

WARM UP

1 What do these abbreviations stand for? Scan the text and find out if you are correct.

- 1 CAD
- 2 CAM
- 3 CAE
- 4 CIM
- 5 RFID
- 6 QR

Information Technology

Information technology plays a primary role in industry and business today. The incredible changes and developments in the management and processing of information have brought about advances in all areas, from design and production to distribution and sales. IT has allowed companies to build up a competitive advantage, increase their efficiency and speed, cut costs and develop strategic planning.

COMPUTER-AIDED TECHNOLOGIES

Computer-aided technologies is a term used to indicate the use of computer technology to assist with the ideation, design, analysis and manufacturing of products. Two of the most well-known applications are **CAD** and **CAM**, although there are many others including **CAE** (computer-aided engineering) and **CIM** (computer-integrated manufacturing).

CAD, short for computer-aided design, creates 2D drawings and 3D models and is used, for example, by designers, architects and engineers. The software allows the user to rotate the model in any direction and to edit and instantly make changes to the design. It is widely employed in the automotive and aerospace industries, as well as architectural design.

CAM stands for computer-aided manufacturing and refers to computer applications which control the machine tools used to produce high-quality parts. Its benefits include precise control, a more efficient and faster production process and less waste of raw materials.

RFID TECHNOLOGY

RFID stands for Radio Frequency Identification and it is a versatile technology for identifying, tracking and auditing items. The two components of a RFID system are tags and readers. Tags are the very tiny, data-carrying transponders which are attached to an item. These tags can be self-adhesive, heat and water resistant, embedded on credit cards, wrist bands or key rings. Readers are the devices used for the collection of the data and can be connected to a computer or POS terminal, for example. These readers collect the data without direct contact with the tag: it is sufficient for it to be within a certain distance. In addition, multiple tags can be read at the same time, unlike barcodes which have to be read one at a time. This fast, contact-less reading of data increases speed and efficiency, keeping costs lower and providing accurate, real-time information. The applications for this technology are multiple and include ticket systems for public transport, motorway toll payment systems, manufacturing process checks, distribution chain, stock and inventory control and security and safety inspections.

QR CODES

The Quick Response code, usually shortened to **QR code**, is a two-dimensional barcode which can be read faster than a traditional barcode and also has a much greater storage capacity. It was originally invented for use in the automobile industry to keep track of vehicles during production. Its uses in business and industry include traceability, picking, inventory management, document management and admission control and it can be found in all areas from a manufacturing plant, to a retail outlet, warehouse or pharmacy. Recently, its use has become extremely common in consumer advertising and marketing. These black and white squares of code are placed everywhere: on adverts and bus shelters, in magazines and stores. A potential customer can use his or her smartphone, with a QR scanner app, to scan the code and will be taken directly to a company website, for example, with more product information, discounts or special offers.

ACTIVITIES

READING COMPREHENSION

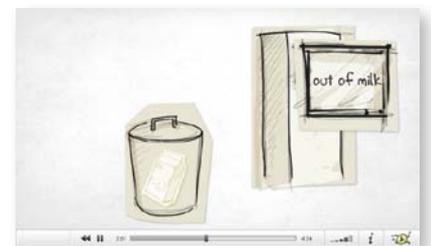
2 Read the texts and answer these questions.

- | | |
|---|---|
| <ol style="list-style-type: none"> 1 What benefits has IT brought to businesses and industry? 2 How does CAD software help a designer? 3 In what ways does CAM assist the manufacturing process? | <ol style="list-style-type: none"> 4 What are the two essential elements for a RFID system? 5 What advantages does RFID technology have over traditional barcodes? 6 In what areas is the use of QR codes common today? Why? |
|---|---|

LISTENING

3 Watch this video about RFID technology and choose the correct alternative.

- 1 The information on *barcodes/RFID chips* can be updated.
- 2 RFID is called a *passive/active* technology.
- 3 Queues in supermarkets will be *longer/shorter* with RFID technology.
- 4 The price of RFID chips and readers is *increasing/decreasing*.
- 5 One of the *oldest/newest* uses of RFID tags is in agriculture.
- 6 RFID chips are the size of a grain of *sand/rice*.



The Internet of Things

Should you worry if your jeans go smart?

What if those new jeans you've just bought start tweeting about your location as you cross London Bridge? It sounds bizarre, but it's possible – if they are equipped with a tiny RFID device, your location could be revealed without you knowing about it. This technology is just one of the current ways of allowing physical objects to go online – the so-called **Internet of Things***.

Those in favour of the IoT claim that interconnectivity would allow us to locate and monitor everything, everywhere and at any time. Imagine a smart building where you know how many people are inside just by detecting movement with motion-sensitive lights. This could help save lives in an emergency.

But as more objects become part of the digital world, there is growing debate over the benefits of smart technology versus the lack of privacy. To what extent can surveillance of people be accepted? Which principles should govern the use of the IoT? The European Commission, for example, has established a framework to safeguard consumer privacy as industries develop this technology further.

Within the retail industry, a number of stores have started using RFID tags to check and track stock more easily. However, some people are worried that the RFID reader being used by a shop employee to check the number of pairs of jeans could also read the data on a customer's driving licence, for example, if it contained a RFID chip. This could then lead to identity theft. If the tag is not removed at the checkout, the item could be tracked on the street. Once the tag is thrown away, it can still be scanned, allowing someone to get an idea of your shopping habits.

Supporters of the IoT point out that in our already digital and high-tech society your mobile phone operator and bank know much more about your life than your partner does and it is certainly more critical information than the type of jeans you wear.

Source – BBC News – © 2011 BBC

★ The **Internet of Things**, shortened to IoT, is the integration of the physical world with the virtual world of Internet. Objects such as your car, house, clothes, fridge or family pet are electronically tagged with important information and then can be connected to the Internet through remote, contact-less technology.

READING COMPREHENSION

4 **BEC** Read the text and decide if these sentences are true (T) or false (F). If there is not enough information, choose 'doesn't say' (DS).

- 1 You are always aware that RFID tags are communicating your location.
- 2 The Internet of Things means everyday objects and items can be connected to the Internet.
- 3 There are more people in favour of the IoT than against it.
- 4 The European Commission is against the development of RFID technology.
- 5 If someone has a document with an RFID chip, they could be at risk of identity theft.
- 6 Because of digital technology, many companies already hold a lot of private, important information about us.

	T	F	DS
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SPEAKING

5 Discuss these questions in small groups.

- 1 Is the Internet of Things a positive or negative technological development? Why?
- 2 Can you think of examples (e.g. a situation or a specific object) where it could cause problems/be useful?
- 3 Do you think the issue of privacy is important?
- 4 Some schools in Texas, USA, introduced RFID chips in student badges. What is your opinion on this?
- 5 How do you see the future of the Internet of Things?