

New frontiers of Industry 4.0

■ Industry 4.0

Generally-speaking, **Industry 4.0** describes the growing trend towards automation and data exchange in technology and processes within the manufacturing industry. It refers to the smart and connected production systems that are designed to sense, predict, and interact with the physical world, so as to make decisions that support production in real-time. In manufacturing, it can increase productivity, energy efficiency, and sustainability.

The easiest way to understand the Fourth Industrial Revolution is to focus on the technologies driving it.

■ Artificial intelligence (AI)

AI describes computers that can “think” like humans. They can recognise complex patterns, process information, draw conclusions, and make recommendations. AI is used in many ways, from **spotting** patterns in huge piles of unstructured data to powering the autocorrect on your phone.

■ Web3

Web3 is the third **iteration** of the Internet. Web1 allowed people to access and read information on websites. In Web2, blogs, wikis, and social media like Twitter and YouTube were introduced, giving people more control over the information they created and shared. In Web3, the decentralised world puts **ownership** into the hands of the community and includes blockchain technology, cryptocurrencies, and token-based economics.

fraud: frode
iteration: momento
to merge: fondere
overlaid: sovrapposto

ownership: proprietà
to spot: individuare
wearable: portatile

transparent way of recording and sharing data, with no need to rely on third-party intermediaries. The digital currency Bitcoin is the best known blockchain application. However, the technology can be used in other ways, including making supply chains traceable, securing sensitive medical data anonymously, and combating voter **fraud**.

■ Virtual reality (VR) and Augmented reality (AR)

VR is the computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors ●●.

AR merges the digital and physical worlds: it is the integration of digital information with the user's environment in real time. Unlike virtual reality, AR users experience a real-world environment with generated perceptual information **overlaid** on top of it. ●●●

■ The Internet of Things

The **IoT** describes everyday items, from medical **wearables** that monitor users' physical condition, to tracking devices inserted into parcels, connected to the Internet and identifiable by other devices. These devices can collect data from constantly connected products and allow companies to adjust their production, marketing, and strategical decisions accordingly.

“Industry 4.0 is the biggest structural change of the past 250 years, a transformation of scale, scope and complexity unlike anything humankind has experienced before.”
 Henrik von Scheel, (12 years chairman of the 4th Industrial revolution at World Economic Forum).

Basically, it offers immersive digital experiences in a totally artificial environment that simulate the real world.

Examples include the Google Translate phone app, which allows users to scan and instantly translate street signs, menus, and other text.



1 Complete the text with the words given below.

architecture • devices • technique • data • capabilities • virtual • applications • intelligent

The Internet of Things and Its Applications

In recent year, the Internet of Things (IoT) has drawn significant research attention. IoT is considered as a part of the Internet of the future and will comprise billions of **1.** communicating 'things'. The future of the Internet will consist of heterogeneously connected **2.** that will further extend the borders of the world with physical entities and **3.** components. The Internet of Things (IoT) will empower the connected things with new **4.** It has become

a revolutionary **5.** that enables a diverse number of features and applications. It can able several devices to be connected in order to create a single communication **6.** The key features required for employing a large-scale IoT are low-cost sensors, high-speed and error-tolerant **7.** communications, smart computations, and numerous **8.** including healthcare, environmental, commercial, industrial, smart cities, and infrastructural applications.

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2 Match the beginnings and endings.

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|---|---|
| 1. Industry 4.0. is characterised by increasing automation and the employment of... | <input type="checkbox"/> a. meet customer demand. |
| 2. Industry 4.0 helps to produce goods more... | <input type="checkbox"/> b. mass customisation. |
| 3. Flexibility is improved so that manufacturers can better... | <input type="checkbox"/> c. easily create small batches of specialised items for particular customers. |
| 4. A smart factory can achieve information transparency and make... | <input type="checkbox"/> d. efficiently and productively. |
| 5. While the first industrial revolution was about mass production, Industry 4.0 is about... | <input type="checkbox"/> e. smart machines and smart factories. |
| 6. By using advanced simulation software applications, new materials and technologies manufacturers can... | <input type="checkbox"/> f. better decisions. |