

## Key Challenges

IT infrastructure that has been designed for a physical world, not a digital world

Increasing risks of cyberattacks. It's no longer simply an IT problem – every part of today's networked organisation needs to become involved

Lack of knowledge about technologies, vendors and IT Outsourcing partners that can help execute the digital transformation journey

## Opportunities

Scalability and agility by adopting a modern IT network and related-technologies, such as the Cloud

Higher business continuity & better quality products: real-time monitoring, IoT-enabled quality control and improvement

Optimisation of processes and productivity to save costs, increase profitability, reduce waste, prevent errors and delays, speed up production, etc

# Industry 4.0 – Digital Transformation In the Manufacturing Sector

**The manufacturing industry is evolving. New business models and massive digital transformation efforts are putting the former on the verge of an innovative phase that promises greater productivity, efficiency and lower costs. Unsurprisingly, the vast benefits that these digital innovations deliver make it crucial for manufacturers today to adopt emerging technologies in order to thrive in the disruptive future.**

Manufacturing has always been a process driven sector, with continuous improvements to help companies work more efficiently and reduce costs. From the Industrial Revolution in the 1800's on through to today, change has always been a constant in the manufacturing process.

Manufacturing has always relied on processes that are underpinned by strong technology in order to operate at peak efficiency. From automatic pattern cutters in the clothing industry, a robotic arm in the automotive sector or state-of-the-art printing presses, technology has always been at the heart of manufacturing success in keeping costs down while simultaneously speeding up production.

Today, technologies such as IoT, big data and analytics and SD-WAN are advancing manufacturing toward a digital economy, resulting in a more efficient workforce and streamlined operations, while all the time maintaining high standards in production quality. Industry 4.0 means that manufacturers need to embrace the challenges and opportunities that come with it, transforming the manufacturing industry into a digital model. Moreover, it's important to keep in mind that the starting point for the path to Industry 4.0 will need to be the deployment of a next-generation network infrastructure that can support the business on its digital transformation journey.



### Internet of Things (IoT)

The power of IoT in the manufacturing space is enormous. The manufacturing industry has been receptive to adopting technology to capture data that can be fed into existing ERP and cloud platforms to perform data analysis, helping make data-driven decisions that streamline their operations. Connected devices can, for example, streamline and simplify processes in the development cycle by alerting procurement when specialist inventory runs low. Or by alerting engineers when quality control and safety tests fail, through a series of strategically placed sensors.

Indeed, as the number of use cases continues to increase for IoT devices, an enormous strain will be put on the network as the number of connected devices grows exponentially.

Industry 4.0's inherent future-forward benefits are driving innovation across the industry and disrupting outdated processes across value chains. With every new Industry 4.0 technology that emerges - from IoT analytics to artificial intelligence and AR - it becomes ever clearer that Industry 4.0 is more than an opportunity; it's also an imperative.

**"The effective usage of data not only involves improving manufacturing efficiency, but also drives greater agility and deeper integration with other parties, such as logistics and supply-chain management entities."**

- Intelligent Manufacturing in the Context of Industry 4.0: A Review, Engineering Journal

### Accelerated Growth and Agility

Moreover, with advances in digital technology, every manufacturing business now has the capability of being a global organisation and transcend local geographical boundaries on a scale that was once unimaginable.

Organisations are able to (and indeed, must be able to) enter new markets with minor or no modifications to their digital business platforms. Taking Uber as an example, in just five years, they've expanded into more than 50 countries and over 300 cities - a rate of expansion of a new city every six days. Can your network infrastructure cope with that kind of strain?

Most manufacturing businesses today were conceived in a very different world than today's digital era - there was no pervasive connectivity, mobility, Cloud, wireless, social media, etc. Indeed, most businesses today have been designed for a physical, rather than a digital world. The IT infrastructure needed to support Industry 3.0 is no longer adequate to support Industry 4.0.

# **"Industry 4.0 holds the promise of increased flexibility in manufacturing, along with mass customisation, better quality, and improved productivity."**

## **Infrastructure for Digital Transformation**

Manufacturers require an IT infrastructure that is capable of supporting multiple technologies both on and off-premise and in the Cloud - and is able to manage the data transport that multiple devices, multiple locations, and a myriad of new technologies will bring.

Hybrid Cloud and network environments, SD-WAN and high speed broadband are just some of the technologies that manufacturing will need to adopt in order to enable them to manage their business applications and operations across all these diverse elements, while networking components such as WiFi and Unified Communications can ensure systems and employees, suppliers and customers are able to work together seamlessly and collaboratively.

Digital transformation will have a profound impact on a business' storage requirements. Data capture, storage, capacity, and retrieval needs for manufacturers will all grow exponentially. Moreover, there will be a huge demand for complex, real-time processing that is able to perform ever more comprehensive calculations on this data in order to drive business processes, thereby making a transition to a Cloud-based environment much more critical.

# **"All the steps have to be taken to become resilient against incidents in cybersecurity - there are no shortcuts."**

## **Security**

Security is one of the most critical areas in a digital infrastructure needed to support Industry 4.0. If compromised, it can result in huge losses. Industry 4.0 gives organisations and their stakeholders (employees, customers, suppliers, etc.) direct access to specific parts of the network, specific applications and all related data. But this in turn, leaves their entire ecosystem increasingly vulnerable to cyberattacks.

Today, mobile devices, IoT endpoints and Cloud computing have created multiple new entry points and shifted them to the network edge. Network security therefore also needs to shift to the edge in order to maximise its effectiveness.

Modern, advanced threats require a holistic security strategy. That's why manufacturers need to turn to a defense-in-depth approach, that incorporates several layers of independent security controls (physical, procedural, and electronic). For example, adopting a micro-segmentation strategy to network security enables manufacturers to provide a tighter control-based environment around critical parts of their operation, isolating, for example, production systems from development systems.

Manufacturers need to ensure that their network security is designed to protect the usability and integrity of their network and data. This includes both hardware and software technologies that need to effectively and seamlessly manage access to the network, target a variety and ever-changing number of threats and stop them from entering or spreading across the network.



## About Syscomm

We are a UK leader in the development and deployment of enterprise communications. From networking, security, connectivity and Cloud-based solutions to unified communications & collaboration, Syscomm is your ideal partner on your digital transformation path. We help minimise business risk, simplify administration and deliver world-class results. For more information, please visit [www.syscomm.co.uk](http://www.syscomm.co.uk)



## Is Your Network Ready for Digital Transformation?

Syscomm is helping manufacturing organisations move further along in their digital transformation journey. We act as the 'bridge' that joins disparate systems together, help fill in the gaps as current infrastructure is updated, design and build your next generation network and continue to support the business long after your network has been upgraded.

The manufacturing industry is changing, and technology is the significant driving force behind today's innovations. Networks and network management is critical to your Industry 4.0 success. Syscomm are changing the rules of networking to create a powerful digital transformational journey – empowering our customers and partners alike to be the driving force shaping the future of networking.

We have crossed the threshold and entered a new age of manufacturing - a technological revolution that will change industry forever, where the utilisation of digital data, connectivity, and processing encompasses every aspect of manufacturing activity. From rapid prototyping and R&D to production and performance analytics, digital transformation in manufacturing is poised to impact all aspects of business.

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