

12 Innovation

Starting point

1 When and where do you get your best ideas?
- At work
- After lunch
- In the middle of the night

2 During your lifetime, what have been the most important innovations in …?
- business
- technology
- transport and travel

Working with words | Innovation

1 Why is it important for businesses to be innovative? How can older companies stay innovative?

2 Read the article and match sub-headings a–c to paragraphs 1–3.
a The secret of survival ___
b The early days ___
c The ongoing challenges ___

The innovations of Cirque du Soleil

1 The internationally famous Cirque du Soleil is famous for its **innovative** performances, which amaze audiences all over the world. It was originally the **brainchild** of a street performer, Guy Laliberté, in 1983. His **concept** was to bring together a group of entertainers and acrobats who would **revolutionize** our traditional view of the 'circus'.

2 Thirty years later, Guy Laliberté is the Chief Executive of a worldwide brand which employs over 4,000 employees working on 20 different shows at any one time. Around 90 million people have seen at least one Cirque du Soleil show, so nowadays Guy's biggest **obstacle** to maintaining this success is to **come up with** new and **original** ideas which keep audiences coming back.

3 As a result, Cirque du Soleil is always creating new shows in new ways. For example, the music of the Beatles was the **catalyst** for the show *Love*, which has run for over ten years in Las Vegas. And the concept behind *Kà*, another success story, was to use movement from the martial arts. So the real secret of Cirque du Soleil's survival is constant **reinvention** and never standing still.



LIVEWORKSHEETS

3 What is the main challenge for Cirque du Soleil? What is its solution? What do you think other types of businesses can learn from its approach?

4 Match the **bold** highlighted words in the article in **2** to definitions 1–9.

1 an idea for something new _____
2 someone's new idea or invention _____
3 new and imaginative way of doing something _____
4 a new idea that is based on something that exists _____
5 to change something completely _____
6 something which causes change _____
7 to think of a new idea or plan _____
8 something which stops you _____
9 unique or the first example of something _____

5 ▶12.1 Listen to three conversations. Match conversations 1–3 to topics a–c.

a innovative technology ___
b new business ___
c changing jobs ___

6 ▶12.1 Listen again and match these adjectives to conversations 1–3.

traditional 1 simple ___ revolutionary ___ dynamic ___
reliable ___ original ___ up-to-date ___ sophisticated ___

» For more exercises, go to **Practice file 12** on page 128.

7 Work with a partner. Discuss these questions and give reasons for your answers.

1 Which of the adjectives in **6** describe your company or job?
2 How would you describe the technology you use in your job or at home?

8 Read these quotes from people talking about ideas and obstacles in their lives. Work in small groups. Think of different ways to help these three people. Then tell the class.

'I have this really simple idea for setting up a cleaning company where we clean local companies and people's houses. The only problem is I have two small children who aren't at school yet. How can I do both?'

'My brainchild is a motorbike that runs on hydrogen, not petrol. I've already built one in my garage, but how can I get the money to manufacture and market it?'

'I've retired with a pension but I'm bored. I have some money but I don't know what to do with it. I don't want to work too hard. What could I do?'

9 Work with a partner. Think of your discussion in **8** and answer these questions.

1 Did you hear any ideas which were …?
   - innovative
   - original
   - simple
   - revolutionary
   - other
2 Which was the best 'brainchild' you heard?
3 Who was the most useful catalyst in your group?
4 What obstacles did you meet?

LIVEWORKSHEETS

1 **Work with a partner and discuss these questions?**

1 Do you think invention and innovation are the same thing?
2 Can you name any inventors / innovators from your own country?
3 What objects do you have with you that are the result of steps forward in innovation?

2 **Read the first paragraph of the text quickly. What are the names of the two companies and why are they being written about?**

The innovators

Invention is one thing, but innovation, the ability of transforming an invention into a commercially viable product is another. The motor car has had an enormous impact on all our lives, and many businesses have played their part in its development. However; two great innovating companies stand out from the rest. The first is Ford which brought it to a **mass market**, and the second Toyota that has become a **benchmark** of quality and reliability that all car manufacturers try to *emulate.

Karl Benz invented the first petrol driven vehicle in 1885 and it gradually became adopted by the rich and social elite. It needed the organizational and production innovations of the great car maker Henry Ford to turn it into a mode of transport and an object of consumer aspiration for ordinary people. Ford's use of a moving assembly line, where one worker concentrated on a particular task, allowed his company to achieve efficiencies and **economies of scale** that meant a car came off the production line every fifteen minutes. He founded the Ford Motor Company in 1903 and introduced the model T Ford. His vision was to produce a vehicle that the ordinary working man could afford. By 1918 half the cars on the road were Model T Fords, even if the only colour in which it was available was black! 'Fordism' was the combination of modern production methods with high pay for workers (five dollars a day – at that time an enormous sum) that in turn encouraged consumption.

Kiichiro Toyoda, who was born in 1894, was a brilliant engineer who had trained at Tokyo University. After a tour of British and American car factories, he became determined to produce world-class vehicles in Japan. He carried out some **reverse engineering** on American car engines and at the end of the 1930s launched the Toyota car company. Passenger car production began in 1947. He shortened the supply chain so that parts arrived '**just in time**'. When he left the company shortly afterwards, his long standing deputy and follower Eijii took over the reins. He and another colleague Ohno came up with the *kanban* system of labeling that meant the supply of parts could run smoothly. Kanban was a *precursor of bar coding. Eijii too went on a visit to America and became convinced that he could beat US car firms on quality. Toyota introduced and followed *kaizen*, the philosophy of **continuous improvement** and cost cutting, that has helped to make Toyota the *byword for quality and value for money it is today. By the time Eijii stepped down in 1994 at the age of 81 car executives from Detroit were visiting Toyota city.

In recent years, JIT and the Toyota way of doing things have become widely accepted not just in the motor industry but elsewhere too. However, even Toyota has suffered as a result of the recent economic crisis and is feeling the pressure from a new generation of hungry competitors. To make matters worse, its reputation has been tarnished by technical faults in some of the cars. It goes to show that the line between triumph and disaster is often a narrow one. One slip can lead to a mighty fall.

Glossary

**byword* = a typical example of
**emulate* = copy
**precursor* = something that comes before and influences something else

LIVEWORKSHEETS

3 **Read the rest of the text and note down what these figures refer to.**

1 1885: _____
2 15 minutes: _____
3 1903: _____
4 half: _____
5 $5: _____
6 1894: _____
7 1947: _____
8 81: _____

4 **List the important innovations and achievements that were made by the two companies.**

5 **Match 1–8 to a–h to make collocations from the text.**

1 commercially	**a** competitor
2 enormous	**b** line
3 assembly	**c** faults
4 cost	**d** crisis
5 technical	**e** cutting
6 supply	**f** impact
7 hungry	**g** chain
6 economic	**h** viable

6 **Match the business concepts in bold in the text to definitions 1–6.**

1 taking another company's product to pieces and examining it so that you can copy it: _____
2 the fact that the more units of something that are produced, the cost of each unit decreases: _____
3 the ongoing commitment to improvement and cost-cutting: _____
4 making sure that parts and components arrive a short time before you need them: _____
5 the great number of ordinary people with ordinary incomes who can buy a product or service: _____
6 the highest standard of quality or performance that others in the same industry try to follow: _____

7. Discuss how possible it is for a company to constantly improve and innovate. Is it inevitable that companies lose their market position over time?

Listen to a meeting where some employees perform a SWOT analysis on a newly planned product. Complete the table with the information from the audio.

LIVEWORKSHEETS

Strengths

S

Weaknesses

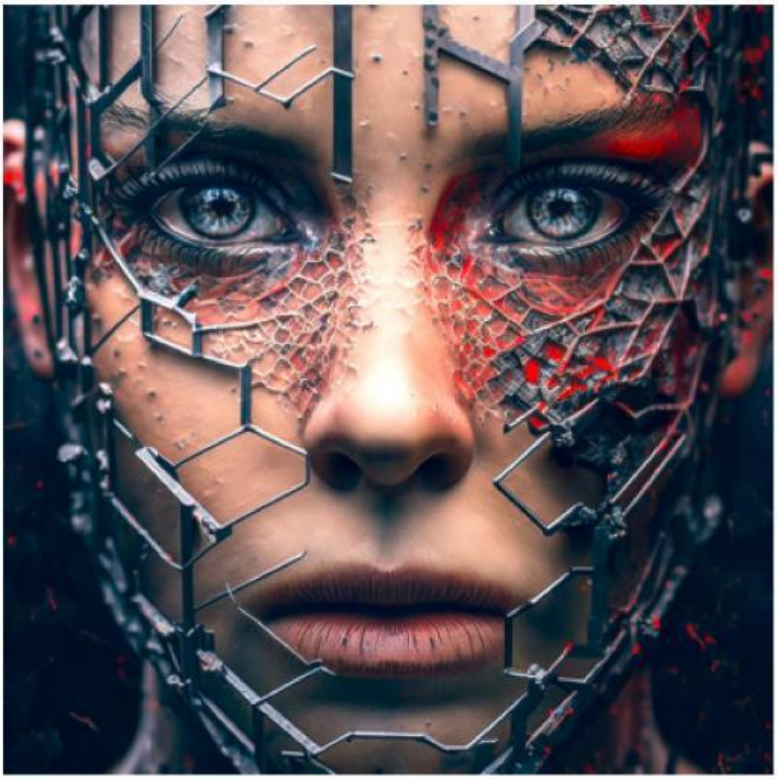
W

Opportunities

O

T

Threats



LIVEWORKSHEETS

1. **Discuss the questions in pairs or small groups.**

1. When you hear the word "robot", do you have a generally positive, neutral or negative response?
2. Do you think that science fiction has encouraged people to view robots in a negative way?
3. Can you think of any technological advances that have attracted public concern?
4. In which ways could robots benefit humanity?
5. Do you think our world will be very different in 100 years? Will robots be a part of everyday life?

2. **Part A: Match words with the correct definitions.**

Group 1

1.	composite (n)	a.	the temperature at which a solid substance will melt
2.	microparticle (n)	b.	any of the tubes that carry blood from the heart to other parts of the body
3.	melting point (n)	c.	something made by putting together different parts or materials
4.	arsenal (n)	d.	a collection of weapons or items that can be used in a battle against something
5.	artery (n)	e.	a tiny piece of matter



Group 2

1.	subject to (p. v.)	a.	make somebody or something experience, suffer or be affected by something
2.	load-bearing (adj.)	b.	control the direction in which a boat, car, machine, etc. moves
3.	envelop (v)	c.	made by combining chemical substances rather than being produced naturally by plants or animals
4.	synthetic (adj.)	d.	describing something that supports much of the weight of something else
5.	steer (v)	e.	wrap somebody/something up or cover them or it completely

LIVEWORKSHEETS

Part B: Complete the sentences with the missing words from Part A. You may need to change the form of the word.

1. I only buy clothes made from natural materials, instead of _____ fabrics.
2. I watched in horror as my son _____ his meal in tomato ketchup. You couldn't even see the vegetables.
3. At school, we used to do experiments on metals with low _____.
4. Doctors hope to develop an _____ of treatments against Covid, instead of relying on one method alone.
5. There are concerns that plastic _____ may be present in our food.
6. Unfortunately, I was unable to _____ the bicycle because of my broken finger, and crashed into a bush.
7. Damage to the _____ part of the bridge resulted in its eventual collapse.
8. I was _____ a night of screaming arguments by my neighbors. They came by to apologize today.
9. In films, characters often walk away from a gunshot wound to the leg, but in reality, there is a significant danger of a bullet hitting an _____.
10. The robot we built for our school project was a _____ of different materials we found lying around.

3.

Listen to the report about the recent updates in science. Write down the numbers next to the items mentioned.

a. _____ → the number of degrees (in Fahrenheit) that the robot was subjected to in order to make it change form

b. _____ → the number of seconds that were required for the robot to change from solid to liquid form

c. _____ → the speed (in miles per hour) at which the robot can travel in its solid state

d. _____ → the amount (times its own weight) that the robot can carry in its solid form

LIVEWORKSHEETS

4.

Listen to the report again. Answer the questions true (T), false (F) or not given (NG).

1. The robot can switch between solid and liquid states and move around by itself. _____
2. According to the team behind the study, potential uses for the robot include healthcare and electronics. _____
3. The team performed more than one type of experiment with the robot. _____
4. The robot has already been used to perform medical procedures on human beings. _____
5. Other microrobots made from different materials are being developed by the team. _____

5. Do you think that a robot that can change from solid to liquid metal is a good or bad idea? Discuss in pairs.

6.

Part A: Match the words in bold with the correct definitions.

Group 1

1. If robots were able to **self-replicate**, we would be in trouble! (v)
2. I've had problems with my skin ever since I had the **procedure** done. (n)
3. He realized his **salvation** was approaching when, floating in the sea, he heard the sound of a helicopter. (n)
4. I thought I had got the job, but it turned out I had just passed the first **phase** of the recruitment process. (n)
5. She left school at 16 to **pursue** her dream of becoming an actress. (v)
6. Around the world, the rich are investing huge amounts of money into their hunt for **immortality**. (n)

a. a stage in a process of change or development
b. do something or try to achieve something over a period of time
c. the state of living or lasting forever
d. a way of being saved from danger, loss, harm, etc.
e. a medical operation
f. reproduce or produce copies of oneself without needing a partner, host, etc.

LIVEWORKSHEETS

Group 2

1. When learning to drive, it is **crucial** to remember to constantly check your mirrors. (adj.)
2. The **prospect** of coastlines being destroyed by rising sea levels has led to some choosing to move inland. (n)
3. My father is a bit of a **technophobe**. He banned cell phones in the house when we were growing up. (n)
4. We were advised by a **broker** from the company to put in a deal before the weekend. (n)
5. Game shows in the nineties often punished contestants by dropping them into pools of **goo**. (n)

a. extremely important, because it will affect other things

b. a person who buys and sells things for other people

c. the possibility that something will happen

d. someone who is afraid of, dislikes or avoids new technology

e. any unpleasant sticky wet substance

Part B: Complete the dialogue below with SEVEN words from the above exercise. You may need to change the tense of the word. After completing the dialogue, read it out with a partner, focusing on pronouncing the key vocabulary correctly.

Zane: Ricky is such a _____[1]! He was late to meet me because he refuses to use a smartphone.

Clarissa: It's because he believes that technology is dangerous, apparently. He thinks we're entering a post-human _____[2].

Zane: That's just silly, isn't it? Imagine where we'd be without all of the advances of the last century. Machines are our _____[3], not our enemy!

Clarissa: I can understand his concerns, honestly. The _____[4] of robots taking over might sound a little unlikely, but I think many of us could lose our jobs because of AI.

Zane: Do you really like your job, though? Wouldn't it be better to have some kind of living salary for everyone, where we get paid enough to survive by the government and can spend our free time _____[5] our artistic ambitions?

Clarissa: It's a nice idea, but I don't know if there would be enough money to support everyone. Actually, I think it's _____[6] for governments to set up laws to protect our labor rights now, before we all lose our jobs.

Zane: Maybe we should try to find a balance. I think that we're going to need to use robots in the future for medical _____[7], for example, but I doubt that they're likely to replace doctors!

LIVEWORKSHEETS

Part C: Discuss these questions in pairs.

1. Do you think it's a good or bad idea to create robots that can **self-replicate**?
2. Will technology prove to be our **salvation**, or will it end up destroying humanity?
3. Do you know anyone you would describe as a **technophobe**?
4. Should we use robots to assist with medical **procedures**? Why/why not?
5. Do you agree with Clarissa that it is **crucial** for governments to pass laws to protect our jobs from AI?
6. Does the **prospect** of robots becoming a part of everyday life make you feel optimistic? Why/why not?
7. Could technology help humans to gain **immortality** one day? Would this be a good or bad thing?

LIVEWORKSHEETS