

Why 2023 is the tipping point for Private 5G networks

Mats Plahn

Fujitsu Global Head of Business Development and Innovation



Velocity, acceleration, transformation

Velocity, acceleration and transformation are the three keywords which describe the capabilities and promise of Private 5G networks. At the 2023 Mobile World Congress in Barcelona, they were repeated by a wide range of organizations, proof that we have reached a tipping point. Simply, the pace of digital transformation over the next few years is about to speed up. In fact, the GSMA quotes Grand View Research which forecasts a massive **47.5% CAGR (Compound Annual Growth Rate) in the Private 5G market** until 2030, when [it will be worth \\$38 billion](#). Their description of the trend as a 'game changer' sounds like an understatement.

What's clear is that the rollout of 5G will enable enterprises to create their own networks and super-charge enterprise DX. The use cases are endless across a wide range of sectors, from energy and utilities to logistics, oil and gas, aerospace, manufacturing and the public sector. Each of those sectors will finally be able to get the most from IoT technologies and the rich data that can flow in real time from each activity or product all the way to the customer.



The public sector in particular will be able to see more granular detail about the behavior of citizens and enable them to engage with the services and support they need in a more personalized way. Importantly, it will also enable the public sector to do more across broader populations as well as focus help on those most in need. All while achieving greater efficiencies. 5G's greatly improved bandwidth, faster data speeds, and low latency means that in diverse areas such as utilities, mining, agriculture and forestry, real-time 4K quality images can enable operations to be conducted with greater efficiency, at less cost, with better environmental standards, and with greater safety.

It's understandable then that most analysts believe that the next few years will not only see Private 5G networks proliferate with a huge expansion in use cases across all sectors, but the period will come to be seen as the breakthrough era for mobile data communications in general.



Fujitsu believes the future for Private 5G networks is strong and is all about creating an ecosystems of providers

- It's still a market in its early stage, but **2023-25 will see strong growth.**
- **Governments will be a major force for development as well as big organizations** and fast and early adopters of new technologies in the next two years.
- Many different players are looking to create ecosystems to bring together a variety of skills to leverage the power of 5G. This will **help drive innovation, foster different approaches, and yield new ideas** to grow a competitive market to benefit customers.
- Post-2025 cloud hyperscalers will try to establish themselves as major players and **widen the choice of techs, solutions, and partnership opportunities.**
- **IT System Integrators** will be key in bringing together network service providers (NSPs), cloud hyperscalers, and communication service providers (CSPs) to deliver holistic solutions.

Private 5G networks will be powered by partnerships and humility

The days when a telco could operate almost as if it were in a world of its own cannot continue. And the industry knows it. 5G represents a huge leap in the capacity of mobile networks and enables a strong focus on data services. A quantum leap in bandwidth and lower latency means that the long-touted boom of IoT devices will finally happen. AI powered devices and networks will be able to make sense of huge amounts of data in real-time. That will help enterprises make better, more sustainable and inclusive decisions.

But no company or organization can do it alone. There is not one source for all your needs to make the most of Private 5G networks. Partnership is the key. That means there's a need for humility on the part of everyone involved: Telcos, regulators, governments, hyperscalers, enterprises, NSPs, CSPs, and companies like Fujitsu. Telco's no longer have a monopoly on the spectrum. The spectrum has been liberated. It's probably the most significant change that 5G represents. Now large enterprises – for instance, a global automotive OEM – can create its own network with its own spectrum and, in essence, act as a telco on its own behalf.

Industry, commerce and the professions are all interested

A global survey of 1,000 enterprises across eight sectors by EY showed that the Edge Computing market is maturing at speed. That points to a very strong interest in Private 5G networks over the next three to five years, especially in Europe.

Enterprises are looking to optimize their supply chains, processes, and improve ways to monitor their infrastructure. [Over half want to achieve greater control](#) so that they can boost reliability, security, and agility.



Transformation never stops, and that's good

Many enterprises are considering utilizing wireless technologies to modernize their factories to overcome the inflexibility of wired communication. This will make it much easier to switch production of products - as machines connected and supervised via wireless technologies do not need a lot of cabling. And they can utilize virtual and augmented reality for better maintenance and advanced digital simulations.

Those objectives have, until now, been hard to achieve. 5G is the step-change that will deliver transformation. So, it's important to start using 5G to complement existing communication installations like 4G or WiFi. And as bandwidth expands, latency improves, and speeds increase, the mobile network will continue to deliver 'best ever' capabilities in regular steps. But it's important to think about transformation in a more comprehensive and long-term way.

Transformation demands a vision

The big ideas about how to leverage Private 5G for transformative projects will come from customers and the partners they engage with. Co-creation and human-centric design generate brilliant ideas. Customers know their business best, so we need to create an ecosystem in which those ideas can not only flourish, but be put into practice in the real world.

That means bringing together experts in specific fields as well as people who know the market, the end users, and those concerned with the wider aspects of areas such as sustainability to go on a journey of discovery. One that will lead to significant improvements in operations and innovation, as well as completely new breakthroughs. After all, transformation is a process not a destination.

Yielding valuable data from Big Data

The term 'Big Data' masks the true potential of the huge amount of data that is being generated every day in the digital era. 'Big' sounds daunting, complex, unwieldy, and menacing. We are suspicious of it because it sounds too big to be regulated, controlled, or harnessed. And in many instances over the last decade, that's been the case. 5G will transform Big Data into 'valuable data'. Data that can be analyzed at speed and yield insights much closer to where they are needed.

Private 5G networks enable the huge leaps in AI and Machine Learning to fulfill their potential as engines of analysis and insight. Again, that can be done closer to where the insights are needed, which is where the data is also generated. And it can be done in real-time, with rigorous analytics. The best time to use data varies from use-case to use-case, but the capabilities of 5G enable us to set the right speed and parameters to ensure that data is used beneficially and effectively.



Ecosystems provide the tools and the brains

Fujitsu's approach is to focus on providing the best analytical tools – from physical tech to bespoke algorithms and experienced, expert people – so that the data can yield patterns, predictions, and even surprises which can drive development and innovation. It's also how the true promise of IoT will finally be achieved across every sector of the economy, public and private. [In 2018 it was predicted that there'll be 75 billion](#) IoT devices in use around the world. It's now clear that that was an underestimate.

Just think of the connected car, which is at the heart of most automotive manufacturers plans right now. To achieve what's called vehicle-to-everything connectivity will take thousands of 'things' in each vehicle. That's only possible because the network has evolved to embrace 5G. The factories in which those cars will be made will bristle with connected 'things' gathering, generating, and sharing a constant stream of data.



At Fujitsu, our aim is to ensure that this **vast data** becomes **useful data**.

Edge Computing: what the analysts say



Edge adoption will accelerate over the next two years – Grand View Research says it will achieve a **CAGR (Compound Annual Growth Rate) of 37.9% till 2030.**



Gartner says **vertical expansion** is key to the next generation of Edge Computing solutions.



Cloud workloads are moving to the edge – but it's important to check out turnkey solutions as they're not all suited to them.



Edge will be mostly applied in **branch office, retail locations, warehouses, factories.**



Securing **remote locations**, supporting workers in remote locations, and real-time analysis of workloads are the priorities for many adopters.

Turn the network into a brain

The human brain has been described as a universe of data. Each of us processes the 'big data' of just living our lives. The key is connectivity between different nodes and the network that creates. I believe that the development and rollout of 5G will represent a quantum leap in how telecommunications develop. The network will be the brain that helps power our world.

Our brains are always at the 'edge' of where the action is. That's how we can act as well as reflect, plan, and co-operate with others. 5G brings that kind of processing power to the edge of all business and social activities. It means we can deploy machines to do the things we don't want to do, or can't do as efficiently, so that we can drive progress and yield value for all of society.

All machines (however smart they are) demand connectivity to function and the network provides the brain which can control them. Edge Computing is, therefore, the vital element in taking us to the next level and to do that responsibly. We need to ensure that 5G is a human-centric technology that enables people from all backgrounds and with different levels of skill and varying ambitions to thrive. Of course, every technology needs to have boundaries, and that's why we need to understand their limitations and dangers as well as their short-term or commercial benefits.



More brains offer a wider perspective

Another way of describing what's happening is 'the knowledge society'. For Fujitsu, that means a society which generates knowledge and shares it to benefit all members of society. It's about fairness, opportunity, and human-centric innovation. 5G will speed the flow of data and enable us all to benefit from technology. That is best done in cooperation. That's why our approach is focused on co-creation. It's a founding principle of Fujitsu. Bring more of the best brains together and you can do great things. You can see a problem from a range of different angles and achieve solutions which benefit people whatever their backgrounds, ambitions, or needs.

So, that's why we have created a broad ecosystem of trusted partners. Each partner contributes their expertise and skills, and the customer gets the benefit in highly targeted ways. At the edge, the center, wherever the innovations can have the most impact.

Kickstart a change journey

We take an Agile DevOps approach that thrives on feedback loops. We ideate, iterate, and assess, then repeat. It's a change journey. A process of pulling ideas and needs from customers and pushing them through a collaborative, co-creative process to generate solutions as well as further possibilities for development. It's a 'flow' of innovation. That's why Agile DevOps and Lean principles we have been using are so powerful.

Key to the next few years is the ability to exploit the considerable advantages of Private 5G networks. Harnessing the power of this leap in spectrum depth and strength will provide us all with the opportunity to turn a tsunami of data into better decisions and brilliant solutions. We're eagerly looking forward to what the next decade will bring.

We are at a tipping point for transformation, and Private 5G networks will be the force which will make a real and beneficial difference to every level of business and society. We just have to make it happen. Together.

Get in touch to learn more about how you can begin your Private 5G network journey to drive transformation to the next level.

[Click here](#)

