

DIGITALIZATION AS A MEGATREND

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Digitalization is progressing in leaps and bounds: The main reasons for this are technical progress, constant further development of the internet, mobile applications and technologies based on artificial intelligence, and increasing globalization. Technology trends emerging as a result of digitalization, such as IoT (Internet of Things), AI (Artificial Intelligence), data analytics by means of Big Data, and AR (Augmented Reality), not only have a considerable impact on society and the working environment, but also on business operations in industry.

1 IoT (Internet of Things)

The ever progressing linking of equipment to the internet opens up many new opportunities for companies and organizations as well as for individuals. According to Cisco, 500 billion devices will be connected and linked to the internet by the year 2030. Each device contains sensors that collect data, interact with the environment, and communicate via a network.

IoT is exactly that – a network of these connected devices, and it generates data that is used to collect, analyze, and provide information in order to make informed decisions and develop targeted measures. Autonomous mill concepts are also based on smart utilization of IoT technology.

2 AI (Artificial intelligence)

Much of what was pure science fiction until just recently is possible today thanks to AI. The progress made in the artificial intelligence sector is so enormous that there will be major changes in the interaction between human beings and machines in the next few years. These machines will learn to anticipate situations and take

control themselves. Digital twin simulations, which are working with artificial intelligence, are already implemented in many production industries. These technologies will open up hitherto undreamt-of process prediction opportunities, as well as further business strategies.

3 Big Data

Data are very important when companies want to make informed decisions about products, services, and strategies. Data acquisition is easier than ever before thanks to digitalization. The problem today is that the volume of data collected is increasing enormously, while most of it will never be used. As a result, one of the digital

trends for the next decade will deal with tools that can actually analyze, evaluate, and use data. Companies like Microsoft, SAP, SAS, and Salesforce already lead the market for data used in business analyses. More tools will follow because this digital trend is expected to increase and will be essential for autonomous mill operations, too.

4 AR/VR (Augmented Reality/Virtual Reality)

Wearable technology as well as virtual and augmented reality (VR and AR) are among the most important technology trends that could ultimately supersede conventional mobile communication. Industry has already tested virtual applications in mobile devices for maintenance, operating, and training purposes

and in a lot of cases is successfully implementing them. Engineering and machine design will experience a new level of perfectionism. Due to VR and AR technologies, design teams from all over the world can work together in virtual rooms and bundle their expertise in new ways. Besides that, AR and VR applications can be used as sales tools to enhance business success.

In spite of the many advantages that digitalization brings, there are also critical voices to be heard that should be taken seriously. Artificial intelligence and platform economy can certainly also have a negative impact on working life and the economy. A platform economy is where online digital structures are created that enable human activities to take place. These technologies and structures may be a threat to many professions, and lower incomes may well be the reason for a

drop in demand. On the other hand, one can also assume that automated routine work increases productivity and growth and creates new jobs. In contrast, industry is worried about cybersecurity above all, which must never be under threat. External enemy attacks in the form of ransomware or other kinds of malware can cripple or even destroy the business of entire companies, so identification and protection against cyber risks has maximum priority.

HOW 2300 EXECUTIVES ACROSS 15 COUNTRIES ENVISION THE FUTURE

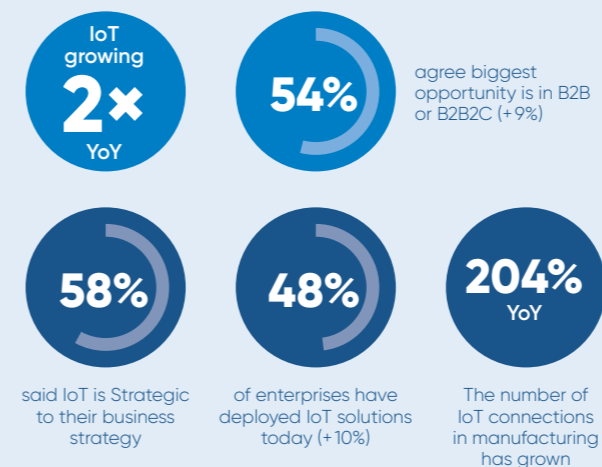


Figure 1. Keys to creating an IoT strategy
Source: IDC

INTERNET OF THINGS (IOT) CONNECTED DEVICES INSTALLED BASE WORLDWIDE FROM 2015 TO 2025 (IN BILLIONS)

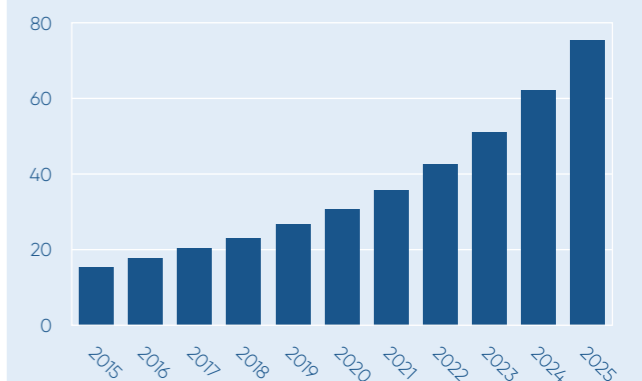


Figure 2. IoT-connected devices installed base worldwide
Source: IHS @Statistika 2018