

### Schumpeter | The driverless road ahead

- 1 THE arrival of the mass-produced car, just over a century ago, caused an explosion of business creation. First came the makers of cars and all the parts that go into them. Then came the garages, filling stations and showrooms. Then all sorts of other car-dependent businesses: car parks, motels, out-of-town shopping centres. Commuting by car allowed suburbs to spread, making fortunes for prescient housebuilders and landowners. Roadbuilding became a far bigger business, whereas blacksmiths, farriers and buggy-whip makers disappeared as America's horse and mule population fell from 26m in 1915 to 3m in 1960.
- 2 Now another revolution on wheels is on the horizon: the driverless car. Nobody is sure when it will arrive. Google, which is testing a fleet of autonomous cars, thinks in maybe a decade, others reckon longer. A report from KPMG and the Centre for Automotive Research in Michigan concludes that it will come "sooner than you think". And, when it does, the self-driving car, 17, could bring profound change.
- 3 Just imagine. It could, for a start, save the motor industry from stagnation. Carmakers are fretting at signs that smartphone-obsessed teenagers these days do not rush to get a driving licence and buy their first car, as their parents did. Their fear is that the long love affair with the car is fading. But once they are spared the trouble and expense of taking lessons and passing a test, young adults might rediscover the joys of the open road. Another worry for the motor industry is that car use seems to be peaking in the most congested cities. Yet automated cars would drive nose-to-tail, increasing the capacity of existing roads; and since they would be able to drop off their passengers and drive away, the lack of parking spaces in town might not matter so much.
- 4 Cars have always been about status as well as mobility; many people would still want to own a trophy car. These might not clock up much mileage, so carmakers would have to become more like fashion houses, constantly creating new designs to get people to swap their motors long before they have worn out. But cars that are driverless may not need steering wheels, pedals and other manual controls; and, being virtually crashless (most road accidents are due to human error), their bodies could be made much lighter. So makers would be able to turn out new models at lower cost. Fresh entrants to carmaking could prove nimbler than incumbents at adapting to this new world.
- 5 All these trends will affect the car business. But when mass-produced cars appeared, they had an impact on the whole of society. What might be



the equivalent social implications of driverless cars? And who might end up the same way as the blacksmiths, farriers and buggy-whip makers? Electronics and software firms will be among the winners: besides providing all the sensors and computing power that self-driving cars will need, they will enjoy strong demand for in-car entertainment systems, since cars' occupants will no longer need to keep their eyes on the road. Bus companies might run convoys of self-piloting coaches down the motorways, providing competition for intercity railways. Travelling salesmen might prefer to journey from city to city overnight in driverless Winnebagos packed with creature comforts. So, indeed, might some tourists. If so, they will need fewer hotel rooms.

- 6 Cabbies, lorry drivers and all others whose job is to steer a vehicle will have to find other work. The taxi and car-rental businesses might merge into one automated pick-up and drop-off service: GM has already shown a prototype of a two-seater, battery-powered pod that would scuttle about town, with passengers summoning it by smartphone. Supermarkets, department stores and shopping centres might provide these free, to attract customers. Driverless cars will be programmed to obey the law, which means, sadly, the demise of the traffic cop and the parking warden. And since automated cars will end the need for parking spaces in town, that will mean no more revenue for local authorities and car-park operators.
- 7 When people are no longer in control of their cars they will not need driver insurance – so goodbye to motor insurers and brokers. Traffic accidents now cause about 2m hospital visits a year in America alone, so autonomous vehicles will mean much less work for emergency rooms and orthopaedic wards. Roads will need fewer signs, signals, guard rails and other features designed for the human driver; their makers will lose business too. When commuters can work, rest or play while the car steers itself, longer commutes will become more bearable, the suburbs will spread even farther and house prices in the sticks will rise. When self-driving cars can ferry children to and from school, more mothers may be freed to re-enter the workforce. The popularity of the country pub, which has been undermined by strict drink-driving laws, may be revived.
- 8 All this may sound far-fetched. But the self-driving car is already arriving in dribs and drabs. Cars are on sale that cruise on autopilot, slot themselves into awkward parking spaces and brake automatically to avert collisions. Motorists seem ready to pay for such features, encouraging carmakers to keep working on them. Some insurers offer discounts to drivers who put a black box in their cars to measure how safely they drive: as cars' computers get better than humans at avoiding accidents, self-drive mode may become the norm, and manual driving uninsurable.
- 9 The first airline to operate a regular international schedule began in 1919, only 16 years after the Wright Brothers showed that people really could fly in heavier-than-air planes. For those businesses that stand to gain and lose from the driverless car, the future may arrive even quicker.

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## Tekst 6 The driverless road ahead

- 1p 16 Which of the following is true, judging from paragraph 1?
- 1 The mass production of cars offered ample business opportunities throughout the U.S.
  - 2 The mass production of cars led to suburban expansion.
- A only 1 is true  
B only 2 is true  
C both 1 and 2 are true  
D neither 1 nor 2 is true

- 1p 17 Which of the following fits the gap in paragraph 2?
- A compared to public transport  
B in contrast to vintage vehicles  
C just as the autonomous one  
D like the ordinary kind  
E unlike horse-drawn carriages

- 1p 18 Which would be a suitable alternative beginning for paragraph 4?
- A Furthermore,  
B In other words,  
C In particular,  
D Subsequently,

“blacksmiths, farriers and buggy-whip makers disappeared” (paragraph 1)

- 3p 19 Which three of the following can be identified as today’s blacksmiths, farriers and buggy-whip makers according to paragraphs 5-7?

1 bar owners	8 motorcyclists
2 commuters	9 urban parking lot proprietors
3 car insurers	10 road workers
4 coach industry	11 shops
5 ER specialists	12 taxi drivers
6 hotel industry	13 train operators
7 ICT firms	

Write down the three numbers on the answer sheet.

- 1p 20 Which of the following statements best substantiates the conclusion in the last paragraph?
- A Long-term investment in car safety measures will stimulate production of the driverless car.  
B Motorists who think of their car as a trophy will most likely want to buy a new car every few years.  
C Some techniques relevant for manufacturing autonomous cars have already been implemented.  
D The car components industry has agreed to be ready for production of modern cars within two decades.

### Bronvermelding

Een opsomming van de in dit examen gebruikte bronnen, zoals teksten en afbeeldingen, is te vinden in het bij dit examen behorende correctievoorschrift, dat na afloop van het examen wordt gepubliceerd.