

# Redefine connectivity, release reinvention

Why private wireless solutions are gaining momentum—and how to capitalize





## Connectivity is today's industry enabler

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The business climate continues to generate new and unexpected challenges for industries such as oil and gas, mining, agriculture, chemicals, and manufacturing—to name a few. Shock of the pandemic challenged them to change faster—and on a greater scale—than ever before. And industrial digitalization continues to reshape the way they innovate, manufacture and distribute products. To keep up, companies are under growing pressure to embrace Total Enterprise Reinvention.

Embracing reinvention relies on a strong digital core. This starts with a modern, cloud-based infrastructure that has security baked in, it then layers in advanced data and AI capabilities, along with applications and platforms, to drive innovation. The digital core is a primary source of competitive advantage for industrial companies. And connectivity is a critical component of that modern digital core.

Connectivity helps businesses meet commercial and operational demands that change and multiply on a daily basis. It is also a key enabler of Industry 4.0, which is characterized by unparalleled interconnection

across enterprises. Think of the digital capabilities every industrial company now aspires to. They need to leverage the [Cloud Continuum](#) to help ensure watertight cybersecurity.

They also need to harness the power of data and artificial intelligence (AI) to enable truly transformative technologies such as the Industrial Internet of Things (IIoT), machine learning (ML), digital twins, robotics, and others. This all rests on having operational technology (OT) networks that can adapt alongside the needs of the business, and allow it to collect, analyze and use vast amounts of data in real time.



Industrial companies are driving breakthrough innovation with cutting-edge use cases that rely on fast, resilient, reliable, secure and predictable networks.

Whether it's building a digital twin to simulate an alternative manufacturing production line, enabling predictive maintenance and environment monitoring with AI, or developing new automated worker safety systems, connectivity is enabling next-level visibility and control throughout the entire value chain. Today's industry leaders require fast, reliable and future-proof networks that can support vast amounts of data.



### Oil & Gas

- » Mission critical push to talk
- » Industrial IoT
- » Worker safety with video analytics



### Mining

- » Worker monitoring and critical communications
- » Emergency broadcast alerts
- » Environmental monitoring



### Agriculture

- » Condition monitoring/prediction
- » Massive data download
- » Tele-remote operation



### Chemicals

- » Predictive maintenance
- » Digital forms
- » Asset management



### Manufacturing

- » Legacy Interworking/PLC bridging
- » Collaboration
- » Edge analytics



### Utilities

- » Push-to-talk
- » Wild fire resiliency
- » Gas measurement collection
- » VoLTE and Text Services



## Industry needs more from its networks

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Connectivity at many industrial sites is challenged by physical scale and geographic location. Industrial facilities are often located in remote areas with challenging topography. And the complex layout and use of metals in construction means Wi-Fi blackspots are impossible to avoid. This prevents industrial companies from leveraging the full power of cloud.

Gaps in coverage can also be exacerbated by legacy network technologies. Industrial sites are often saddled with networks that were built many years, or even decades ago. The technologies used are increasingly cumbersome, especially as they near their end of life. They also lack the ability to scale in place and deliver predictable connectivity under varying loads, hindering the development of the next generation of mission-critical, low-latency, high-throughput capabilities.

Legacy networks can also be expensive to maintain. Organizations can get into a spiral of technology debt where their network teams are spending all their time and budget maintaining and fixing

networks<sup>1</sup> comprising thousands of gateways, routers and endpoint devices across a wide range of service providers. Maintaining this “cocktail of connectivity” across both IT and OT is hard to justify, especially as enterprises accelerate their digital and cloud transformations.

Not only that, but industrial organizations often find “shadow IT” arises at individual sites and facilities. Shadow IT practices add cost and complexity. And they make oversight difficult, preventing central leadership from getting a holistic view of their true bandwidth and coverage needs. This makes improving efficiency and resource allocation all the more difficult.



<sup>1</sup>5 Steps to Building a Modern Network, Accenture



## Private wireless networks offer new possibilities

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The advent of private wireless networks solves many of these challenges. Powered by the same cellular technology used by public carriers, these networks have evolved to become economically applicable for individual enterprises.

Private wireless networks allow industrial companies to reliably upgrade and extend their connectivity, while unlocking new digital innovations across the Cloud Continuum. They also offer both IT and OT a new fabric for reliable service delivery.

## Private wireless networks are:

### Accessible and open

Flexible, always-on networks provide reliable coverage across all industrial sites. These networks support an “anywhere and everywhere” approach to digital consumption, integrating multiple vendors and protocols.

### Secure and trusted

Enterprises using private wireless networks can rely on enhanced security across IT and OT. Critical business data can be authorized, encrypted and wrapped in zero-trust security protocols.

### Scalable

Private wireless networks offer a change-ready, automated and highly adaptable platform able to scale in place, support innovation and grow with business needs.

### High performing

These networks provide high availability with low latency, which are key for mission-critical industrial applications. They also allow enterprises to monitor and prioritize traffic.

The marketplace is right to be excited about the possibilities 5G opens up for future connectivity. But private wireless networks are as much about Long Term Evolution (LTE) technology as 5G. LTE offers industrial businesses a proven, mature, reliable, future-proof, high-end, carrier-grade platform—with devices and IoT ecosystems to support it.



## What's holding industrial companies back?

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To accelerate private wireless implementations, several organizational and technological barriers must be overcome.

## A coherent end-to-end vision.

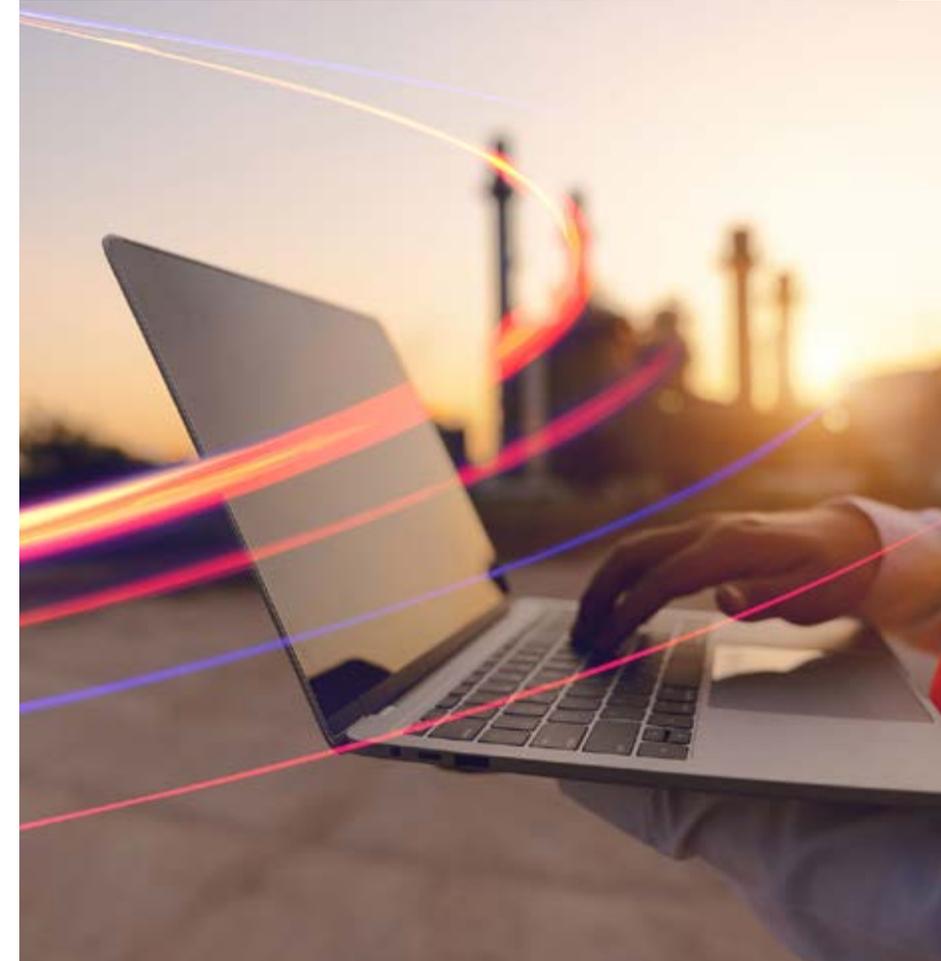
Most industrial sites have brownfield legacy networks, comprised of point solutions, which take time to displace. Companies can struggle to lay out a holistic network transformation strategy, as it must detail the true value potential of the change and explain how new private wireless technologies will work with legacy systems.

## Decentralized funding.

Many industrial sites control their own funding for a whole range of operations, from IT to safety to human resources, as well as networking. This decentralization can make it difficult to see the holistic business case (including the value potential of individual use cases) for enterprise-wide network transformation. Individual sites end up purchasing network solutions that solve their own unique pain points without seeing the bigger picture.

## Integration skills.

Network transformation requires a complex integration across both IT and OT. Companies need to be able to see how everything comes together—network design and deployment, integration and managing an ecosystem of network equipment providers, civil engineers, network operations. These essential integration skills are scarce and in high demand.





## Ecosystem complexity.

With so many tech solutions and deployment options available in the market, designing a network transformation can be a complex and confusing process. This is often the case, for example, when it comes to deciding between future-focused 5G technology or more established LTE solutions.

## Resilience, reliability, security.

Networks in industrial settings have demanding requirements for resilience, reliability and security. For example, traffic to-and-from industrial control systems and process control networks need Zero Trust security and redundancy for added reliability. But industrial companies also have typical enterprise connectivity requirements for handheld devices. The ability to segment traffic to meet these different needs is vital.

### Case Study

## A natural resources company digs into high-value potential.

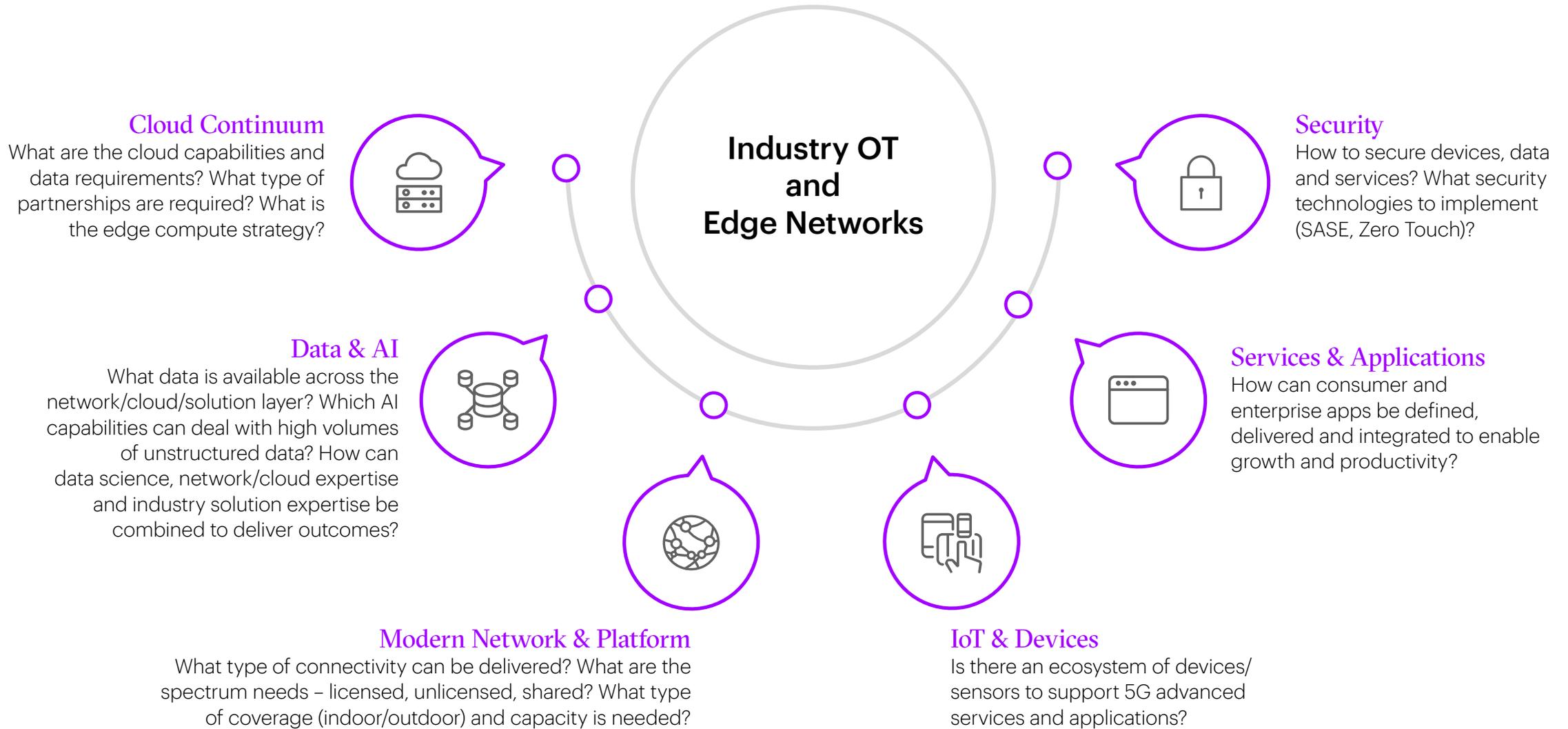
One global natural resources company realized it was outgrowing its wireless network. It needed seamless communication, increased working efficiency and better connectivity at its remote mining facilities. This required improved connectivity. Accenture helped the company estimate the value of a private wireless solution and plot out a deployment plan over several years. The solution we designed met the company's mission-critical needs for connectivity with greatly improved network capacity, performance and security. This, combined with retiring the legacy network, is set to deliver significant value.



## Towards a private wireless future

The good news? By developing an end-to-end vision and plan, industrial companies can overcome the barriers to network transformation, across both IT and OT.

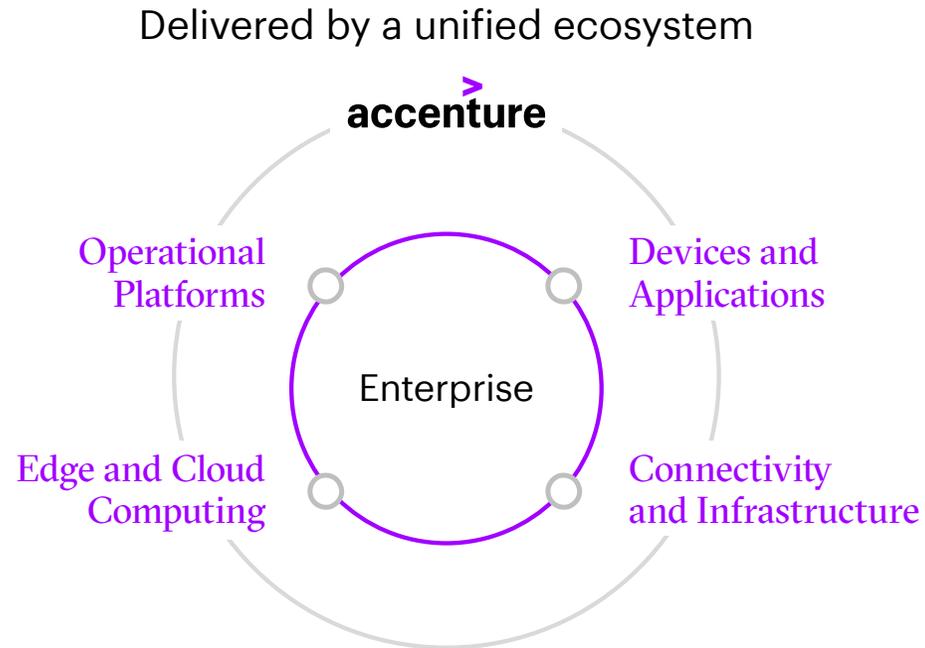
The first step is to understand the current landscape and map the technology to the vision, align with business needs, and deliver value end-to-end. This holistic approach is important. It's vital that companies look beyond the new applications and capabilities they want to acquire—and to consider how they relate to core enterprise and technology components like connectivity, cloud and [edge](#).



The next step is to think about how to **integrate the ecosystem** across the technology stack, ensuring enterprise needs remain front and center. The private wireless market includes an ever-evolving technology ecosystem spanning hardware (devices, radio access networks), software (cloud, edge, applications) and physical infrastructure (fiber, towers.). To **orchestrate** this ecosystem effectively, businesses need to think about how to bring together a

wide range of services and vendors. That includes global telcos, cloud and edge platform providers, IoT specialists and device and application vendors. Businesses will also need to bring together system integrators, operations outsourcers and strategy and transformation advisory experts. Collaborating with ecosystem partners helps ensure efficient results by using best-in-class skills to solve complex business problems.

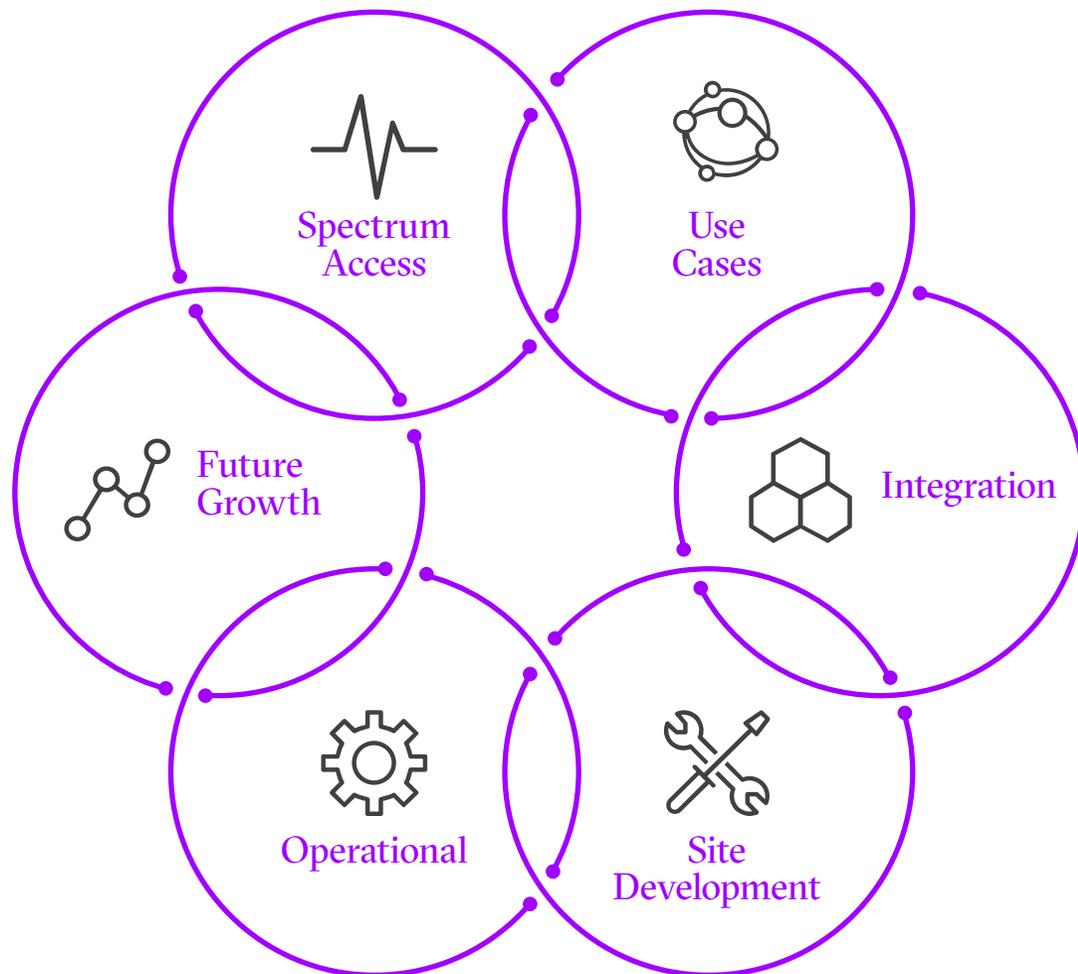
Accenture seamlessly integrates the ecosystem across the technology stack with enterprise needs at the center



#### Case Study

### Oil and gas company taps into new value.

One energy client was struggling to provide proper coverage across its field area network. Accenture used its patent-pending investment model to determine that the client needed a highly reliable, scalable private wireless network. Accenture also determined the value that would be delivered by improved connectivity and rolling out new use cases.



## How to get started

A network transformation journey can be accelerated and de-risked with the right vision, the right plan, and the right partners.

## Three key elements need to be considered:

### Shape the right strategy.

This includes defining the vision, blueprints, use cases, devices and spectrum for a private wireless transformation that will deliver maximum value to the business. At the same time, the security of the future network must be considered— everything from RAN-to-Core to enterprise IT/OT to Zero Trust security.

Accenture's patent-pending **Private Wireless Accelerator** helps shape the vision and strategy. It ties them to outcomes that drive real, measurable value. The process includes mapping out the technology to solve key business problems, as well as a complete review of potential ecosystem partners.

### Accelerate the value.

Enterprises looking to derisk and speed up a private wireless transformation should consider setting up a global delivery management capability. This should include a value realization office, procurement, planning and control. In designing the network, careful attention should be given to security and the segmentation of device traffic across business LANs and industrial control systems.

Some companies choose to take a **factory approach to execution**—prepare, deploy, test, cutover, operate—to deliver fast, cost effective and low-risk network evolution for the business.

### Run and optimize the network.

Implementing and integrating a private wireless network is only the start. The enterprise also needs to consider how to run that network in the most efficient and effective way and maximize the value for the business.

The network workforce should be upskilled and/or augmented with external expertise to **optimize and harmonize** private wireless networks, edge and cloud operations. For greater agility, reliability and security, operations should also evolve to an **artificial intelligence for IT operations (AIOps) model** to enable much greater levels of automation.

## Case Studies

### Chemical giant unlocks significant untapped value.

A chemical client was looking to modernize its network to enable new private 5G/LTE use cases.

Using its patent-pending investment model, Accenture assessed the business case for a private wireless network covering multiple sites, retail locations and a series of rail terminals. The transformation unlocks untapped value, while providing a clear value proposition and detailed solution template for site GMs.

### Automotive leader automates production with 5G.

One multinational automotive maker wanted to explore how a computer vision solution could improve its production lines—specifically, the placement of badges on vehicles. Accenture partnered with a network provider to implement a video analytics solution that transmits real-time images over 5G. Using the power of data, AI, cloud and edge computing, this automation alerts monitoring teams of errors as soon as they occur. It allows them to make a fix without delaying production.

### Global manufacturer transforms worker safety.

Accenture helped a large manufacturing company scope out a 5G private wireless network solution to reduce worker accidents and enhance productivity. We used our patent-pending Video Analytics Safety Solution to develop a proof of concept showing how an edge computing computer vision solution could ride on a low-latency Citizens Broadband Radio Service (CBRS) private network. Our solution demonstrated how equipment could be automatically shut down in situations where individuals are at risk of accidents in industrial settings.





## Today's companies need a strong digital core to serve as a foundation for reinvention

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Network, data and AI are all intertwined at the heart of the digital core, creating a competitive advantage for modern enterprises.

For Industry 4.0, mission-critical OT networks could be revolutionary, enabling Total Enterprise Reinvention. Such networks are also crucial in taking advantage of the Cloud Continuum—connecting everything from centralized public cloud through low-latency edge computing. These networks help companies operate faster and smarter, with real-time operational data powering next-generation AI and ML automation.

Private wireless solutions promise to be a key part of that revolution. They enable a critical connectivity fabric for workforce collaboration. And they give businesses the ability to quickly spin up and deploy new operational use cases using cloud and edge. All these ingredients are critical to unlocking data, so enterprises are empowered to make intelligent data-driven decisions. Now's the time to take mission-critical OT networks to the next level by making a private wireless solution part of your business strategy.

## Case Study

### **Global energy company creates reliable connectivity at remote sites.**

A global energy client's industrial sites were faced with wireless connectivity challenges due to physical scale, remoteness, harsh topography, and complex layouts. Accenture developed a strategy and implemented a solution, including capabilities and requirements, networks ops, security, and connectivity options for private wireless, Wi-Fi, and satellite for resiliency and reliability. Our private wireless solution enabled the client to use edge and cloud native features for future network services over a common platform.

# About the authors

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## Jefferson Wang

5G & Networks Practice –  
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Jefferson has more than two decades of experience at the intersection of business and technology. He aligns business problems to use cases and helps companies make the right technology decisions. Jefferson is also the lead author of the best-selling book “The Future Home in the 5G Era”.



## Kevin Kapich

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Kevin has over 20 years of experience working across industries to help shape, build and run network connectivity solutions. His focus is on building new solutions and capabilities related to private 5G and modern network technologies to unlock cloud, edge, data and AI.

## About Accenture

Accenture is a leading global professional services company that helps the world's leading businesses, governments and other organizations build their digital core, optimize their operations, accelerate revenue growth and enhance citizen services—creating tangible value at speed and scale. We are a talent and innovation led company with 738,000 people serving clients in more than 120 countries. Technology is at the core of change today, and we are one of the world's leaders in helping drive that change, with strong ecosystem relationships. We combine our strength in technology with unmatched industry experience, functional expertise and global delivery capability. We are uniquely able to deliver tangible outcomes because of our broad range of services, solutions and assets across Strategy & Consulting, Technology, Operations, Industry X and Accenture Song. These capabilities, together with our culture of shared success and commitment to creating 360° value, enable us to help our clients succeed and build trusted, lasting relationships. We measure our success by the 360° value we create for our clients, each other, our shareholders, partners and communities. Visit us at **[www.accenture.com](http://www.accenture.com)**.

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