Cars will change more in the next decade than they have in the past century

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Credit: AI-generated image (disclaimer)

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While the look and feel of our cars has changed in the past 100 years, the way we drive them hasn't. But fundamental change is coming. In the

next decade, not only will the way they're powered and wired have shifted dramatically, but we won't be the ones driving them anymore.

Some cars already have basic automation features, but the automotive experiments currently being undertaken by the likes of Uber and Google make up a minuscule proportion of the vehicles on our roads. By 2030, the standard car will evolve from merely assisting the driver to taking full control of all aspects of driving in most driving conditions.

This widespread automation, together with the electrification and increased connectivity of both the car and society, are set to shake up the car industry in a big way, affecting everything from the way cars look and feel, to how we spend our time inside them, and how they get us from A to B.

A very different driving experience

The first major difference we might notice between today's cars and those of 2030 are their names. Just as Apple and Samsung have taken over a mobile phone market that Nokia and Blackberry once dominated, Tesla, Apple, Dyson, and Google could become the most recognised automotive brands of the future.

They'll likely look a lot different too. From the outside, the large air intakes and front grills that cool our combustion engines will no longer be needed, while wing mirrors will be replaced with cameras and sensors. Windows could be larger to allow liberated passengers to enjoy the view, or near non-existent to provide privacy. The Mercedes-Benz Vision URBANETIC demonstrates these radical new looks with a modular vehicle that can switch bodies to either move cargo or people.

Cars' interiors will be much more flexible, some allowing customisation of colour, light, privacy, and layout at the touch of a button. Volvo's

recent 360c concept car envisages a multi-functional space that can transform into a lounge, an office and even a bedroom.

Sun visors will become a thing of the past, with smart glass allowing us to control the amount of entering daylight at the touch of a button. The Mercedes F015 concept car's doors even have extra screens that can function as windows or entertainment systems.

Many cars will be fitted with augmented-reality systems, which will superimpose computer-generated visualisations onto the windscreen or other suitable display areas, to ease the passenger's nerves from relinquishing the wheel by showing what the car is about to do.

Drivers will be able to communicate with their cars through speech or gesture commands. In high-end models, we may even see some early versions of brain-computer interfaces, which would associate patterns of brain activity with commands to control the car or entertain occupants. Similar technology has already been used to control prosthetic limbs and wheelchairs.

Connective technology

The ever-growing internet of things will become central to how our integrated cars move us around and communicate with the outside world. Sensors designed to recognise and communicate with upgraded road signs, markings, networks of cameras, pedestrians, and other vehicles will allow cars to synchronise their movement, minimising fuel consumption and improving traffic flow. Cars will also be able to help authorities maintain road infrastructure, for example with tyre sensors that notify them of deteriorating road conditions.

When humans choose to take the wheel, technology will warn drivers about impending collisions with other road users, and attempt to avoid

them. Improvements in thermal sensor technology are likely to enable cars to see far beyond the illumination range of car headlights. If sufficiently standardised and legislated for, these technologies should substantially reduce the number of road accidents – albeit probably after an initial spike.

While rural drivers will probably still own their cars, cities may move away from car ownership to the use of on-demand vehicles that take the Uber model to the next level. In Moscow, 9m of these journeys are already made daily, more than 30 times higher than at the start of 2018.

Fuels of the future

Multiple countries and cities have announced upcoming bans on the sale of new petrol and diesel cars, many by 2030. Older vehicles will still be on the road, so petrol stations are unlikely to disappear by this date. However, car makers are already focusing more and more on vehicles that will support the fuels of the future.

Precisely what that future will look like is unclear. Uncertainty over whether currently popular hybrid cars will be included in vehicle bans may discourage businesses and consumers from investing too much in this path. Fully electric vehicles only make up 2% of the global market right now, but as their price drops below that of petrol cars by the mid 2020s, their market share will surely balloon.

By how much depends on to what degree their as yet limited range and charging time can be improved, and how much governments invest in currently patchy electric charging networks. We expect fully electric vehicles to at least be a viable choice for a wide range of drivers by 2030 – but unforeseen groundbreaking technological developments could easily change the future of vehicle fuel. For example, scientists are working hard to solve the production and storage difficulties that

currently limit the potential of clean, fast-fuelling and long-range hydrogen-powered vehicles.

The year 2030 might not seem too far away, but a decade is a long time for technology to change. In 2008, the first iPhone had only just been released, and climate change was a background issue for governments and media. Now, technology and environmental discourse are changing at an unprecedented rate. So don't be surprised if you look back at the cars of today in a decade's time and wonder how we ever got by.

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