

Accelerate your Industry 4.0 strategy with a private 5G network.



Mehdi Quraishi

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Mehdi has over 25 years of experience in IT and telecoms, covering many different industries. He has led businesses, as CEO, and advised businesses, as a management consultant. His specialty is leading and advising on strategic change and digital transformation. He joined Verizon to lead the business development and partnerships team within the professional services organisation.

Having worked in IT for over 25 years, I've seen numerous disruptions and transformations, including the emergence of cloud computing and fourth industrial revolution technologies like the Internet of Things (IoT). But none of them have excited me quite as much as 5G.

5G is much more than an upgrade to 4G.

Yes, 5G can support much higher bandwidth and has improved security, but that's just part of the story. In technical terms, Verizon's 5G services can offer ultra-low latency. That means data can be transferred in what, to all intents and purposes, is "real time." Combined with multi-access edge computing (MEC), which enables analysis to be done at the network's edge, this makes a multitude of new applications possible, from collision avoidance systems for automated guided vehicles (AGVs) to immersive 3D environments.

And this is just the start. We're working with companies to co-develop exciting new applications that could disrupt their industry or even create a new one – but obviously we can't tell you about those. Even these applications are just scratching the surface of what's possible. The gap between 4G and 5G was about 10 years; what 5G will enable by the end of the decade will be mind-blowing.

While the rollout of public 5G services may take years, you can get in on the benefits now. Many countries – including Germany, the U.K., the U.S., Japan and Australia – have made spectrum available for companies to create their own 5G networks covering 30,000 square metres or more. With a private 5G network, like Verizon's On Site 5G, you can bring 5G to your campus, plant, hospital or port now.

The regulator in Germany has already issued 123 private 5G licences to organisations as varied as BMW, Lufthansa and the Ruhr University.¹ In May, Verizon announced its first 5G customer outside the U.S. Associated British Ports (ABP) will be using 5G to enable the digital transformation of Southampton, one of the busiest ports in the U.K.

The possibilities with 5G are virtually unlimited, but there are four key areas where we are seeing particular interest:

- Increasing efficiency
- Improving safety
- Strengthening security
- Improving sustainability

Let's look at those in detail.

Gigi, meet Mikhail



Hear Rima Qureshi, Verizon's Chief Strategy Officer, discuss the possibilities of 5G, cobotics and how Verizon is enabling robots from different manufacturers to collaborate at [Mobile World Congress Barcelona, 2021](#).

1 Increasing efficiency

We're all familiar with robots on production lines. They do the same thing over and over again. 5G enables smarter, more versatile robots that can do much more. One example would be search and rescue robots. These robots need to be able to respond to uncertain conditions, and being able to relay live data and pictures is essential to that.

Intelligent robots like these have many applications in manufacturing, distribution and beyond. One area where 5G excels is enabling "swarms" of AGVs. 5G's potential to support lots of devices – potentially 1,000,000 per square kilometre – means that you can connect a whole fleet of robots, and have plenty of capacity left over for sensors and other devices.

5G is also enabling the emerging field of cobotics, which combines mechanical and human capabilities. An example of this is exoskeletons. In healthcare, exoskeletons are being used to help paralysed people to walk again. In manufacturing, exoskeletons can enhance the capabilities of humans – enabling them to lift more and work safely for longer.

One advantage of being able to connect everything using 5G is the ability to create a "single pane of glass" which gives visibility over your entire operations. That has huge benefits for understanding everything that's going on, reducing downtime and identifying ways to improve efficiency.

Each year, the port of Southampton handles 900,000 vehicles, around 2 million cruise passengers and over 70 million cubic metres of containers – equivalent to more than 1.9 million standard 20-foot units. We're working with ABP to create state-of-the-art infrastructure which will help it realise its vision of creating the U.K.'s first smart port.

ABP's private 5G network will help it improve visibility over the whole port – a huge and complex environment that other technologies couldn't cover as effectively. It will also further accelerate ABP's ability to innovate with AGVs, image recognition, 3D mapping and other emerging technologies.

2 Improving safety

You have a responsibility to make sure technology can safely co-exist with workers carrying out their jobs. 5G can help you do this. Sensors fitted to production assets, like AGVs on the factory floor, can detect potential collisions and take steps to prevent them before anyone gets hurt. Artificial intelligence (AI) and machine learning (ML) models running at the edge can analyse video and sensor recordings to watch for anomalies, such as an employee entering a dangerous area, and react accordingly, for instance by alerting the employee or disabling equipment in that area.

5G also offers better coverage which can identify and eliminate "notspots" – areas of little or no visibility. Not a huge problem in your local coffee shop, a lot more important when you're using your network to monitor patients or control autonomous vehicles. Most importantly, in the event of a safety issue or warning, you're able to respond in near-real-time.



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Massachusetts Institute of Technology (MIT)



Hands-on experience is the only way to truly understand what 5G can do for your business. That’s why so many companies are eager to adopt private 5G now.”

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3 Strengthening security

5G builds on the security improvements made in 4G and adds many additional built-in security features. It enables end-to-end encryption of signaling traffic which makes it much harder for a bad actor to intercept any information over the air – often using devices commonly known as “stingers.” It also features identical network verification, a network-agnostic framework which helps protect devices by identifying rogue base stations that might be looking to snoop on your activities and steal information.

And with private 5G, because it’s your own network infrastructure, you have complete visibility and control over who connects, and where they connect from. Think of it as your own bubble – you have your own licensed spectrum, while public networks and Wi-Fi operate in an entirely separate area.

What all this means is two-fold, enhanced resistance to advanced cyber attack tactics, and peace-of-mind that you can concentrate your efforts and funds on other areas – like introducing new technology and applications.

4 Improving sustainability

Whether it’s moving containers, scanning tickets or transferring hazardous chemicals, Industry 4.0 is about getting better, quicker and more advanced, but the bigger picture is how we can do that sustainably and with the future in mind.

Think about how 5G can help enable technology which can gather vast amounts of data and identify efficiencies in near-real-time. Now think about how the same data analytics can be used to improve sustainability, helping you identify inefficient processes and waste like unused space and machinery. By identifying and resolving these inefficient processes, you have the potential to reduce your consumption of finite resources like electricity, gas and water.

With new regulations, internal targets and customer expectations to meet, 5G is a pretty effective solution to help you get sustainability right, cut inefficiencies and protect your long-term future.

Advance your business today.

There’s a powerful quote from MIT which I think effectively sums up the potential impact of 5G: “5G is a technological paradigm shift, akin to the shift from typewriter to computer. And it isn’t just a network. 5G will become the underlying fabric of an entire ecosystem of fully connected intelligent sensors and devices, capable of overhauling economic and business policies, and further blurring geographical and cultural borders.”²

This is really just the beginning. The advantages for early adopters could be huge; enhance efficiency, improve safety, strengthen security and enjoy long-term benefits.

Get started

If you’d like to find out more, why not ask about visiting one of our 5G Innovation Centres or joining a Verizon 5G virtual workshop? Our consultants will work with you to understand how private 5G and multi-access edge computing can address your business challenges, and help you build a business case for deployment.

[Find out more >](#)

¹ Enterprise IoT Insights, German regulator has already approved 123 private 5G networks, June 2021
² MIT Technology Review, The 5G Economy: How 5G will Impact Global Industries, The Economy, and You, March 2017

