



The bridge to possible



Manufacturing for Tomorrow

White paper



Companies in Europe, the Middle East, and Africa (EMEA) are moving toward a more connected factory environment to stay competitive and weather disruptions

An aging workforce. Evolving regulations. Mounting cyberthreats. Fierce competition. The COVID-19 pandemic. Things have been tough for the manufacturing industry—and the old ways of working are no longer sufficient for today's needs, much less for the future.

Manufacturers in EMEA are also experiencing a worker shortage, as one generation ages out of the workforce and their longtime skills and knowledge aren't replaced. Since COVID, the supply chain has been wildly unpredictable and inconsistent, as companies rush to get back into production and consumer demand skyrockets.

These organisations need new ways to reduce risk, comply with regulations, and improve asset utilisation and Overall Equipment Effectiveness (OEE). They need to keep employees productive

while enabling innovation and differentiating themselves from the competition. And they need to increase resiliency to stay profitable in the face of disrupters they haven't even seen yet.

That's a lot for an organisation to deal with, and too many transformation efforts are being hindered by antiquated systems that have been implemented piecemeal over the past decades. These systems represent a big investment, and it's difficult for organisations to turn away from those investments and spend money on something new.

The need to stay competitive, however, is proving to be an effective catalyst for addressing the lack of visibility into operations and lack of alignment between IT and OT systems. Manufacturers are realising that today, more than ever, they need to modernise their shop floors and make the shift to embrace a more agile and productive model.

The solution comes down to technology. While the manufacturing industry has evolved and been forced to change, fortunately so have the technological tools, systems, and practices that will enable organisations to thrive today.

Industry 4.0: The way forward

Industry 4.0 isn't a new concept—it's been around for about a decade. But many manufacturers didn't feel an urgency to adopt Industry 4.0 tools and technology because for a while they were getting by just fine with their existing infrastructure.

Then COVID-19 changed everything. Suddenly organisations were having to shut down or try to run operations with greatly reduced staff, many employees were forced to work remotely, and manufacturers quickly realised that they needed what Industry 4.0 technologies could do.

With cloud-based tools, artificial intelligence, machine learning, and Internet of Things sensors delivering real-time machine data, manufacturers can enjoy a higher level of insight, agility, and flexibility—which can help reduce unexpected downtime, minimise manual errors, and keep employees productive.

Industry 4.0 is all about achieving real business outcomes by harnessing data and extracting its intrinsic value. It's about pulling data out of existing systems, lines, assembly cells, and processes—and storing it, processing it, and analysing it to gain actionable insights that improve operations.

In the past, many manufacturing systems were siloed, especially between the back office and the shop floor. While an organisation may have

had a network for its accounts payable and accounts receivable systems—perhaps connected to a Customer Relationship Management (CRM) system—those systems weren't typically connected to or integrated with shop floor systems that monitored materials, equipment use and condition, and production quotas.

Those segregated networks were an issue, because both types need to communicate with the company. Many manufacturers had two separate teams to run and manage those networks, which required two different sets of skills. It was a costly and inefficient way to work, but the company leaders were hesitant to make any changes because they were still trying to recoup the investment they'd already made.

Industry 4.0, however, requires that all systems, from the back office to the shop floor, be interconnected so data can be correlated and deliver insights that can transform the organisation. With the right analytics program, that data can help managers identify bottlenecks, keep machinery at peak performance, optimise employee schedules for greater productivity, and pinpoint where changes are needed.



Industry 4.0 enables true digital transformation

As manufacturers adopt Industry 4.0 technologies and tools, they are realising the benefits of digital transformation. With a secure, end-to-end standard network, they can keep their enterprise applications in communication with their production assets.

Industry 4.0 requires a new class of networking, which can enable:

- **More network bandwidth** for things like around-the-clock surveillance video, automated guided vehicles, thermal imagery, and sensors with remote personnel
- **Mobility** including real-time control of unmanned vehicles, mobile workers, mobile Human-Machine Interfaces (HMLs), and support for critical applications
- **Cybersecurity** as the number of connected devices explodes and the threat landscape continually evolves
- **Simplified scale** allowing organisations to deploy and manage more devices across more locations with the same resources
- **Edge compute** to process and act on data faster by keeping it close to its source, maintain compliance, and save on costs

For manufacturers that embrace Industry 4.0, the benefits are clear.¹ They can:

- **Improve OEE:** 60% of adopters said digital technology helped boost productivity
- **Reduce costs:** Nearly 50% reduced operating costs
- **Improve quality:** 42% noted improved overall product quality
- **Innovate faster:** 13% experienced a greater capacity to innovate

Many organisations haven't yet realised their full value

Manufacturing is fiercely competitive in EMEA, and companies must be extremely cost-efficient to stay profitable. Many large manufacturers across the region have implemented Industry 4.0 solutions and technologies because they were able to see on paper the potential for savings and return on investment.

There are still many outliers, however, especially among small and medium-sized companies. A recent McKinsey report stated that “Over 70% of companies have started to pilot Industry 4.0 solutions, but only 30% are capturing value at scale.” The rest, according to the report authors, are in “pilot purgatory.”²

One of the reasons for this is that Industry 4.0 initiatives must be built not only on a strong foundation of technology, but also on a foundation of business support and commitment to change. The initiatives need support from top executives down to the line workers who will manage some of the systems.

Another reason that some organisations have yet to realise the full benefits of Industry 4.0 is that there are so many available tools and systems, and it can be overwhelming to know where to begin. Manufacturers can increase value in so many different areas, from remote monitoring and operations to process automation to supply chain management and optimisation.

It can also be difficult for manufacturers to actually know what they need. It's not easy to connect the dots between the outcome they want and the technology they need to get there.

Industry 4.0 requires a convergence of people, processes, and technology. The technology can enable a huge number of benefits, but if the organisation's people aren't supporting the change and the manufacturing processes aren't shifted and modified to take advantage of that technology, it's not going to work.

¹ Business Development Bank of Canada, Industry 4.0: The New Industrial Revolution (2017).

² McKinsey & Company, Industry 4.0: Capturing Value at Scale in Discrete Manufacturing (2019).

What manufacturers need to make the most of Industry 4.0

To realise the full value of Industry 4.0 and transform their organisations, manufacturers in EMEA need to address the following issues:

- **Security:** Pervasive integrated security across the entire ecosystem is critical to business continuity and resiliency
- **Automation:** To survive, manufacturers must take advantage of the operational benefits of factory automation and remote access
- **Supply chain challenges:** Staying profitable requires a strong supply chain with end-to-end visibility and integration
- **Remote capabilities:** Besides the shop floor, many manufacturing roles are becoming remote, which requires secure collaboration tools and remote machine monitoring and maintenance
- **Workplace resiliency:** Manufacturers must prepare themselves for disrupters that might not even exist yet

It's important for manufacturers to keep in mind that "you can't secure or monitor what you can't see." Visibility is so key to achieving success in today's marketplace. It's the essential element that will inform people about why a line went down, why a shipment didn't move from point A to point B, why an application is malfunctioning, or why one shift of employees is so much more productive than another.

All of the technology to enable that visibility has existed for some time—but thanks to COVID, manufacturers who didn't see the need to change before now realise that visibility and connected data are critical to their survival.

It all starts with a secure, end-to-end network architecture that connects all systems together. It's the most critical infrastructure component because without it, nothing else works.

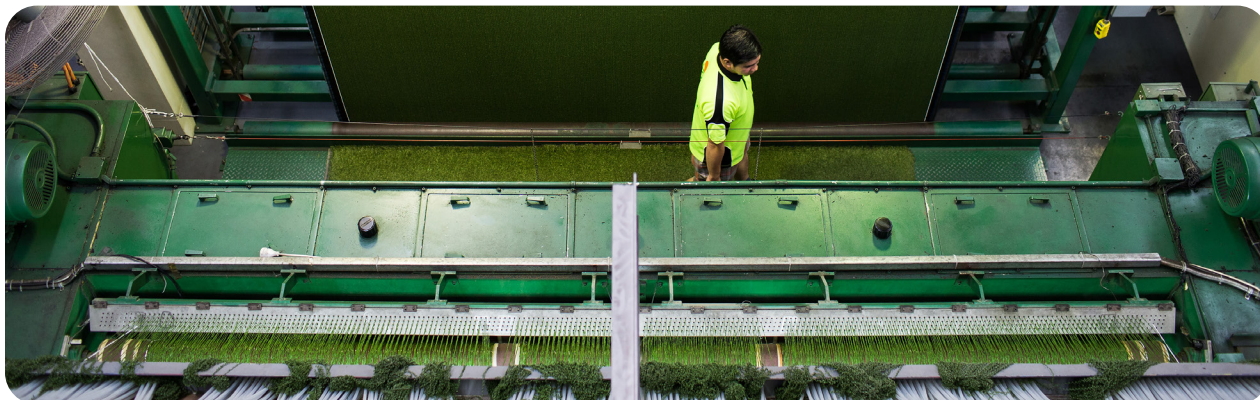
How Cisco and Amplicon can help

Cisco and Amplicon provide that crucial network, and all the infrastructure around it, to enable manufacturers to get the full value out of their data. The network is the engine that provides that visibility, which is the basis for all the benefits of Industry 4.0.

In addition to providing visibility into the network, Cisco provides trusted Cisco® Validated Designs for factory networks and factory security that help deliver a manufacturer's desired outcomes with no hassle.

Both Cisco and Amplicon have extensive experience with manufacturers of all sizes in EMEA and have helped countless organisations modernise operations for greater productivity and profitability. We can show you in detail how our solutions and services will benefit your bottom line, and how much you will save, how you'll accomplish more with less effort, and how you will boost your ability to compete in a crowded market.

We work closely with manufacturers to understand their unique needs and can help you choose the right tools and technologies to succeed.



Cisco offers a variety of solutions in the following areas:

- **Network and security:** Reliability and resilience, protocol support, management, segmentation, Network Admission Control, role-based access control, and Secure Remote Access
- **Mobility:** Product and tool traceability, workforce enablement, and collaboration
- **Assets:** Real-time asset visibility and condition monitoring, improved utilisation, and inventory accuracy when linked with track and trace
- **People:** Employee tracking to enhance safety, plus access control
- **Collaboration:** More efficient use of employee time with rapid access to expert knowledge and colleague consultation
- **Virtualisation and computing:** Data analysis and management, monitoring, and optimisation
- **Buildings:** Energy management solutions to provide visibility and optimise usage and cost
- **Connected machines:** Predictive maintenance and improved utilisation and uptime

As one of the UK's premier industrial PC manufacturers, Amplicon offers solutions and consultation in:

- **Industrial computing:** Amplicon designs and manufactures industrial computing systems to meet customer-specific technical, environmental and EMC requirements
- **Data communications,** including networking infrastructure, gateway, and conversion products for all major data communications protocols
- **Measurement and control,** from high-end test and measurement to a simple digital panel meter installation
- **Engineering services,** including solutions engineered and manufactured to meet the most demanding requirements for reliability, future-proofing , and maintenance

For more information

- [Amplicon & Cisco IoT solutions](#)
- [Cisco Industrial IoT Solutions for Digital Manufacturing](#)