
FUJITSU
Looking beyond the Technology
Enterprise 5G
shaping tomorrow with you
PAC
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# 1. Introduction

What would you do if you had access to plentiful, high quality data? What transformative changes to your business would you make if you could build a reliable, flexible, and powerful infrastructure model? 5G technology will enable business leaders to answer these critical questions. Indeed, it is already helping manufacturers develop crystal clear insights into their production performance, and allowing IT and engineering teams to build more agile and efficient support services through the deployment of augmented reality solutions.

To this end, recent research by PAC anticipates significant enterprise spending on 5G as business leaders look for competitive advantage. For example, in the UK, 39% of enterprises plan to ramp up investments over the next two years, with many planning to tackle specific use cases in their enterprise[1].

Examples range from leveraging 5G's lower latency and higher bandwidth capabilities to ramp up sensor density and data throughput in factories, to completely transforming processes by integrating sensors at the perimeter of the business with core business applications at the center.

In the manufacturing sector, enterprises are significantly expanding the role 5G plays in powering their modern factories. In a recent example, the Fraunhofer Institute for Production Technology and telecommunications firm Ericsson[2] demonstrated how manufacturers could build a truly automated factory by establishing a 5G network that enabled connectivity across the plethora of devices in operation.

From machines, sensors, materials, and robots, all united through a converged network that flexes latency and bandwidth based on device requirements.

A process that could see the operators benefit from a granularity of insight, enabling them to spot factors that may impact end product quality. In the specific example of metal processing, it is often impossible to gauge quality until the production process finishes. Whereas with a broader data set provided by a greater density of sensors, united within a converged network, operators could examine known causes of low production quality, such as equipment vibration patterns, before they impact output. It's also possible when leveraging the power of private 5G networks to implement quality controls (for example, real time computer vision AI algorithms) in-between the production line to spot quality issues before the product reaches the end of the line.

Take pollution management as an example; in most major cities, collecting and mapping pollution data is a complicated and often impossible task. While many cities have a network of sensors that help paint a reasonable picture of past and present pollution levels, restrictive communication infrastructure limits sensor data. As a result, any assessments of the present and future impact of pollution on the city are incomplete; moreover, insight quality challenges are compounded by slower data transfer speeds in existing communication networks. Consider when collected data is passed back in small packets to a central processing location before analysis. Slow. Inaccurate. Inefficient.

But powered by the increased stability, speed, security, and bandwidth of 5G, cities can pack in a higher density of sensors, pulling more data from each. This information, mapped with the boosted collection speeds and transmission, allows the city to make data driven decisions and generate models and predictions like never before. And, crucially, drive real transformative change that impacts the health and wellbeing of its citizens.

In this White Paper we will demonstrate that enterprises will realize real value when they expand their view of the role of 5G in their business. In the case of manufacturing, this will push 5G beyond the walls of the factory and into the heart of the company integrating people, processes, data, and technology from production facilities to procurement to supply chains and logistics. In other industries, it will enable greater connectivity across their partner and customer ecosystem enabling the development of new products and services and enriching existing ones.

[1] https://www.sitsi.com/cxo survey investment priorities insight analysis uk 0

[2] https://www.ericsson.com/en/reports-and-papers/consumerlab/reports/5g-business-value-to-industry-blisk

# 2. Reengineering the Enterprise: 5G drives real business transformation

For every enterprise, there are clear examples of how 5G can transform their operations outside of immediate and specific use cases. In particular, there is a compelling use case in the world of support services. Every year engineers and support staff make countless journeys to remote sites to diagnose and resolve issues. From common IT and broader network challenges to intricate engineering work on an oil rig.

While businesses wait for the support staff to arrive, the issue remains unfixed, with potentially significant production and service consequences. In the traditional support model, the information available to professionals heading to the remote site is minimal. There's only so much detail end users can describe over the phone. When an engineer arrives, they are inevitably positioned for primary diagnosis with additional expertise and trips required to bring spare parts to the site.

However, by using augmented reality technologies that rely on stable, secure, and high performance communication networks, site business users can use applications on everyday devices like mobile phones, or specific AR headsets, to push more information to centralized support teams. This alone drastically boosts core business metrics such as first time fix rates alongside a significant reduction in wasted trips to remote sites.

Crucially, this capability becomes more powerful when it is directly integrated with relevant business systems. For example, in an IT service management context, end users sending real time video data to the service desk requires flexible infrastructure ranging from lower level communication networks to cloud based IT platforms.

By streamlining the diagnosis phase, users can transmit vital information like real time video streaming, which remote based engineers can use for more accurate diagnosis and to talk users through potential solutions.

All of these data points combined, in the hands of process controllers and site operators, enable a crystal clear view of their operations' health.

With 5G providing a stable wireless communication layer alongside traditional wireline and IT infrastructure, it becomes possible to link data collection at the deepest point of failure to the service management platform. As a high powered and stable communication layer, 5G enables the smooth transfer of data from the core network, to the remote site, to the ITSM platform where service desk analysts can efficiently diagnose and resolve incidents without visiting the site physically.

Perhaps the largest treasure trove is in the manufacturing sector. Over the past decade, the industry's evolution has fueled the adoption of smart manufacturing practices powered by automation and a growing network of devices and sensors across the factory floor.

In most cases, each collection of devices and sensors connect to a specific platform that enables a siloed view of vital data, such as performance, maintenance needs, and usage of a particular industrial process. A move necessary given the restrictions and instability of existing infrastructure.

But through 5G, operators can create a single, stable, and high performance communication layer across all devices, sensors, and other operational technologies on the factory floor.

Doing so allows the development of a single view across all data from device maintenance to process output. From the average speed and load of autonomous vehicles in the warehouse to the speed of robots on the production line.

The real value is when manufacturing leaders take a broader view. Uniting data at a factory operations level is critical, but when they then integrate with other areas of the business say by combining data sets from planning, logistics, and converged network performance they can start making decisions based on access to real time data across all the key stages of their workflow. For example, by creating a single map of a customer request, from the first interaction, through to the supply of raw materials in the factory, to production, to fulfillment . And in the process, spotting blockages and improvements. A development that could transform manufacturing by enabling greater customer customization throughout the production process.

The same is true for the rest of the enterprise. Take, for example, the vital role modern ERP systems play in mapping out processes and data across the business. With a reliable communications layer powered by 5G disparate data sets integrated on the factory floor can be passed up and integrated into other core business applications, such as ERP and CSM platforms.

This process of integrating systems and data sets across the enterprise creates an entirely new analytics proposition. Presenting a genuine opportunity to understand performance across the whole business from front office incoming orders, to back office production, to logistics and supply chain data plotting shipments and fulfilment timelines.

With such a wealth of data pulled from across the enterprise and network, business leaders can adopt a different posture shifting approaches from health checking specific business functions to developing a clear picture of performance and developing predictive models to ensure the business keeps up with shifting market demands. Simply put, it is only when enterprise leaders zoom out of specific use cases and examine the broader possibility of building an agile and stable communications platform that unites and integrates data and systems across the business, that we can see the real transformative power of 5G.

A vital part of this shift is recognizing that 5G as a standalone technology has a crucial role in the modern enterprise. But in a broader transformation context, the technology becomes a flexible resource that works alongside and enriches other technologies in the business environment. Leaders can effectively select the right resource for the role, and scale up 5G capabilities based on requirements.

This shift also extends the lens outside of the enterprise and into a broader ecosystem of partners, suppliers, institutions, and customers. In the next section of this report, we examine how 5G will enable business to discover new opportunities in a rapidly evolving global economy by driving connectivity and integration into the heart of their business model.


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# 3. Discovering new Opportunities: An evolving ecosystem

Outside of reengineering the enterprise, 5G also offers executives a unique opportunity to extend digital technologies and services outside their business' walls. In recent PAC research, the most commonly cited digital transformation goal is to improve the digital customer experience,

highlighted by 87% of enterprises in the US[3], and 93% in the UK. This was followed closely by a need to enhance existing products and services, recognized by 90% of enterprises in both regions.

As a result, one of the most significant opportunities available is the new capacity to build innovation into products and services. There are several examples of this type of innovation. In the automotive sector, data is increasingly becoming a valuable asset for consumers, with analytics capabilities embedded in cars that range from intelligent journey planning to predictive maintenance scheduling.

We can find other examples in retail, a sector hit hard by the pandemic. To lure consumers back to brick-and-mortar stores, the retail sector is set to leverage 5G to revolutionize shopping experiences.

Tech firm Intel[4] recently demonstrated how the technology, combined with AI and Computer Vision, can redefine the in-store experience-powering new features such as smart signage offering highly personalized deals based on data from various connected devices, such as scanners and weight sensors.

And, when we integrate this data with core IT and business systems –such as stock management –it's clear how retailers can rapidly transform end-to-end shopping experiences.

Other examples include using 5G networks to push higher-quality media services to customers regardless of their location –extending high-quality infrastructure from the center of the enterprise through to customer devices with little erosion to service quality or speed. By extension, a capability that can offer more immersive experiences to customers in sectors such as leisure and tourism.

[3] https://www.sitsi.com/cxo survey investment priorities insight analysis usa

[4] https://blogs.intel.com/iot/2019/02/20/the-future-of-retail-see-streamlined-and-personalized-smart-retail-experiences-at-mwc.

The real transformative power of 5G extends beyond enriching existing products and developing new ones. The push for more connected cars, for example, goes hand-in-hand with broader ecosystem developments that unlock the real power of greater integration of systems and data with new definitions of internal and external. Connected cars are only as valuable as the level of integration they have with external systems and the networks that power them, –such as smart cities, parking and traffic light data, as well as traffic congestion platforms.

Some of the latest prototypes in the connected car space place 5G at the center of development plans due to its ability to act as a platform to unite sensors and devices in the car with internal and external systems, and the smart city network. In almost all cases, they require a robust partner ecosystem surrounding them, integrating and analyzing data generated by the vehicle and information collected and processed around it -such as data from other cars, traffic lights, buildings, and facilities such as petrol stations and mechanics.

In other enterprises, it will allow for a more fluid and secure platform to share data with partners and suppliers –for example, more clearly mapping out dependencies and supply chains for logistics companies or manufacturers. This will help them to develop a view of their end-to-end business processes.

But this shift in thinking and approach is, of course, a significant challenge for enterprises. In most cases, technology adoption has focused on tackling particular business challenges. To drive business-wide transformation in this complex and fast-moving space, enterprises will need reliable and competent partners. In the next section of this report, we examine some of the enterprises' critical considerations when selecting the right partner for their 5G ambitions.

# 4. Demystifying 5G: Finding the right partner

All of the critical transformation required to glean real value from 5G is a daunting prospect for some enterprises. The market is complex, and while the benefits are clear, the path to reach them is still undefined. And so many enterprises will need to find the right partners to help them to draft and implement their ambitious plans.

Moreover, they need to find partners that offer the right blend of skills and experience to carefully map out their transformation journey, weaving 5G technologies into complex IT estates and critical business applications. When shortlisting, enterprise leaders must examine their potential partner's capabilities alongside the following considerations:

**The breadth of experience:** First and foremost, enterprise leaders must recognize that 5G isn't a simple plug and play technology. Leaders must contextualize the technology as a building block of a broader transformation journey. It will be a journey that will blend traditional IT and business skillsets with new and emerging areas, enabling the business to integrate 5G powered innovations with critical business systems. To this end, they must seek partners with the breadth of skills and experience to understand their critical business needs, unique industry challenges, and position the right tools for the job. In the process, bringing in a fresh perspective that enables enterprise leaders to take an unencumbered view of their existing processes and operations, and then map out a route that offers the most business value.

**Understanding the ecosystem:** The enterprise technology space is already a complex and dynamic environment. Even without 5G on the radar, enterprise leaders need to calculate how they will embed other critical business technologies into their environment. From cloud technologies to automation and AI, there are a raft of solutions and services on the market. To this end, the best partners can bring a clear understanding of the enterprise technology space to engagements and help their clients demystify solutions and innovations and how they will impact their business.

**Technology and solution agnosticism:** A vital extension of understanding the broader technology ecosystem, is ensuring partners do so through an agnostic lens. Here, a balancing act is key. Pure agnosticism is somewhat misleading –the best providers in the space will have deep partnerships with leading firms in the market, enabling them to bring contextual knowledge and solution experience to engagements. But crucially, they are not dedicated to a specific toolset or vendor, enabling them to tailor best-in-breed solutions that align with their client's objectives –ensuring that the right tool for the job is the one that's chosen.

**Technical expertise:** As with any conversation around technology, mapping requirements to business need is critical –so finding a partner that can marry the unique blend of technical skills, and domain expertise is crucial to the success of engagements. To meet the broader transformation goals outlined in this report, partners must bring expertise of 5G alongside core enterprise technologies, such as cloud. As well as the ability to decipher complex legacy systems and develop a path for modernization and integration.

**Attractive commercial models:** Enterprise leaders must also shortlist based on the commercial model partners are wrapping around solutions and services. This extends to broader service delivery models that, for example, can offer enterprises as-a-service structures that de-risk technology adoption and simplify orchestration and management of underlying technologies.

**Transformation capabilities:** Finally, a partner must have the capacity to design, build, and manage an end-to-end transformation program –a process that will see 5G embedded into the core of the business. A significant part of this capability is the capacity to tap into a broader array of services –such as a holistic service that secures the enterprise –from the cloud to private 5G networks. The transformation journey is much more than simply plugging in a new communication layer, so finding a partner with a broad array of capability is critical to the success of any transformation journey.

# 5. Conclusions and Recommendations

With well over a third of enterprises planning to invest in 5G technologies in the next two years alone, it's clear that the appetite for the technology is high. For many, it will fuel an overhaul of processes and operations as they harvest and process more data than ever before. Simply put, the technology is rapidly becoming a lever to bring real competitive advantage to those who are investing in it.

As discussed in this report, early adopters already recognize a raft of benefits - from

greater performance transparency on the factory floor to fueling a new wave of innovation across their products and services.

As with all sweeping technological change, those that fall behind these early adopters will find it exponentially challenging to catch up the longer the wait.

So, for those enterprises yet to embark on their 5G-powered transformation journey, now is the time to find the right partner to guide you. A partner that will bring that all-important understanding of the rapidly evolving ecosystem –and can help design and implement a roadmap that will see 5G integrated with their existing processes and technologies.

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