# Manufacturers look to AI to improve competitiveness, but is their network ready?

The manufacturing industry continues to face global headwinds, with supply chain disruptions and new competitors affecting both established and emerging players alike. Volatile trade policies such as tariffs are one of the **biggest concerns facing manufacturers** in their forward planning. Other disruptions include raw materials price rises that increase pressure on margins and continuing skills shortages across many domains.

To remain competitive, manufacturers are investing in new technologies to enhance the efficiency and flexibility of their operations. AI is a key part of this dynamic and according to recent research from Omdia, at least 85% of manufacturers they surveyed have deployed some form of it in their business.
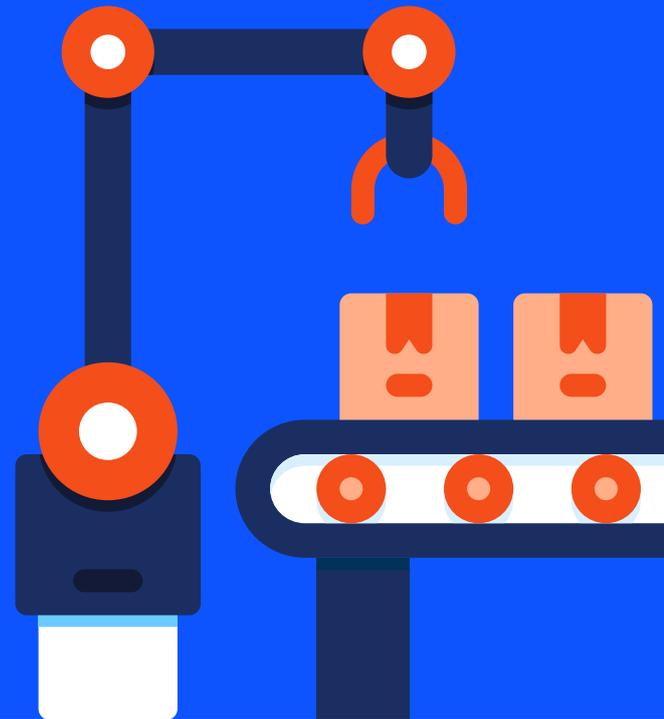
Manufacturing use cases need more bandwidth

Typical use cases for AI in manufacturing include supply chain optimisation, predictive maintenance and production cycle improvements. By collecting real-time data and analysing it with machine learning to detect any anomalies, manufacturers can improve equipment reliability (OEE). The data could indicate that a part was about to break, allowing them to order a new one before the machine failed.

All these applications require off-site processing and integration with the wider manufacturers' digital infrastructure. As such, manufacturers are improving their network connections into manufacturing facilities. The requirement for most of these use cases is to increase bandwidth as most of the traffic stays within low-latency regional networks.

This is reflected in our Omdia survey, which found that the three main drivers for network investment were higher performance (51%), increased bandwidth (49%), and greater flexibility/agility (33%). Manufacturers are upgrading their bandwidth across their infrastructure and sites, transitioning from legacy networks of 50Mbps to 100Mbps and Gigabit connections.

And it's not only AI-related use cases that are driving the need for more bandwidth. The Omdia survey found that the five top bandwidth-consuming applications in manufacturing were enterprise operations software (36%), operational technology (OT) controllers (31%), quality control (28%), business intelligence and analytics (21%) and design/digital twin environments (18%).
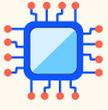
Edge processing to improve latency

Additionally, manufacturers are turning to private clouds to support latency-sensitive applications within their factories. One key use case is computer vision for quality control on manufacturing production lines. Real-time video analysis and machine learning can detect any issues with products coming off the line. Rather than backhauling data from the factory to a cloud provider for processing, manufacturers can utilise edge processing to achieve faster response times. Here, high bandwidth and low latency are essential for success.

This trend of edge processing is part of a wider move by some large manufacturers to pull workloads back from public clouds to private data centres. In general, this is driven by cost control for AI training and inference, as well as security and compliance requirements for proprietary data. Often, manufacturers will deploy a pilot for an AI application in a public cloud, then move it to a private colocation or on-premises for production.

Network design requirements

According to Omdia, manufacturers will need to have predictable network behaviour in terms of latency, jitter and packet loss because many processes depend on consistent network timing. Because this needs to extend across multiple production sites, partners, and jurisdictions, manufacturers will need global consistency, particularly around contractual service levels.

Network resilience is a critical consideration for manufacturers, because the wider digital infrastructure is essential to operations. Any network failure can have a wide-reaching impact on production systems. In fact, reducing downtime is a priority for manufacturers due to the significant cost implications. A study by Siemens calculated that the annual cost of an idle production line in the automotive sector was $695 million — 1.5 times more than five years ago. This equates to US$2.3 million per hour of downtime or more than US$600 a second.

Boosting worldwide bandwidth for major manufacturer

Telstra International worked with a major global manufacturer to significantly boost its connectivity bandwidth at over 30 production sites worldwide to support its operations. This included increasing P2P ethernet bandwidth from 200Mbps to 10Gbps and improving site internet underlay connectivity for SD-WAN from 20Mbps to 10Gbps. The network upgrade also needed to meet complex regulatory requirements, especially in APAC.

In addition, the underlay internet connections included full redundancy and strict SLAs for latency, jitter and packet loss, along with enhanced cybersecurity. This underlines the importance of highly resilient bandwidth for manufacturers to minimise downtime for critical sites.

Choosing underlay networks

The internet remains the dominant underlay network for connecting enterprises to the cloud and other services. However, not all internet connections are the same, and manufacturers need to ensure that their choice of internet underlay meets the business requirements for resilience and security.

Enterprise-focused traffic management and peering to relevant cloud services are also imperative. This is typically not available from consumer-focused ISPs that are more concerned with optimising services such as Netflix. The Omdia survey found that 60% of enterprises planned to move from best-effort public internet services to business-grade options.
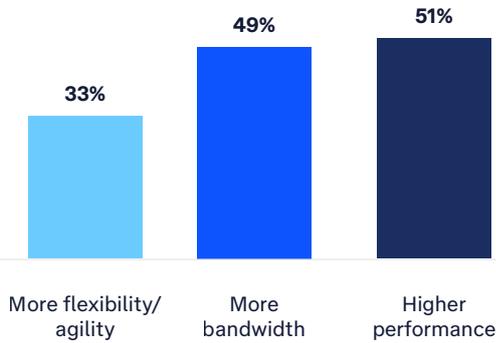
However, it's not just internet services that are important for manufacturing. Many manufacturers continue to use MPLS IP-VPNs to support critical applications that cannot be easily moved to the cloud. MPLS provides assurance and predictable performance for these workloads. In fact, the Omdia survey found that 80% of enterprises across all sectors were planning to rebalance their public internet and private network investments.

Satellite services are also widely used by manufacturers to support facilities in remote locations, where the choice of network connectivity is limited.
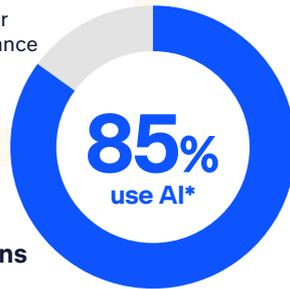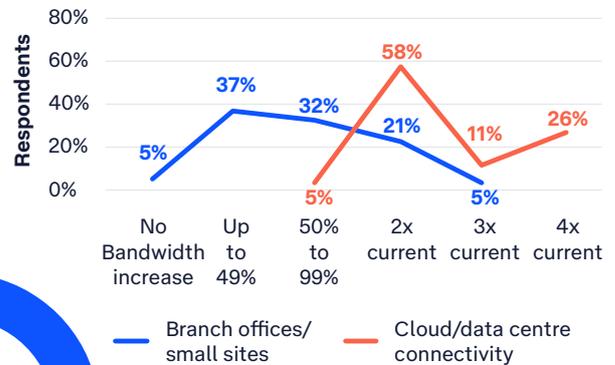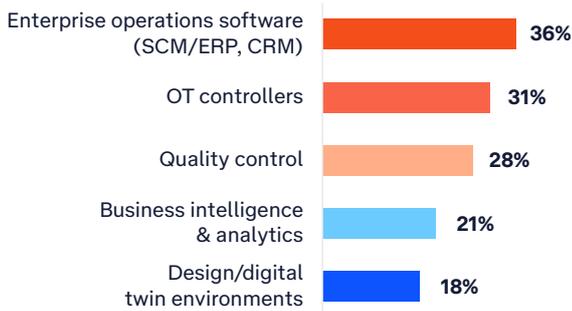
Digital demand snapshot: Manufacturing

Top network investment drivers

- More flexibility/agility: 33%
- More bandwidth: 49%
- Higher performance: 51%

Expected bandwidth increases — next 18 months

Branch offices/small sites (blue):
- No Bandwidth increase: 5%
- Up to 49%: 37%
- 50% to 99%: 32%
- 2x current: 21%
- 3x current: 5%

Cloud/data centre connectivity (orange):
- 50% to 99%: 5%
- 2x current: 58%
- 3x current: 11%
- 4x current: 26%

Legend:
- Branch offices/small sites
- Cloud/data centre connectivity

85% use AI*

5 most critical bandwidth-consuming applications

- Enterprise operations software (SCM/ERP, CRM): 36%
- OT controllers: 31%
- Quality control: 28%
- Business intelligence & analytics: 21%
- Design/digital twin environments: 18%

Live 100Gbps circuits: Largest sites

Range	Today	18 months
None	21%	13%
1-2	5%	8%
3-5	26%	13%
6-10	33%	28%
11-25	13%	31%
26-100	0%	5%
101 or more	3%	3%

Legend: Today, 18 months
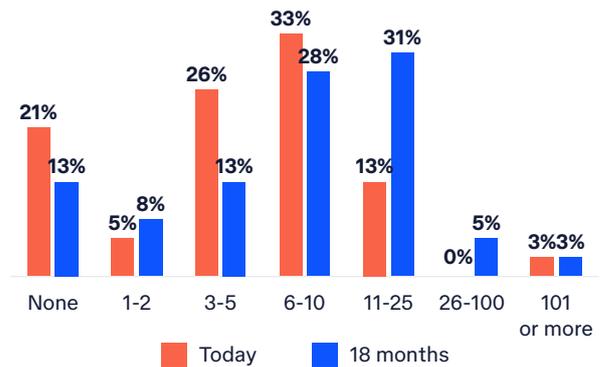
N=39   Source: Omdia 2025

*one or several types

Why Telstra International for manufacturing

Leveraging Asia-Pacific's largest wholly-owned subsea cable network and a robust global terrestrial footprint, we help you achieve seamless connectivity across your entire manufacturing ecosystem. Our flexible network underlay services include enterprise-grade internet, MPLS and satellite, and scale with production shifts and new factory deployments. We also offer secure, high-speed point-to-point data networks, such as Ethernet Private Line (EPL), which enable real-time global R&D, AI, and production collaboration.

To support your edge and private cloud requirements, we provide private cloud infrastructure strategically positioned near production hubs and markets for faster access. This helps minimise latency to enhance performance of time-sensitive manufacturing applications.

Find out more about our services for the manufacturing industry here:
telstrainternational.com/en/enterprise/industries/manufacturing