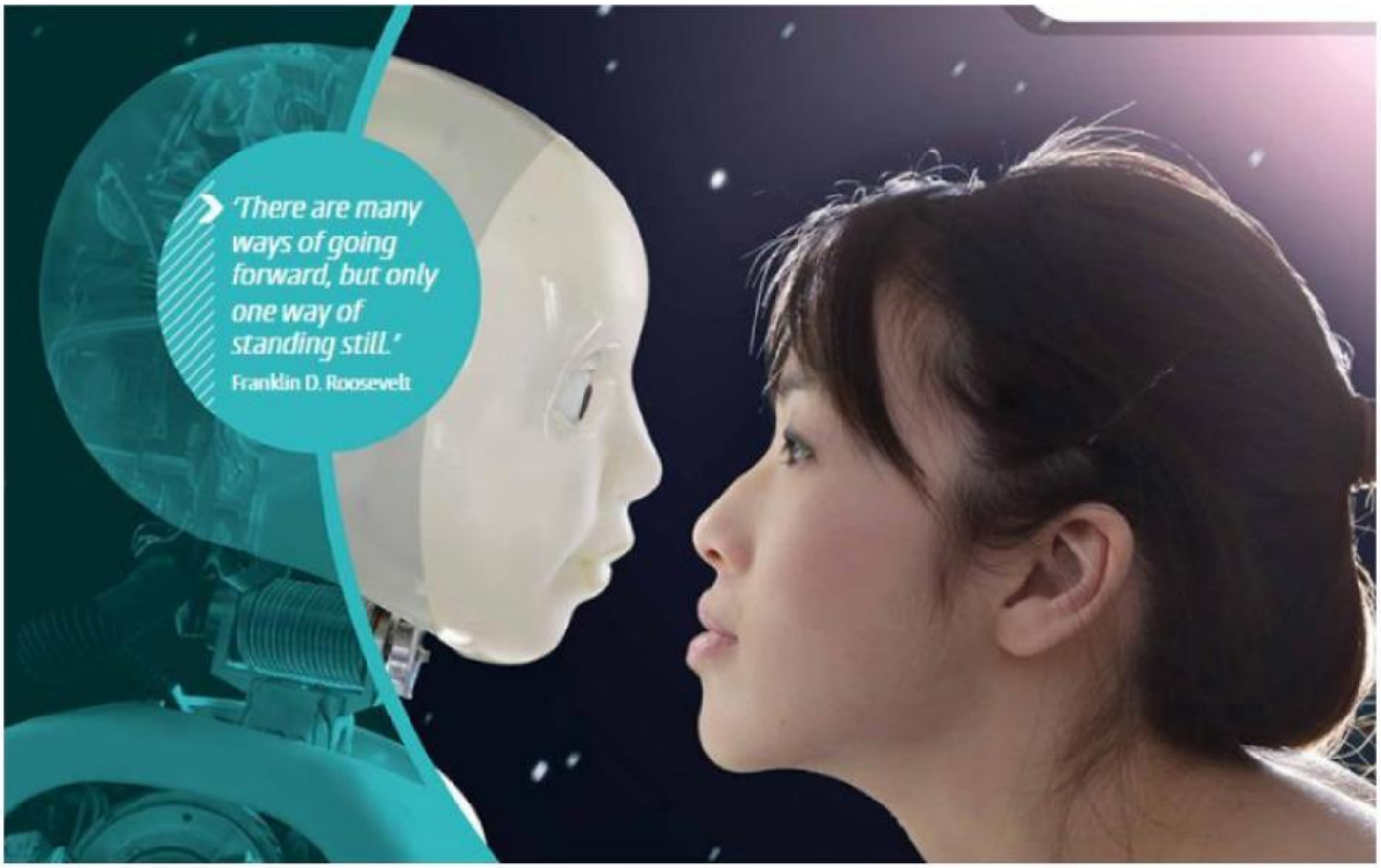
Research & Development



A nimble company

Lead-in **1** Look at the picture. What everyday tasks will be difficult for this man?



2 What products do these people use to help them?

1 people with visual impairment / people who are partially sighted (= can't see well)
2 elderly (= older) people
3 disabled (= not able to walk or use a part of their body) people



Look at the pictures of a product called a Nimble. What do you think it is used for?

4A 7.1.1 Watch the first part of the video (00:00–01:26) about developing a new product. Answer the questions.

1 What does the Nimble do? 2 Who uses the Nimble?

LIVEWORKSHEETS

B Look at the steps. What order do you think Simon did them in? Number the steps in order. Then watch the next part of the video (01:27–03:22) and check your answers.

- ☐ **a** make the first version of the product
- ☐ **b** make more designs
- ☐ **c** make drawings
- ☐ **d** win a competition
- ☐ **e** test the product
- ☐ **f** choose a final design
- ☐ **g** sell the product
- ☐ **h** make final changes

C Watch the final part of the video (03:23–03:41). What kind of product is Simon going to make next?

5 Work in pairs or groups. Discuss these questions.

1 Do you know anyone who would use a Nimble?

2 Can you think of other possible uses for it not mentioned or shown in the video?

LIVEWORKSHEETS

6 Complete the steps in the R&D process using the words from the video.

brief	challenges	feedback	improvements	launch	prototype	sketches	solutions

R&D: What design companies do

Receive or create a(n) [1]_____ that says what a problem is and asks for a solution.

→ Think about possible [2]_____ to the problem.

→ Make simple [3]_____ – develop ideas with pen and paper.

↓ Develop a(n) [4]_____ – the very first version of the product.

← Deal with problems and design [5]_____ – so the product works better.

← Make final design for testing and [7]_____.

← [8]_____ the product – make it available to buy.

↑ Make [6]_____ to the design.

7 Who does what? Match the sentence halves.

1	Designers	a	**purchase** the **finished product**.
2	Product testers	b	**create** and **develop** new product ideas.
3	Consumers	c	give feedback on a product's **usefulness**, **design** and **function**.

8 Complete the text using the words in the box. Some are <u>not</u> used.

brief	challenge	create	designer	feedback	function	purchase	solution

I've worked as a [1]_____ for a medical products company for about ten years. I chose to work in this field because I wanted to [2]_____ things that help people. My company sometimes develops completely new products, but my main job is trying to improve the [3]_____ of products we already make. It's always exciting for me to get the [4]_____ for a new design. This document usually suggests improvements on a design we already have because of [5]_____ from both doctors and patients. I really enjoy the [6]_____ of improving a product that is already very good.

9 Work in pairs. Discuss the questions.

I don't have much experience in research and development.

1. What type of product would you like to be a product tester for? Why?
2. Think of a product you often use, for example your phone. What improvements would you suggest for its design or function?
3. What new products have been launched in the past year or two that you would like to own?

I have some experience in research and development.

1. What product or service did you test? Why did you test it?
2. Who did you work with and what process did you use?
3. Were the results generally positive or negative? Did any of the results surprise you? Why?

LIVEWORKSHEETS

Research and technology

Google carries out **research and development (R&D)** at its **research centre** in Mountain View, California. Its **laboratories** are some of the most **innovative** in the computer industry.

Note

BrE: **research centre**
AmE: **research center**

Google has made many new **breakthroughs** – innovations. Users can try out these products before they are **released** in their final version.

The company is a leader in the **technology** of internet search. They are at the **cutting edge** or **leading edge** of this technology – none of their competitors has better products than them. Everything they do is **state-of-the-art** – using the most advanced techniques available.

Of course, the **hi-tech** products of today become the **low-tech** products of tomorrow. Products that are no longer up-to-date because they use old technology are **obsolete**. Like all companies, Google never wants to get into that situation: they want to develop technology that is **future-proof**.

Note

Cutting edge is used about three times as much as **leading edge**. Both are often used as adjectives, e.g. **cutting-edge products**, **leading-edge technology**.

Patents and intellectual property

Information or knowledge that belongs to an individual or company is **proprietary**. A product developed using such information may be protected in law by **patents** so that others cannot copy its design.

Other companies may pay to use a design **under licence** in their own products. These payments may be referred to as **royalties**.

Note

	Noun	*Verb*
BrE:	**a licence**	**to license**
AmE:	**a license**	**to license**

In publishing, if a text, picture, etc. is **copyright**, it cannot be used by others without permission: this is **copyright infringement**. An example of this is **illegal downloading** of music, films and software from the internet: this is **piracy**.

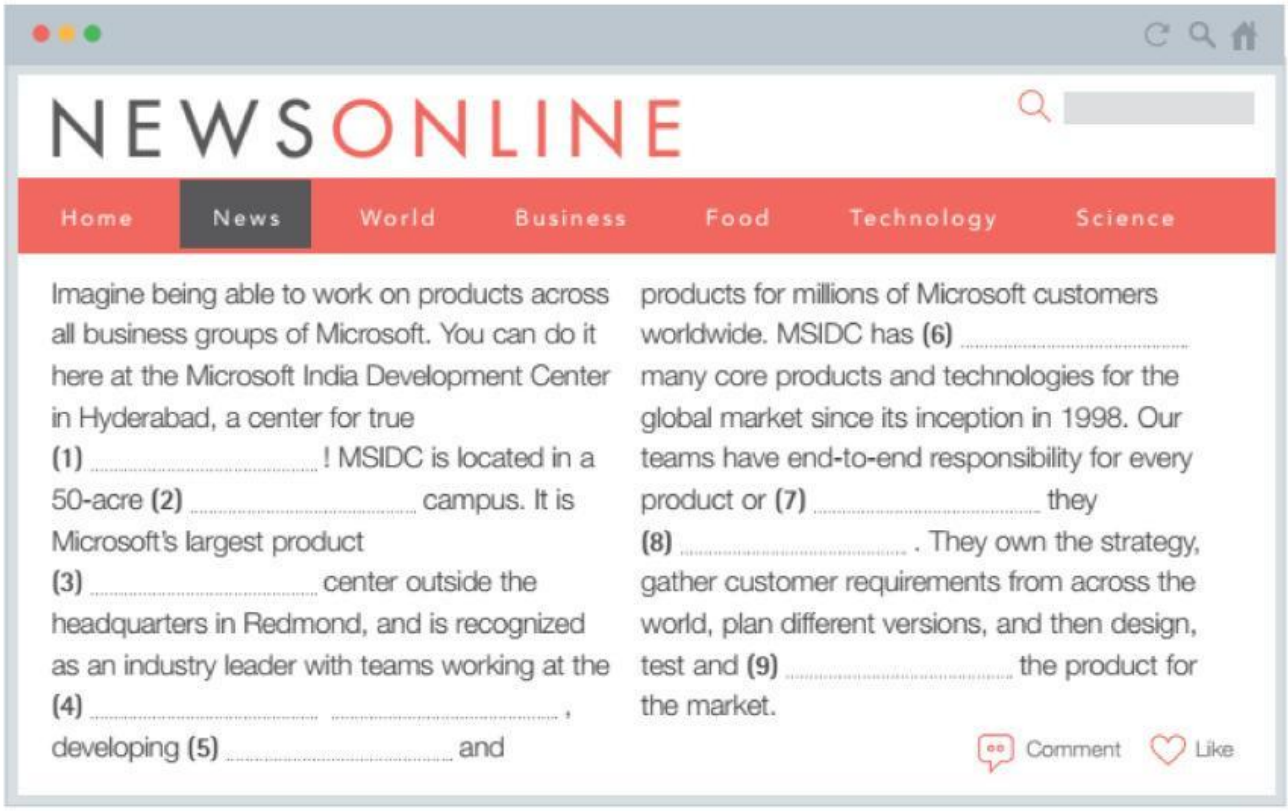
Another form of piracy is when **fake** products, often luxury products such as Rolex or Chanel, are sold without the permission of the company that owns the **brand name** (see Unit 22) or **trademark** – a recognizable symbol used on the product.

The area of law relating to patents, copyright and trademarks is **intellectual property**.

LIVEWORKSHEETS

15.1 Complete this webpage using these expressions from A and B opposite.

cutting edge	develop	developed	development	innovation
release	state-of-the-art	technologies	technology	



NEWSONLINE

Home | News | World | Business | Food | Technology | Science

Imagine being able to work on products across all business groups of Microsoft. You can do it here at the Microsoft India Development Center in Hyderabad, a center for true (1) _____ ! MSIDC is located in a 50-acre (2) _____ campus. It is Microsoft's largest product (3) _____ center outside the headquarters in Redmond, and is recognized as an industry leader with teams working at the (4) _____ _____ , developing (5) _____ and products for millions of Microsoft customers worldwide. MSIDC has (6) _____ many core products and technologies for the global market since its inception in 1998. Our teams have end-to-end responsibility for every product or (7) _____ they (8) _____ . They own the strategy, gather customer requirements from across the world, plan different versions, and then design, test and (9) _____ the product for the market.

Comment Like

15.2 Match the expressions (1–10) containing words in C opposite with their meanings (a–j).

1 copyright infringement ☐
2 intellectual property ☐
3 patent application ☐
4 proprietary information ☐
5 royalty payment ☐
6 licensing agreement ☐
7 illegal download ☐
8 piracy ☐
9 trademark ☐
10 brand name ☐

a a payment made to the owner of a design by someone else who uses it, or to an author by a publisher
b an arrangement between the owner of a design and another organization, allowing its use in exchange for payment
c a name or symbol used on a product
d an occasion when an inventor asks the authorities to officially recognize an invention as their property
e designs, ideas, etc. that belong to someone
f a name used on a product
g the whole activity of using designs, text, pictures or copying products without permission
h an occasion when someone makes an illegal copy of music, etc. from an internet site
i the law relating to designs, ideas, etc. that belong to someone
j an occasion when someone uses another's text, pictures, etc. without permission

Over to you

- Name a product that has become obsolete and suggest why that happened.
- How do companies try to prevent illegal downloading of music and films? Will they ever succeed completely?

LIVEWORKSHEETS

1 Put the R&D stages in a suitable order.

a Think about possible solutions. ____
b Develop a **prototype**. ____
c Identify a problem.. __1__
d Make simple sketches. ____
e Get **feedback**. ____
f **Test** the product. ____
g Make improvements to the design. ____
h Deal with design **challenges**. ____
i Create a **design** brief. ____
j **Launch** the product. ____

2 Complete the sentences with the words in bold in Exercise 1.

1 We would like to _____ the product with some small groups to check the functions work well.
2 The development of the _____ is exciting – it's the first opportunity to see what it might look like.
3 One of the design _____ will be to ensure all of the product functions are accessible.
4 The plan is to _____ the product in the shops in six months.
5 We received the _____ brief for the new phone, and we have made some sketches.
6 It's important to get customer _____ so that we can make improvements to the next model.

PROJECT: Planning product testing



10A Work in pairs or small groups. Look at the three product ideas below. For each one, answer the questions.

- A water bottle with a small container on the side that can hold a key and a little money.
- A device that reads written text, such as letters or books, and 'speaks' them out loud or stores them as computer files.
- A game based on finance where users have to manage their money well.

1 What problem does the product solve?
2 What type of consumer would use the product? Think about age, men or women, location, interests, and so on.
3 When developing the product, how could the company test it? What type of information do you think they should try to get?
4 Where do you think the company could find people to test it?

B Choose one of the products above, or think of an idea of your own. Make a plan for developing, testing and launching the product. Explain:

- what the product will be used for.
- who will use it.
- who will test it.
- where and how you will launch it – the type of stores that will sell it, and how you will advertise it.

C Give a presentation to another group or the whole class. Explain how you will develop and launch your product.

LIVEWORKSHEETS

Student A **3** **Work in pairs. You are developing a new app for your company. Discuss progress with a Salesperson (Student B). Update him/her on stages 1–3 and make notes on stages 4–6. Try to agree new dates if necessary.**

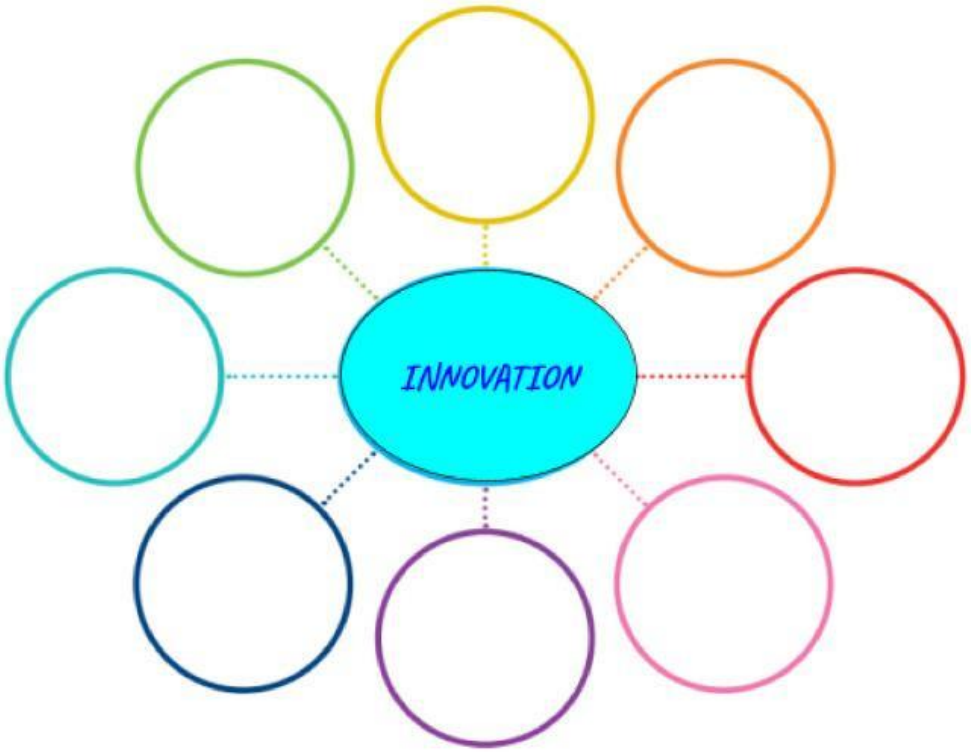
progress update meeting with Sales - 22 November

Stage and task(s)	Due date	Problems	New due date
1 Write product information – design brief	14th Nov	*(done)*	_____
2 Develop first product design – prototype – sketches	27th Nov	*design problems – delayed by 2 weeks*	_____
3 Develop second product design – make improvements	16th Dec	*if first product delayed → this stage = delay*	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____

Student B **3** **Work in pairs. You are a Salesperson for your company. Discuss the progress of a new app with a Product Developer (Student A). Make notes on progress in stages 1–3 and explain the deadlines in stages 4–6. Try to agree new dates if necessary. If there are any delays, negotiate new due dates with your partner.**

progress update with Developer - 22 November

Stage and task(s)	Due date	Problems	New due date
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 Check if product works – test	17th Dec	*development delayed / delay task?* *2 weeks maximum*	_____
5 See what customers think of product – feedback	8th Jan	*date fixed*	_____
6 Start selling product – launch	1st Feb	*maximum delay – end March*	_____



LIVEWORKSHEETS

Lead-in

1 **Work in pairs or small groups. Which of these things have you seen or used in the past year? Where?**

Devices

a robot – a machine that can move and do some of the work of a person

an automated kiosk – a machine that provides information or services

Security systems

facial recognition – a security system that recognises users' faces

key card security – door systems that unlock with a plastic card rather than a traditional key

Reading

2 **Read the article quickly and answer the questions.**

1 What job do robots do in the Henn na Hotel?
2 Why are they good for business?

3 **Read the article again and decide if these sentences are *true* (T) or *false* (F).**

1 Henn na Hotel guests don't talk to anyone when they check in.
2 The robots communicate through written messages on a computer.
3 In some Henn na Hotels, guests don't need a room key because a camera recognises their face.
4 The hotel is cheaper than other hotels of the same size because it has fewer workers.
5 More hotels in Japan are starting to offer customers new services and experiences.
6 The writer of the article asks if some customers would prefer to have human contact.

4 **Would you enjoy staying at a hotel with robots? Why? / Why not? What are the potential advantages/ disadvantages of staying at a hotel with robots?**

NIKKEI ASIAN REVIEW

At Tokyo's Henn na Hotel, robots run the show



A new hotel has opened in Tokyo's stylish Ginza district. The name – *Henn na* – means 'strange' in Japanese, and the hotel is indeed unique. It is run mostly by robots, and a few humans.

Here's how it works: [a]First, guests **have to** give their names to a human receptionist. After that, they're asked to go to an automated kiosk where the robots say hello to them and help them to check in. Impressively, these robots speak four languages – Japanese, English, Mandarin Chinese and Korean. [b]Guests **don't have to** say which language they speak. Cleverly, the robots decide which language to use from the guests' passports. [c]Next, guests **need to** follow the robot's instructions to complete their check-in. Then they get their room key card and a receipt from the kiosk. Finally, they use the key card to open their room door.

[d]Guests at other Henn na Hotels **can** decide to use facial recognition. [e]This means they **don't need to** use a key during their stay because they can enter their rooms by simply looking into a camera by the door.

The 98-room hotel has just seven human staff members. [f]Most traditional hotels of the same size **can't** operate with fewer than about 30 workers. This allows the hotel to lower the price of the rooms, too.

In a competitive market, innovation is very important for attracting guests. 'Hotel operators are coming up with new types of facilities with unique characters and services to cater to the guests' lifestyle choices,' hotel industry expert Kiyoshi Tsuchiya said.

There is no doubt that some people will really like this new technology and it will certainly help in a country in which the number of older people is growing fast, but a question remains: Will anyone miss the human touch in what is, after all, the hospitality industry?

LIVEWORKSHEETS

Grammar *can, have to, need to*

5 **Look at the underlined sentences in the article. Which sentences explain:**

1 what's possible. ____
2 what's not possible. ____
3 what's necessary. ____ , ____
4 what's not necessary. ____ , ____

page 123 See Grammar reference: *can, have to, need to*

6 **Choose the correct option in italics to complete the sentences.**

1 The hotel reception is open 24 hours, so we *can* / *have to* call them at any time.
2 There's a taxi here now, so we *can't* / *don't need to* call one.
3 I *need to* / *don't have to* book a hotel because I'm not staying tonight.
4 You *need to* / *can* check in before they tell you your room number.
5 They lock the front door at midnight, so you *don't need to* / *have to* use a key after that.
6 We *can't* / *don't have to* serve breakfast because the chef hasn't arrived.

Teacher's resources: extra activities

7 **Complete the paragraphs about flight check-in using the words and phrases in the boxes.**

can	can't
don't have to	need to

At the airport, you [1] _____ check in at the desk by speaking to an employee, you [2] _____ use the self-service check-in kiosk instead. At the kiosk, you [3] _____ type in your name and reservation number. If you don't know your reservation number, you [4] _____ use the kiosk.

can	can't
have to	don't need to

After typing in your reservation number, you [5] _____ put your ID into the machine. After checking your ID, the kiosk prints your boarding pass, and you [6] _____ go directly to the security check and then the departure gate. However, you [7] _____ go directly to the gate if you have a large suitcase. You need to take it to the baggage drop first. If you have plenty of time, you [8] _____ go to the departure gate immediately, you can do some shopping or stop for a cup of coffee.

page 117 See Pronunciation bank: *can* and *can't*

Speaking and writing

8A **Work in pairs. Look at the picture of a vending machine and read the information. Use *can, have to* and *need to* to talk about what is possible, not possible, necessary and not necessary when using the vending machine.**



Note: Right now, this machine takes only cash, not cards. If you only have a card, please go to the shop around the corner. It isn't necessary to have the exact money. The machine will give you change.

Instructions:
1 Put in your money *before* you choose your product.
2 Press the correct button to make your choice. It isn't necessary to hold the button, or to press it more than once.
3 Wait for the product to come out.
4 Press the 'Change' button for change. Otherwise, it won't come out.

B **Work with another pair. Take turns explaining how to use the vending machine. Was their explanation the same as yours?**

9 **Think of another process you're familiar with, for example buying a train ticket at a self-service ticket machine. Write an explanation of how to do it in 75–100 words. Try to use all the words and phrases in the box at least once.**

can	can't	have to	don't have to	need to	don't need to

LIVEWORKSHEETS

LIVEWORKSHEETS