Understanding digital transformation in a manufacturing context
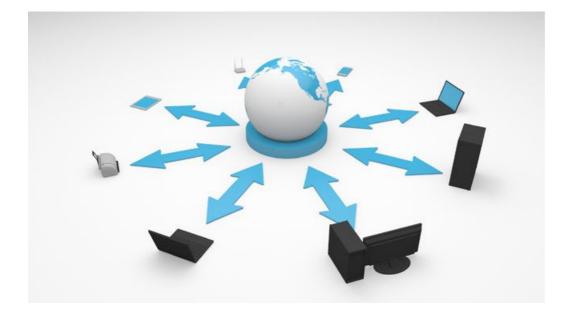
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A range of advanced digital technologies are reshaping the manufacturing environment, shifting the way that businesses in the sector operate. These innovations are predicted to bring about the next industrial revolution. Known as "Industry 4.0", this manufacturing era will be focused on offering increased speed to market and better value for money. However, while previous industrial revolutions were focused on mass production, this new chapter will be more focused on flexible production, to meet the growing demand for more personalised, customised products.

Some of the smart technologies that are driving digital transformation in the manufacturing and packaging industries include:

- **Automation** – A range of new technologies are automating mundane, rules-based and repetitive tasks on the production floor and in the back office to reduce human error, increase efficiency and make operations leaner.

- **Cloud computing** – This cost-effective and agile IT delivery model makes it possible for new industry players to compete with larger, more established enterprises. Cloud computing gives companies access to the latest IT solutions over 'the cloud' (a metaphor for the internet) on a pay-per-demand basis. This means no upfront investment is necessary and IT resources do not have to be stored and managed on the premises.

- **The Internet of Things (IoT)** – This is a cyber-physical system that comprises a network of interconnected devices, machines and other smart objects that have inbuilt sensors and the ability to share data without human involvement. When this trend becomes more established, experts predicts that manufacturers will be able to process vast amounts of data in real-time and translate this into intelligent courses of action on the plant floor and other areas of business.

- **Advanced data analytics** – As computational power advances, manufacturers will be able to collect, store and analyse the data produced by the growing number of smart objects and devices on the plant floor (as well as out in the field) to better predict and fix breakdowns, increase efficiency and even understand end users' needs better.

- **Additive manufacturing** – 3D printing technology is advancing at a swift pace, making it possible for manufacturers and other companies to produce solid objects from a digital data source. This enables product owners to make

prototypes quickly and produce small batches while optimising resources.

As these smart technologies become more affordable and accessible, a growing number of companies are re-thinking their production and manufacturing methods with the aim of introducing new digital capabilities that streamline operations, increase efficiency, optimise uptime and ultimately boost their profitability.

Because every industry and organisation is unique, there is no one-size-fits-all approach to digital transformation. However, it's important to at least be aware of the technologies that are emerging – and the opportunities that these could offer your business.

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