Omega
Global Resource Solutions

REVOLUTIONISING SUPPLY CHAIN MANAGEMENT:

INDUSTRY 4.0

Guide Overview:

The logistics, manufacturing, supply chain and transportation industries are going through a time of rapid and unprecedented transformation.

This guide provides an overview of Industry 4.0, the technology involved and how procurement professionals can prepare for the impact it may have on the supply chain.

Included in this guide:

- What is Industry 4.0?

- What can procurement expect?

- Industry 4.0: the good

- Industry 4.0: the bad

- Industry research from PricewaterhouseCoopers

"The core of Digital Industry 4.0 is highly intelligent connected systems that create a fully digital value chain".

The term 'Industry 4.0' has raised eyebrows within the manufacturing sector. The logistics, manufacturing, supply chain, and transportation industries are going through a time of rapid and unprecedented transformation. The future of these industries is paved with innovation and technology. It was not long ago that ideas like 3D printing and augmented reality were things of science fiction. Today, merchants and service providers within these industries are cautiously adopting these technologies to provide faster, cheaper, more efficient and sustainable business practices.

This guide will provide an extended overview of the sweeping technological trend, and how it is has the potential to completely revolutionise supply chain management. The technology behind industry 4.0 has the potential to transform how factories and warehouses operate, how vehicles are maintained and provides a limitless volume of new industrial processes, purposes and practises.
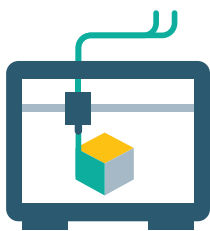
What is Industry 4.0?

Although originally coined in Germany in 2011, the concept of Industry 4.0 is still unfamiliar to many in manufacturing. In short, Industry 4.0 is the next revolution in industrialisation.

The premise is to take all the individual processes and computing that factory machines perform in their siloed systems and import them into the Cloud, meaning the workflow, upkeep, and management of each individual machine and series of machines can be done remotely.

To understand how this level of digital integration can happen, there are two key computing infrastructures to recognise: the Cloud and the Internet of Things (IoT). The Cloud is a type of internet-based computing that provides shared resources and data to computers and other devices on demand. The Internet of Things builds on the concept of the Cloud, using its functions to store and automate processes in machines that are synced to the internet, similar to remote home-heating systems. Ultimately, Industry 4.0 will take the Cloud and the Internet of Things to create a hybrid system (the Industrial Internet of Things), whereby machines and other devices can be controlled, managed and maintained from anywhere in the world.

The materialisation of 'smart factories' will be the end product of this technology-inspired concept, whereby each individual machine will be linked and shared via a smart device, offering an inter-connected, fully-controllable system that records and shares faultless data.
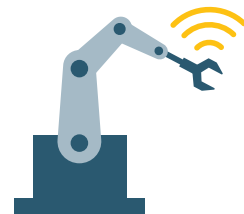
3D PRINTING

ROBOTIC AUTOMATION

BIG DATA

SMART INDUSTRY

LOGISTICS

What do procurement professions need to know about Industry 4.0?

Industry 4.0 seeks to combine IT, engineering, production and logistics to generate a digital convergence of business operations. It's a blueprint for digitalising the value chain from factory to customer. This revolutionary blueprint will, however, disrupt current processes in the supply chain due to its digital modifications. Here are three key aspects of Industry 4.0 that may impact the supply chain:

1 'Smart' or 'Intelligent' factories: computerised and flexible manufacturing processes that are integrated with customers and business partners, in support of product lifecycle changes will significantly impact current factory layouts and operations. With inter-linked machinery, new factory designs will need to be considered in order to optimise production and avoid wasted resources.

2 Advanced and connected data: Industry 4.0 brings with it cutting-edge, predictive analytics to drive flexibility at not just production lines, but also at the process level. This advancement will not only put more pressure on organisations to use this data to its optimum efficiency, but also requires adapting to new data collection methods.

3 The Industrial 'Internet of Things': the connection of production facilities across company boundaries will create new business models and may require revised supply chain designs. The way things are manufactured will require new thinking, and what new IT calls "product innovation platforms", which aim to define and design products but also to manage product lifecycles.

Industry 4.0: the good

With growing demands on the industrial sector to produce more materials with higher efficiency, Industry 4.0 answers all the questions. The obvious advantages to the technology behind Industry 4.0 are increased productivity and profitability.

Implementing decentralised, inter-connected systems, as opposed to a siloed approach, will promote efficiency and sustainability. The manufacturing and production industries are nearing a time where machinery and equipment will be capable of diagnosing and fixing itself, making versatile production decisions and significantly decreasing down-time.

The opportunity for clean and accurate data, if managed correctly, is also a substantial advantage to incorporating Industry 4.0 technology. This data can be used to further optimise productivity, analyse the effectiveness of products, regulate the types of products being produced, and more. Although some fear that too much data is near impossible to manage or analyse, this dissolves with data lakes and big data processing, leading to data reporting and analytics.

"Companies who are actively implementing measures to implement Industry 4.0 solutions expected more than 18% higher productivity over the next five years".

Industry 4.0: the bad

With every industrial revolution comes change, and change is often hard to adopt. Due to the complexity and modernisations of Industry 4.0, the challenges are vast. Not only will this enhanced system require a complete upheaval of how factories operate, it will also require suppliers, engineers, analysts and shop-floor employees to adapt to the new technology.

Beyond adapting to change, it's whether businesses can afford the change. This hi-tech equipment comes at a cost, and not all organisations have the funds for a complete system upgrade. Even for those that can stretch the budget, it's difficult to find the time in a factory that may operate 24 hours a day to incorporate complex technology into its machinery.

Also, what's coming isn't just machines that think in The Cloud, there's also going to be mountains of new data. This is a challenge that non-industrial businesses are already facing—what do we do with the piles of data we've collected and how do we prioritise the important parts? Now, it will be a question for those implementing the Industrial Internet of Things as well.

Another significant problem is security: creating secure networks is a tough task and integrating physical systems with the internet makes them increasingly vulnerable to cyberattacks. As smart factories become increasingly common, figuring out ways to ensure cybersecurity while still retaining the benefits of CPS (such as real-time communication between machines) will quickly become a top priority for producers.

One thing is for sure, Industry 4.0 is upon us.

We are rapidly approaching a smart environment where all objects are in constant communication and maintain productive harmony.

Do you need help with your recruitment?

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