

Solutions brief:

**Prepare to
transform your
manufacturing
business.**

verizon^v



Prepare to transform your manufacturing business.

1 Introduction

2 How prepared is your business?

3 Manufacturing solutions

4 How Verizon can help you



1. Introduction

Manufacturing in Europe is in flux. In many sectors, revenue and margins have been under pressure for some time, due to competition from other markets and changing demand for certain products and goods.

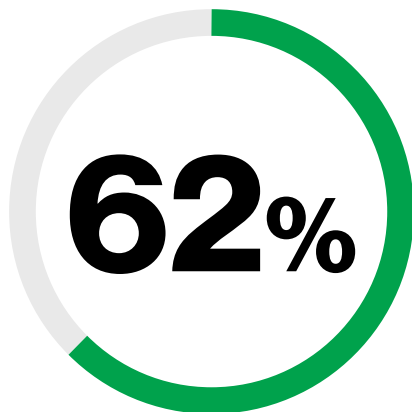


Introduction

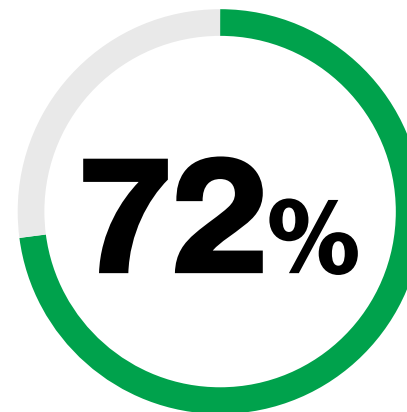
And the COVID-19 crisis has brought a new set of challenges. Our own research has 62% of manufacturers across 16 countries reporting declines in revenue during the pandemic.

At the same time, we have seen the emergence of Industry 4.0, Industrial Internet of Things (IIoT) and smart factories, all of which

have the potential to transform the operational technology (OT) that manufacturers rely on. Indeed, 72% of respondents to our research said the ability to deploy new technologies has become more important.



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Introduction

For those with substantial plants and long supply chains, transforming OT capabilities won't be easy, but the investment is worth it: Gartner found that 36% of manufacturing enterprises realise above-average business value from IT spending in digitalisation.

There are four main challenges that manufacturers need to address by transforming their OT capabilities:

1. Ensuring asset availability and utilisation
2. Improving operational efficiency
3. Making operations and facilities safer
4. Tapping into new revenue streams

Clearly, some of these challenges will apply more to some manufacturing businesses than others, but it's likely that at least some will apply to every manufacturer.

But the capabilities you need to address these challenges – predictive maintenance, automation, remote operations and digital twin – can only be made possible by the transformation of OT, some of which is decades old.

Crucial to this is for the teams responsible for OT to work more closely with the IT department, to ensure they have the kind of advanced networking and cloud tools needed to support the advances being made.

The capabilities you need to address these challenges... can only be made possible by the transformation of OT.





2. How prepared is your business?

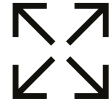
We define five states of readiness that should inform your digital transformation roadmap.





Start

The first step of digital transformation is about evaluating the current state of IT and OT networks and establishing foundational technologies. The increased use of cloud and mobile technology will drive demand for better-performing networks to drive efficiency and optimise operations, so the focus should be on creating a secure and application-aware hybrid network.



Adapt

This involves integrating technology to establish an agile IT environment. Putting in place a virtualised network integrated with enterprise services will help manufacturers make their OT and IT more agile and efficient.



Elevate

The next state is about optimising operations and business processes. Manufacturers can achieve this by implementing a secure IoT platform as a service to optimise IoT initiatives for production facilities, supply chains and shipping logistics.



Innovate

The fourth of the five states focuses on accelerating innovation and business value. For manufacturing, this means implementing AI, machine learning, location services and analytics across relevant parts of the ecosystem.



Disrupt

The final state sees the adoption of advanced technologies to extract value that can be used to disrupt the competition. This can be achieved in manufacturing through the introduction of mobile edge computing and platform services.





3. Manufacturing solutions for the 5 states of ready

Depending on your organisation's state of readiness and its unique requirements, you will require different tactics and technologies to prepare for the future. While digital transformation is a continuous, strategic journey, the following technologies and approaches typically fit with each state of readiness.





Start

Key capabilities:

- SD WAN / SD WLAN
- Network orchestration

As services are delivered to more people in more places and on more devices, the need for bandwidth on demand is increasing rapidly. In addition, the migration of data to the cloud requires disparate assets to be brought together more efficiently, application routing and cloud access across public and private IP options, and secure mobile endpoints and cloud gateways.

Software-defined networking, whether a wide area network (SD WAN) or a wireless local area network (SD WLAN), can address these issues. Traditional WANs are typically built on ageing protocols, rigid routes and racks of hardware-intensive appliances and are simply not flexible enough to keep up with variable demands.

Our Virtual Network Service (VNS) SD WAN solution helps manufacturing businesses quickly connect their OT systems to the data they need, when and where they need it, while also keeping opex and capex in check. The solution is being used by one manufacturing giant to streamline traffic across all of its locations.

At this early stage of transformation, network orchestration gives you the ability to centrally manage your network – including cloud connectivity and policies – enabling faster provisioning and remote maintenance or upgrades.

Other elements to consider are increased network visibility and integrating application performance management tools.





Adapt

Key capabilities:

- **Managed Network Services**
- **WAN Optimization Services**
- **5G FWA**

Once you have software-defined networking in place, Managed Network Services can help your network adapt to changing service levels and bandwidth demands on the fly, using software-defined policies.

Managed Network Services outsource the everyday tasks required to keep your network running at peak performance. This drives agility and flexibility, as well as enabling deep insights and positive customer experiences. It also helps with security, where the focus should shift to risk, zero trust and threat analysis.

This means your network is reliable, up to date and operating at the speed of your business. It also means your IT teams won't be burdened with ongoing network maintenance. As part of this, cloud usage models should encompass IT event correlation and AI remediation.

The performance of the most demanding apps, whether in-house, externally hosted or in the cloud, meanwhile, can be improved with WAN Optimization Services. Rather than investing in more bandwidth to improve app performance, WAN Optimization Services can be customised to give important apps priority over non-essential traffic, helping critical processes operate at the level needed.

As a development from SD WAN and VNS, manufacturers should also consider implementing 5G fixed wireless access (FWA) along with Verizon's Intelligent Edge Network technology and VNS orchestration.





Elevate

Key capabilities:

- **Managed Detection and Response**
- **Secure device activation and orchestration**
- **Enterprise security for IoT**
- **IoT cloud analytics**

For manufacturers, optimising operations and business processes largely applies to supply chains and shipping logistics.

To establish a secure chain of custody in these areas, you need a truly intelligent supply chain – one which reduces blind spots at every point and accounts for every set of hands the inventory passes through. Crucial data can be captured by IIoT sensors and analysed by IoT cloud analytics to inform decisions that drive more on-time deliveries and more efficient shipping schedules.

Securing operations becomes critical in this Elevate state, especially with employees distributed remotely and across facilities, and with business operations taking place in the cloud and using the Industrial Internet of Things (IIoT). Secure device activation and orchestration and enterprise security for IoT with IT/OT gateways are therefore key.

An end-to-end security-as-a-service solution such as Managed Detection and Response can identify and alert clients to security threats, and help mitigate against potentially catastrophic damage. Securing chain of custody, for example, will help combat waste, limit costly write-downs and deliver products to customers on time and in good condition.





Innovate

Key capabilities:

- On-Site LTE
- Low-power wide area wireless technology (LPWA)
- User-centric real time analytics
- Personal information protection

As your enterprise evolves and moves along its transformation journey, it will become easier to understand what business teams value most. User-centric real-time analytics and insights will enable you to direct digital transformation efforts towards those areas. Personal information protection with identity credentials will play a role in securing these processes.

How well a manufacturing organisation anticipates issues within its production line and reacts to changing market conditions will increasingly determine its success. Being able to do this will require proper artificial intelligence (AI), data mapping and machine learning (ML).

To support these approaches, networks will need to have lower latency and faster throughput, so applications and services that turn real-time data into real-time intelligence can emerge. On-Site LTE and lower-power wide area wireless technology (LPWA) offer this level of networking functionality.

This can lay a foundation for augmented reality (AR) applications. AR can help workers on the factory floor to identify when hazardous materials are in dangerous proximity, or provide a worker performing a hazardous task with additional information that will speed up their work or alert them to any safety issues. The network could also support virtual reality (VR) applications that enable workers to operate robots within hazardous environments.





Disrupt

Key capabilities:

- Private MEC
- On-Site 5G

As OT applications grow in sophistication – using AI and ML – and require ever lower latency, processing power will need to move to the edge of the network. This can help drive the most visionary and disruptive breakthroughs in manufacturing, with AR/VR, IoT and AI-enabled machine tracking at the forefront.

High volume, low-latency mobile edge computing with network slices can place processing power at the network edge, enabling automated intelligence and making it possible to capture near-real-time insights at scale. Edge Network PaaS and workload orchestration can also be part of the mix.

Our private multi-access edge computing (MEC) capabilities extend the functionality of networks, providing both an IT service environment and cloud-computing capabilities at the edge of the mobile network.

Enhanced capabilities include ultra-low latency, localised data and expanded potential for IIoT applications. Secure zones will be needed to isolate workloads and advanced intelligence. Among other things, this functionality could support real-time material tracking and shop-floor equipment modularity.

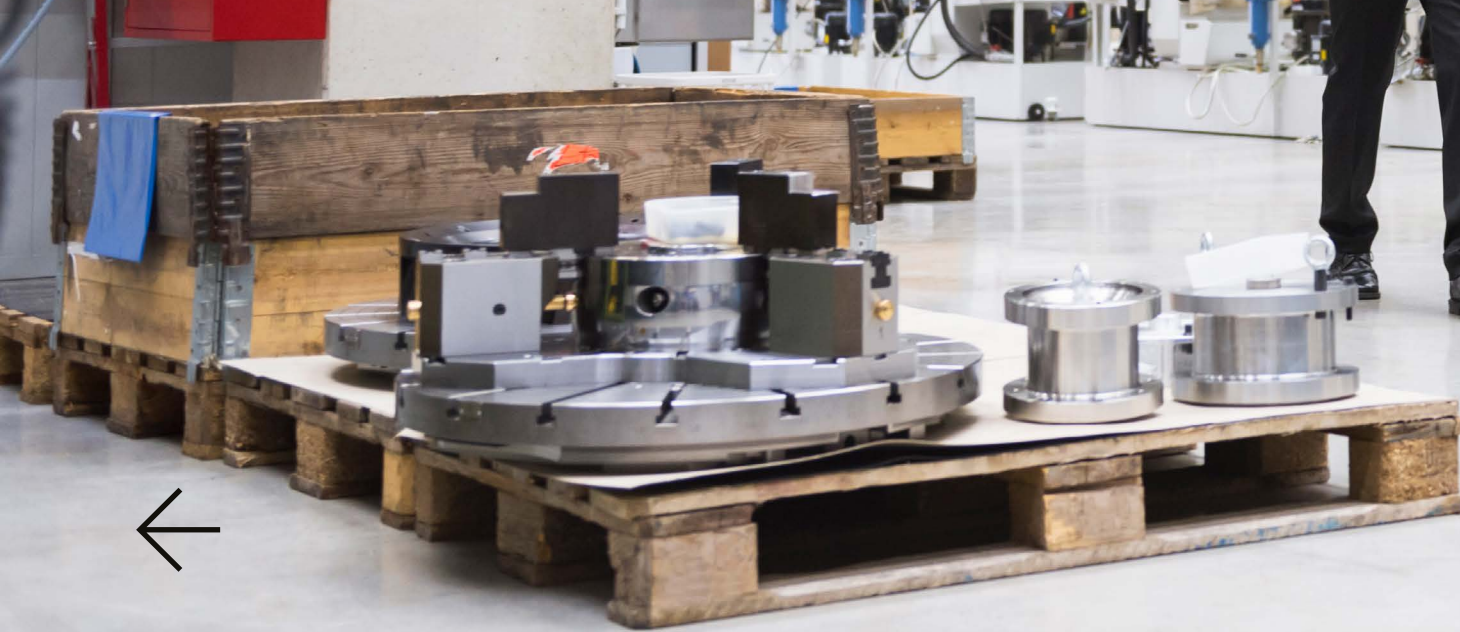
It's at this point that On-Site 5G can come into its own, with its ability to support the volume and speed of data required for such applications.



How Verizon can help you

4. How Verizon can help you deliver transformation

Digital transformation requires the expertise and objectivity of a partner that can make a quick, pragmatic assessment of the landscape and apply solutions.



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Verizon has the solutions and the know-how to help your manufacturing organisation embark on this work.

We provide the data-derived intelligence, deep knowledge of multiple business verticals and advanced networking capabilities needed to connect a manufacturer's OT systems and applications, with new technology such as IIoT, AI and ML.

Together with our OT and industrial IT partners, our advisory services can help you develop the right roadmap to make the required innovation a reality – starting with identifying and defining the challenges for your business.

Once you've defined your challenges, you will be able to understand how ready your manufacturing organisation is for the future and where it sits in terms of the transformation journey it will undertake.

Armed with this knowledge, your manufacturing business will need to envision where it wants to be in five or 10 years, and ensure the technology foundation to get there can be put in place.

Our advisory services can help you develop the right roadmap to make the required innovation a reality.



**Find out how Verizon's
manufacturing solutions
can help your manufacturing
business to transform and
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contact us now.**

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