment suppliers are key players in the private network market. Costs can vary significantly depending on the scale and use cases for wireless 5G private networks, and often device investment contributes significantly to the cost of deploying both LTE or 5G private network and implementing use cases.

Key components of a 5G private network	
Spectrum 	Spectrum can be licensed or unlicensed. Licensed spectrum is generally obtained via an MNO, but national regulators are beginning to allocate spectrum directly to enterprises. Unlicensed spectrum is publicly available but can suffer from interference, and does not guarantee some of the key benefits of 5G private networks like service uptime.
Equipment 	Equipment is required to build a radio access network (RAN). In addition, 5G private networks require a core network, which can be physically located onsite. A cost effective alternative is a cloud based core network. In addition to the RAN equipment, use case specific equipment such as robots, sensors and IoT devices will be required.
Software 	Operating support software (OSS) is required to run and maintain the 5G private network. The OSS is effectively the 'eyes and ears' of a wireless 5G private network and allows the system to operate, collect data and feedback changes if required.
Managed services 	Once implemented, the 5G private network needs to be maintained. This can be outsourced to specialists with experience and knowledge of running wireless networks and represent a significant proportion of the ongoing operating expense associated with 5G private networks. Better service level agreements (SLAs) will increase the cost of a high quality managed service.
Use case design 	Generally, 5G private networks remain one of the most expensive options for connectivity. Subsequently, they require specialist designers to develop uses cases and ensure any operational benefits are realised and the return on investment is maximised.

Key players in the 5G private network market

MNOs	Equipment vendors	System integrators
Access to licensed spectrum and experts in technical aspects of network deployment	Development of network equipment and technology to make machinery 'smart'	Industry specific expertise to help define LTE and 5G private network use cases and support implementation
Examples include Vodafone, EE, Three and O2	Examples include Nokia, Ericsson, Huawei and Samsung	Examples include DXC Technology, Capgemini and IBM

Source: EY experts, research and interviews with industry experts

DIFFERENT PARTNERSHIP MODELS EXIST FOR 5G PRIVATE NETWORK PROVIDERS

Different providers contribute to the 5G private network supply chain, with some able to provide several of the components required. The specific uses of 5G means that specialised system integrators play a vital role in supporting industry in developing the business cases for 5G private networks.

Limited capability / Plays some role / Core area of expertise	MNOs	Equipment vendors	System integrators
Spectrum			
Equipment			
Software			
Managed services			
Use case design			

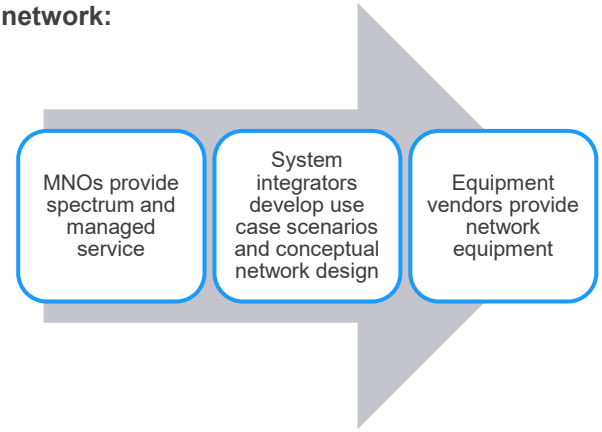
Our research suggests the 5G private network market is fragmented, with differing partnership models across the industry.

Business cases are challenging to define, and system integrators play a vital role in developing industry specific use cases. Despite this, many companies are unable to comprehensively quantify the benefits of LTE and 5G private networks, slowing down their deployment and delaying their benefits.

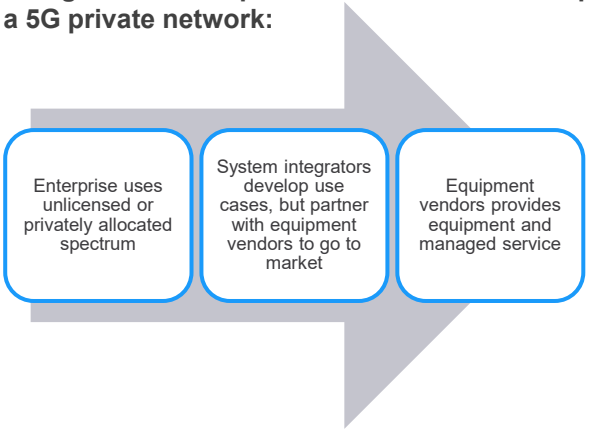
Licensed spectrum access remains the key advantage of MNOs, although the increasing trend of regulators allocating spectrum directly for enterprise is seen as a key enabler of the growth of 5G private networks globally. It has also led to MNOs reassessing their position in the wireless private network supply chain, and considering strategic partnerships with system integrators and equipment vendors.

To realise the full potential of 5G private networks, a collaborative approach is required to develop industry wide standardisation, quality and technical specifications. Enforcing these will increase the potential market for 5G private networks and allow all parts of the supply chain to prosper, while realising the benefits of Industry 4.0.

Using MNO spectrum to develop a 5G private network:



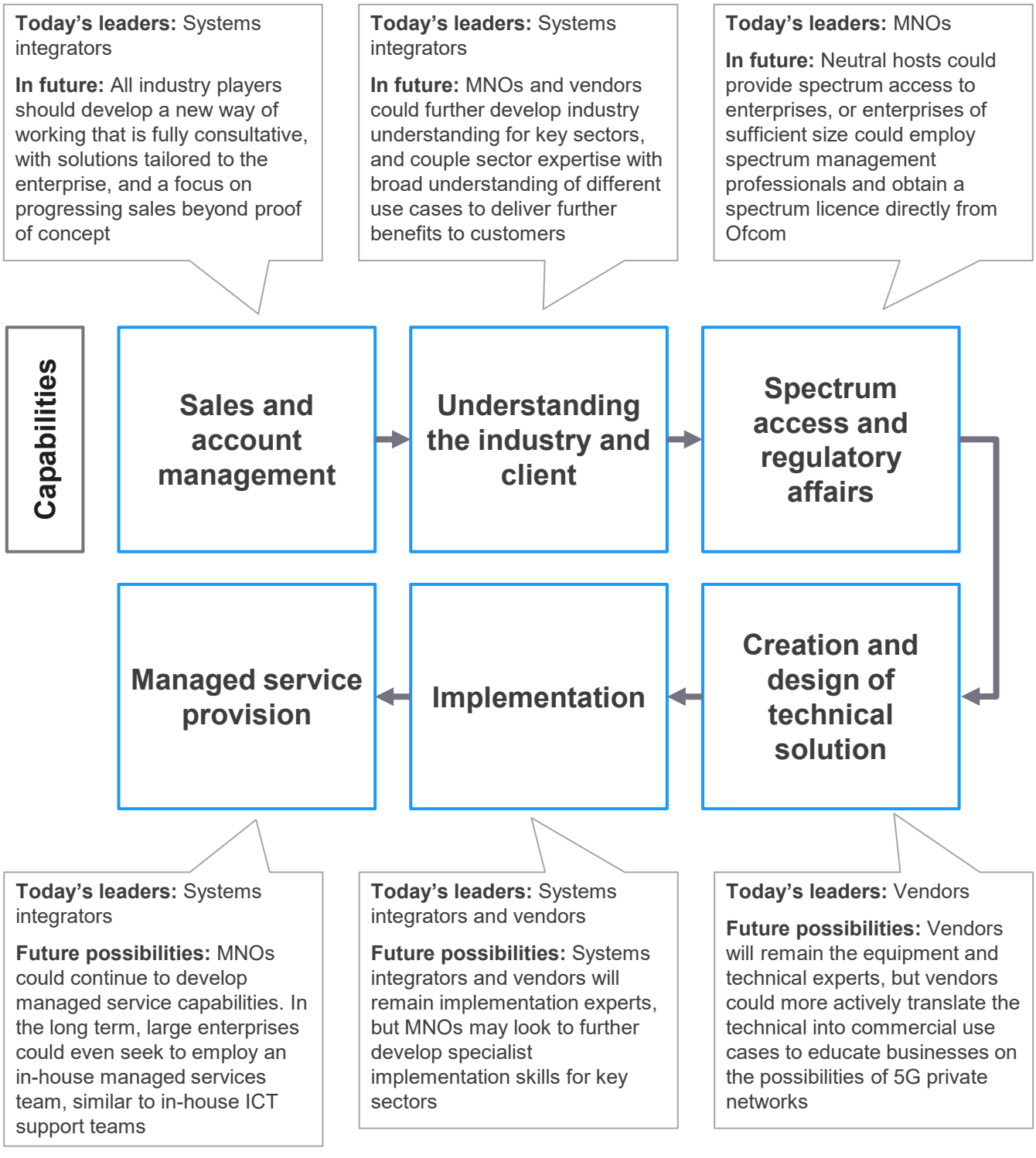
Using alternative spectrum sources to develop a 5G private network:



Source: EY experts, research and interviews with industry experts

THE GO-TO-MARKET STRATEGY FOR 5G PRIVATE NETWORKS WILL EVOLVE

As the market for 5G private networks evolve, the business models seen in the marketplace today have the potential to radically evolve, with players rapidly refocusing and upskilling in new areas, and new partnerships forming. Understanding and translating the business value will be crucial to educating enterprise on the possibilities of 5G private networks and driving growth in the market.



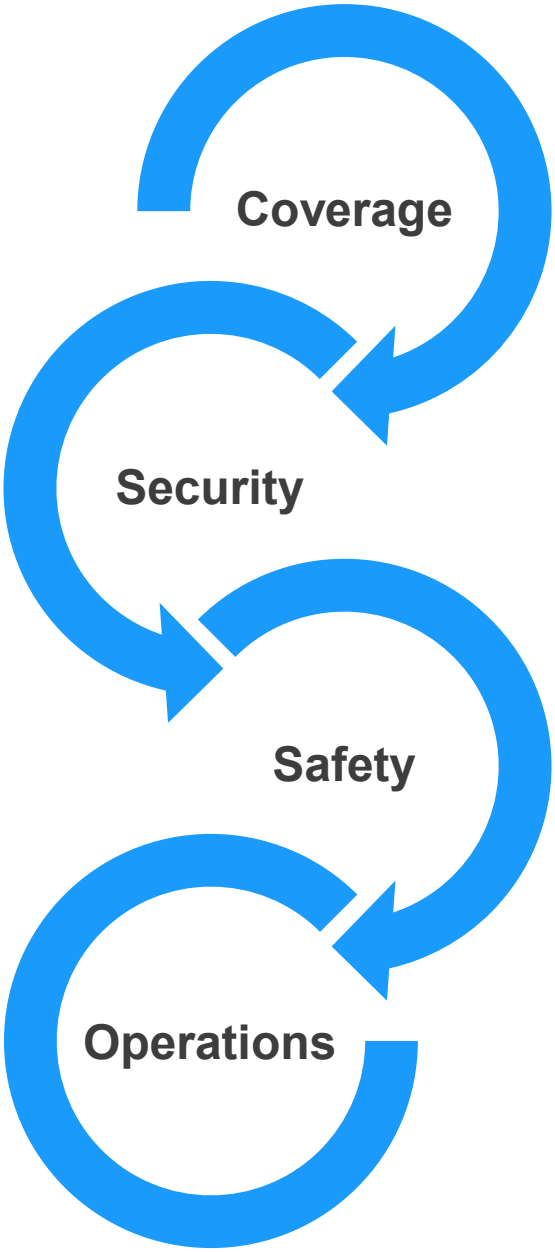
Source: EY experts, research and interviews with industry experts

> “5G will change everything”
>
> **– 5G private network leader, top 10 global telco operator**

FINANCIAL BENEFITS ARE NOT ALWAYS THE MAIN TRIGGER FOR IMPLEMENTING 5G PRIVATE NETWORKS

The full scope of possible use cases for 5G private networks continues to evolve, but this has not stopped 5G private networks being implemented to address requirements including coverage, security and safety. In many industries, improving performance in these areas can also improve financial performance through reducing downtime, minimising risk of data breaches and improving employee wellbeing. Industry experts expect other operational benefits of 5G private networks to be defined as standardisation across the industry increases, furthering the opportunity for collaboration and use case development.

The main triggers for 5G private networks



Our research suggests that basic coverage is often a trigger for implementing 5G private networks, especially in difficult to reach rural areas such as mines and oil refineries. Our industry experts ranked improved reliability as the most important trigger for implementing a private network, with 50% suggesting the implementation would not have been undertaken without this requirement.

Having full control of your wireless private network is a key trigger for implementation. Wi-Fi and other public networks have several access points, increasing the risk of data breaches and other cybersecurity threats. 5G private networks provide a more robust and secure connectivity option. 83% of our experts suggested security was a vital factor in any 5G private network decision making.

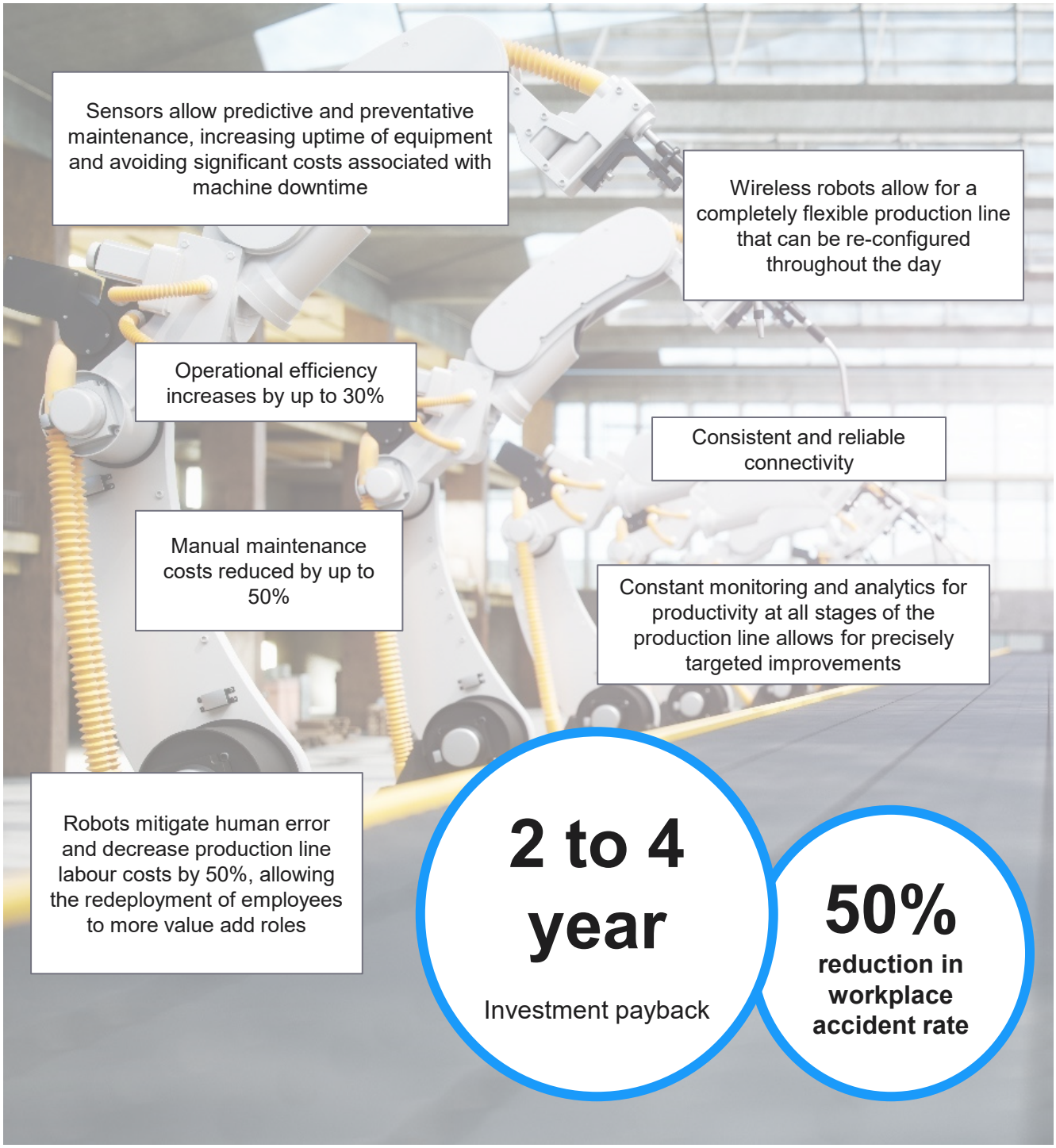
Reliable and consistent connectivity is vital to ensure a high level of safety standards are met. This is especially true in industries where delays in relaying mission critical information can cause serious injury or fatalities including mining, transport and utilities.

The potential operational benefits of 5G private networks are considerable. Increased productivity, uptime and adaptability all contribute to improved operational efficiency. Beyond this, new applications will be developed which will fundamentally change how businesses operate.

Source: EY experts, research and interviews with industry experts

5G PRIVATE NETWORKS IMPROVE PRODUCTIVITY IN MANUFACTURING

We have modelled the potential costs and benefits of implementing a 5G private network for a manufacturing plant. While costs vary depending on the use case and implementation of the 5G private network, the outcomes highlighted below have been realised in some of the real life case studies we reviewed.



Source: EY modelling and analysis, EY experts, research, interviews with industry experts, and publicly available Nokia publications

WAREHOUSES CAN DOUBLE OPERATIONAL EFFICIENCY USING 5G PRIVATE NETWORKS

Warehouses are realising the benefits of private networks today, often still using LTE technology. In the future, 5G offers warehouses the potential to realise even greater benefits, with ultra low latency and high capacity making more advanced automation and mass density of connected devices possible.

Source: EY modelling and analysis, EY experts, research, interviews with industry experts, and publicly available Nokia publications

GLOBAL TRENDS ARE DRIVING THE GROWTH OF 5G PRIVATE NETWORKS

5G private networks will be key enablers of vast numbers of connected IoT devices for industry. GSMA forecasts that enterprise IoT connections will triple between 2018 and 2025 to 13.3bn connections globally.

Enterprises will increasingly turn to secure private networks in response to a growing cyber security threat, with 59% of organisations facing a significant or material cyber security incident in the last 12 months.

5G private networks will be required to process large datasets to enable sophisticated AI applications. An EY study found 84% of US business leaders consider AI essential to their company's success.

An emerging trend for reshoring will drive manufacturers to seek productivity improvements by increasing automation. 80% of experts we surveyed considered 5G private networks as very important for the manufacturing sector.

Growth in consumer demand for data shows no sign of stopping, and consumers increasingly expect reliable connectivity in demanding, capacity-constrained locations like stadiums, transport hubs and shopping centres.

A continuing push for safety in historically risky industrial sites like mines and oil rigs will increase demand for ultra-low latency automation, using robots to carry out tasks where there is risk to human health and safety.

Source: EY experts, research and interviews with industry experts

INDUSTRY COLLABORATION AND STANDARDISATION WILL FAST-TRACK GROWTH

5G private networks have been deployed successfully in several sectors. However, some key obstacles need to be overcome to accelerate the growth of 5G private networks. The market is still immature, and increasing coordination between different players will foster the development of new use cases exponentially expand the potential of 5G private networks.

The main obstacles to large scale 5G private network deployment

Vision

- Our research suggests that industry is struggling to understand how 5G private networks will fundamentally change their operating model in the future

Defining use cases

- 83% our experts suggested that verticals needed support in defining and quantifying the benefits of possible use cases for 5G private networks

Cost

- 5G private networks are the most expensive connectivity option, and industry often struggles to see past the initial investment required to implement

The key enablers to growing the use of 5G private networks

Spectrum	Collaboration
▸ Developing a coherent spectrum policy and regulation will enable appropriate allocations for operators and industry ▸ Spectrum reserved specifically for enterprise will increase the options available for implementation	▸ Collaboration between MNOs, equipment vendors and system integrators will accelerate growth, and bring clarity to an immature market ▸ Improving collaboration and engagement with verticals will help define the use cases for 5G private networks and educate enterprises on the possibilities
Standardisation	**Interoperability**
▸ Until now, 5G standardisation has still been evolving globally, and a number of LTE+ solutions have been deployed in the interim ▸ The 3GPP release 16 (expected later in 2020) and release 17 (expected in 2021) will create a unified industry standard for 5G deployment	▸ Industry will push for choice and competition between providers, prioritising interoperability, open access and flexibility ▸ Embedded SIMs (eSIMs) will allow devices to seamlessly transition between public and private networks, increasing the opportunities for deployment

71% of experts agreed regulatory policy was a barrier for private networks

>50% of experts agreed cost was a barrier for private networks

Source: EY experts, research and interviews with industry experts

NEUTRAL HOSTS WILL HELP MEET ENTERPRISE DEMAND FOR FLEXIBILITY

A neutral host model is where a third party invests in deploying and managing wireless infrastructure, and leases space on the infrastructure on an open access basis to two or more mobile operators, allowing multiple operators to provide services over the same infrastructure

Flexibility for enterprise

By using a neutral host to install infrastructure, enterprises are not tied to a single mobile provider and have the ability switch provider over time. Enterprises will increasingly demand open access and flexibility, and neutral hosts will promote choice and further develop the 5G private network market.

Consumer mobile connectivity in areas of high demand

A neutral host can deploy infrastructure at high demand sites, providing capacity to crowds connecting to different mobile networks at concerts, sporting events or on public transport. Transport hubs and stadiums, where capacity is constrained, could deploy a 5G private network using a neutral host model to deliver reliable connectivity to consumers.

Resolving issues around spectrum scarcity and fragmentation

5G will vastly increase demand for spectrum access. A neutral host with direct access to spectrum could lease access to operators, contributing to the resolution of issues relating to spectrum scarcity and fragmentation. Ofcom's move towards making spectrum directly available to enterprise is a key enabler for the neutral host business model.

Case studies

TRANSPORT FOR LONDON
EVERY JOURNEY MATTERS

TFL is installing neutral host infrastructure to provide connectivity to passengers on the London Underground. Customers of all mobile providers, including MVNOs, will be able to connect. The Jubilee line has been connected as part of a pilot; TFL expects other lines to begin to be connected from 2021.

Wireless Infrastructure Group

The Wireless Infrastructure Group (WIG), working with O2 and Vodafone initially, has designed and deployed a neutral host model network at Anfield football stadium. The network allows the stadium to provide consistent 4G mobile coverage for the 54,000 fans attending matches.

A new type of infrastructure investment

Neutral host models for 5G private networks offer a range of opportunities for infrastructure investors:

- Areas with a high density customer base and a lack of MNO coverage and/or capacity, such as sports stadiums and transport hubs, can deliver guaranteed demand for a period of time
- Opportunities exist beyond simple connectivity – a 5G private network could be a portal into added services such as digital shopping channels, fan experiences, social media and transport updates – with the neutral host sharing the value created

Source: EY experts, research and interviews with industry experts

WE CAN HELP YOU UNDERSTAND THE IMPACT OF 5G PRIVATE NETWORKS

5G private networks are set to revolutionise industries across sectors as varied as manufacturing, ports and healthcare.

EY's objective is to foster a better understanding of the potential benefits of private networks for industry, and to help key market participants understand the role they can play in driving radical change for future industrial use.

We have the experience and capability to help businesses maximise the potential they realise from 5G private networks, either as a vendor or user.

Educate and inspire enterprises to think big in 5G private networks

- Articulate a more compelling vision of what 5G private networks can offer industries and organisations
- Educate enterprises on the business value of 5G, particularly the growth opportunities it enables
- Bring use cases to life by demonstrating what 5G private networks can actually deliver

Reinvent yourself as a partner, not just a provider

- Focus on delivering business outcomes through 5G private networks rather than highlighting the technological capabilities
- Prioritise an inherently consultative dialogue that avoids the technology push of the past, with solutions tailored to the enterprise's specific needs
- Create and lead partner ecosystems that can meet growing demand for end-to-end solutions

Define your private network strategy

- Prepare for how your operating model will change as 5G private networks continue to grow
- Develop a complete and coherent private network strategy to fully optimise the benefit you can realise from 5G private networks
- Maximise the value you can extract from investing in 5G private networks as a user or infrastructure investor

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