Humans vs. self-driving cars?

1 Warmer

a. Discuss with a partner.

1. Which of these things should be self-driving or controlled via total automation?
   - cars
   - trains
   - medical equipment, such as surgery robots
   - medical testing machines
   - call centres and helplines
2. Have you had any experience with such automation? What do you think of it?
3. What do you think of self-driving cars? Have you been in one?

2 Key words

a. Write the words from the box next to the definitions below. Check your answers and your understanding of the words by using the same word to complete the example sentence immediately after each definition. Then read the complete article to see how each of the key words is used in context (the words are sometimes in a slightly different form).

bully	halfway-house	sector	zone out
disengage	complacency	leapfrog	background
gaze	deal with	encounter	wander

1. to take action in order to solve a problem _____

   It's better to _____ a problem right away because it may become more difficult if you wait.

2. an idiomatic phrase for something that combines features of two other things

   _____

   This proposal is a kind of _____ between the old system and a future, updated system.

3. to use your power to force someone to do something _____

   Sometimes salespeople will try to _____ customers into buying something they don't really need.

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4. to pass the middle stages to get from a beginning stage to an end stage very quickly

   _____

   Jack was able to _____ over a whole year of university because he passed some exams without taking the courses.

5. a long, continuous look at something _____

   Lions watch their prey with a steady _____ before they attack.

6. an area of business or the economy _____

   The manufacturing _____ has been reduced by automation.

7. to stop being involved in or paying attention to something _____

   If a lecture is boring, many students _____.

8. a feeling of calm or security that causes you not to worry about possible problems or dangers

   _____

   We hadn't had any tornadoes for some time, so people felt a sense of _____ and weren't prepared when an enormous tornado hit our town.

9. when you think about other things and not about what you should be focusing on

   _____

   When I have to do the same type of work for a long time, I get bored and my mind starts to _____.

10. something that is happening but that you are not focusing on _____

    When I study, I often play music in the _____ to help me stay awake.

11. to experience something, usually problems or difficulties _____

    Companies often _____ problems when they test new drugs.

12. an idiomatic phrase that means to stop paying attention or noticing things around you

    _____

    My sister talks all the time, and sometimes I just _____ and stop listening to her.

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How safe are self-driving cars?

THE BETTER AN AUTOMATED SYSTEM PERORMS, THE MORE COMPLACENT — AND DANGEROUS — WE BECOME
BY SARAH O'CONNER

1 As I climbed under the kitchen table with my five-year-old this weekend, she explained that we were in a car, but, "It can drive itself, so we can just relax, OK?" We settled down for a pretend nap on the way to the pretend beach.

2 I didn't tell her that grown-ups are really struggling to turn this vision into reality. Even Waymo, the company that is furthest ahead, still only has self-driving taxis in a handful of US cities.

3 In the meantime, carmakers are packing many of their new models with so-called "Level 2" partial automation features instead, which can do a certain amount of driving in some circumstances, but require the human driver to pay attention and take over when necessary. Yet this halfway-house, which relies on humans and machines, is proving troublesome. And it is trouble worth noting, even if you have no interest in cars, because other sectors are also beginning to embrace the concept of automated "co-pilots" to help everyone from coders to doctors.

4 The big problem is known as "automation complacency". People have been studying the phenomenon for decades in all kinds of partially automated systems, from aviation to manufacturing processes.

5 When you ask humans to supervise automated systems, their attention starts to wander, which means they don't always notice in time when a problem does arise, nor are they aware enough of the context to immediately take over. And the better an automated system performs most of the time, the more complacent we humans become.

6 Mica Endsley, a former chief scientist of the US Air Force, has made a career of studying these issues after first encountering them in the 1980s. "The public don't quite understand the subtle ways that automation affects their attention [but] it's like giving people a sedative," she told me. "They're going to find something else to do or they're going to zone out, and neither is good."

7 Car drivers, it turns out, are not immune. Studies of various partial-automation systems have found drivers become increasingly likely to disengage the longer they use them. In the US, the National Transportation Safety Board has blamed automation complacency for a number of car crashes.

8 If humans are notoriously poor monitors, the solution, apparently, is to monitor the monitors. Safety bodies and regulators have pushed for steering wheels that detect whether people are holding them, and driver-facing cameras that detect the direction of the driver's gaze and head posture at all times. Most provide visual, audio and even seat-vibration alerts that increase in intensity to warn distracted drivers to return their attention to the road. Tesla cars have a disciplinary system whereby, if drivers accumulate too many "strikeouts", the partial-automation system is suspended for a week.

9 But bullying drivers to pay attention doesn't seem to be sufficient. When Mikael Ljung Aust, a driver-behaviour specialist at Volvo Cars, ran a study on a test track with employees, he found that distraction alerts did successfully make people keep their eyes on the road and their hands on the wheel. But even then, almost 30 per cent of them allowed the car to crash straight into an object in the road.

10 In follow-up interviews, the drivers said they saw the object coming, but they trusted the car to deal with it, at least until it was too late. "Even if you write very clearly in the manual, 'The car cannot see these objects', and you show them pictures, once they get out on the road — for some people … it seems like they can't help trusting the car."

11 He and several other safety experts said the best solution to the dangers of automation complacency seemed to be to keep the driver more actively involved in the steering and driving, with the partially automated system on in the background, gently guiding when necessary rather than taking over.

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12 In other words, if you imagine automation as a scale, with humans doing everything on one end and machines doing everything on the other, the best course might actually be to edge back slightly towards maintaining more human control, at least until the technology is good enough to leapfrog over to the other end of the scale.

13 Otherwise, we face a partially automated middle, where a car journey looks less like having a nap and more like watching the road anxiously with your eyes wide open and your neck straight, for fear that your car will shout at you again to pay attention. Is that the kind of future any five-year-old ever dreamt about?

3 Understanding the article

a. Select all the statements that are true. Correct the ones that are false.

1. Many new cars can switch from driver-operated to fully automatic.
2. The author thinks that automation may cause problems in other sectors besides the automotive sector.
3. Automation complacency means that humans start to trust automation too much.
4. One study found that distraction alerts do not make drivers pay more attention.
5. In that study, drivers said they did not trust their cars to avoid objects on the road.
6. The author thinks it's better for cars to maintain more human control.

4 Business language – collocations

a. Match these words to form collocations from the article. Then find them in the article to read them in context.

1.	follow-up	studies
2.	worth	processes
3.	prove	interviews
4.	edge	the concept
5.	manufacturing	bodies
6.	run	troublesome
7.	embrace	back
8.	safety	noting

b. Complete the sentences with phrases from the previous activity.

1. We think we should _____ from full automation until there are better safety features.
2. Pharmaceutical companies have to _____ many _____ before a new drug is approved.
3. In most industries, _____ have become much more automated in the last 50 years.

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4. We think we've found the right candidates for the jobs, but we're going to do some _____.

5. It is _____ that although the new product seems to work perfectly, more studies still have to be done.

6. Some aspects of automation _____ when they are put into practice, and changes have to be made.

7. In the US, some of the _____ are the National Transportation Safety Board and the Federal Food and Drug Administration.

8. Most big companies now _____ of diversity among employees.

5 Discussion

a. Explain why the writer of the article has the following opinions:

- The use of partial automation in different business sectors could be dangerous.
- The partially automated systems that function the best are the most problematical ones.
- It's better to have systems that are less automated until technology improves.

b. Discuss with a partner whether you agree with these opinions and why.

Useful language:

I think the author is right / wrong because …

I disagree that …

I agree that …

In contrast to what the author said, …

I'm not sure about …

I see what she means, but …

A different way of looking at it is …

Perhaps we should also consider …

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6 Wider business theme – The pros and cons of automation

a. There are a number of arguments both for and against automation in business and industries. Read the lists and decide whether you think there are better arguments for or against automation. Do some research on the effects that automation has had on specific businesses or industries. You can use the list in the Warmer for ideas. Prepare a short presentation arguing either for or against large-scale automation. Support your ideas with examples.

Pros

1. Automation means increased productivity. This means that companies can produce more of a product for less money, so prices may be cheaper for consumers.
2. More consistency in the quality of products. Machines eliminate human error, so companies don't waste money throwing out defective products or returning money to dissatisfied customers.
3. Better safety. If humans don't have to do dangerous jobs, there are fewer accidents or deaths. This also lowers a company's insurance costs.
4. Flexibility. With automation, companies can easily make more products in high sales seasons like Christmas and fewer products during slow sales periods. This eliminates the need to hire and fire employees during the year. It is also easier to adjust machines to change products than to retrain people to make a product in a different way.

Cons

1. Job loss and higher unemployment. With automation, there are fewer jobs in general and a lot fewer jobs in lower-skilled jobs like product assembly. This can result in high unemployment in a region or country.
2. The cost of starting a business. While machines can save money in the long run, it is very expensive to start a business if it is necessary to buy a lot of machinery. This makes it more difficult for average people to start businesses.
3. Technical problems and limitations. Machines make production very fast until they break down. There may be long delays in production while a company waits for a machine to be repaired. Furthermore, some jobs require human judgement and creativity, and a machine does not have those functions.
4. Less human interaction. Many customers would prefer dealing with a human and not a machine. People miss chatting with employees or customers, and to some extent, this makes a society lonelier. Furthermore, automated systems are not always able to answer a customer's questions or solve a particular problem.

Here is a suggested structure for your presentation:

- If you are for automation, list some of the arguments against it. Then list your reasons for arguing for it (vice-versa if you are against automation).
- For each point, try to give at least one example from a specific business or industry.
- Conclude with a summary or restatement of your arguments.

Useful language

Today, I am going to tell you why I believe …

One example of this is …

It is true that ..., but …

According to my research, in our country …

First, … Next, … Finally, …

In conclusion, I think …