

How 5G will change the driving experience



Mobile ^{UK}



Why should we care about 5G?



5G will benefit our economy and society.

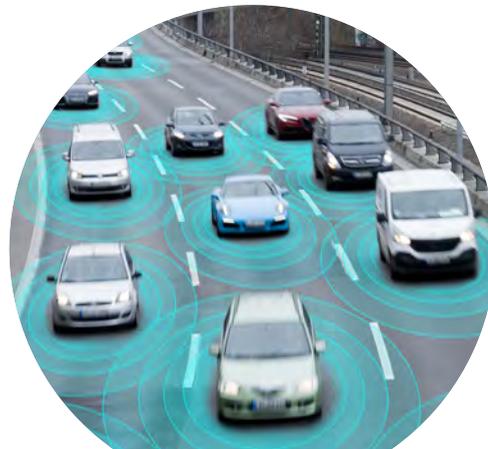
It will be better at doing the things that 4G does already, but significantly, it will offer faster and more reliable mobile internet.

It will also do things that 4G cannot. It has the potential to change the ways in which we learn, how we communicate and how we do our jobs through the simultaneous and seamless connection of our digital devices.

But because it is often described using technical jargon, many people are unaware of how 5G will enhance their life.

This pamphlet explains the benefits of 5G using examples and language that anyone can understand. It is one of many that look at the impact of 5G. The topics included in these pamphlets are:

- **How 5G will help healthcare**
- **How 5G will increase rural opportunities**
- **How 5G will support the emergency services**
- **How 5G will help councils**
- **How 5G will improve the home and the workplace**
- **How 5G will help the environment**
- **How 5G will advance the manufacturing industry**
- **How 5G will improve the creative industries**
- **How 5G can meet the climate change challenge**
- **How 5G will change sport**
- **How 5G will revolutionise the retail industry**
- **How 5G will change the way we drive**



A predicted total of
83 million
5G-connected cars
will be on the roads
globally by
2035.¹

5G's
low latency at
5 milliseconds
(faster than a human's
reaction) will help
reduce accidents
on our roads.

How 5G will change the way we drive

From communicating with other cars on the road to sharing data on congestion and hazards, the potential of 5G in enhancing the way we drive, are driven, or even how vehicles drive themselves, is endless..

- **5G will support better and safer traffic management.**
The fast data connection of the 5G network will enable communication between increasingly autonomous vehicles and traffic management systems. The vehicle to everything (V2X) concept will enable vehicles to adapt to traffic light systems, reduce stop and starts and improve air quality in towns and cities. It will also provide drivers or 'users' with additional safety information before it's visible, for example, advanced detection of roadworks and traffic delays.
- **5G will play a critical role in the electric vehicle (EV) market to ensure a more sustainable future.**
5G will support the overall performance and popularity of EVs from improved manufacturing capabilities through to deployment. The emergence of 5G will have a significant impact on the industry's ability to secure a more sustainable and environmentally friendly future.

¹ [5G Will Shift C-V2X into High Gear](#)

² [5 things to know about 5G if you work in the auto industry](#)

5G networks are gradually being rolled out across the UK. When you will have access to 5G connectivity will depend on where you live, your network provider and whether you have 5G-enabled devices.

If you have further questions about 5G, some of the most common questions have been answered on the final page.

How 5G is changing the way we drive

Telecoms provider launches the first driverless car lab.

O2, backed by the UK Government, has created a new commercial lab to support the trial of driverless cars in the UK. The first-of-a-kind facility will enable businesses to test driverless cars using 5G technology to stay connected. The aim is to assess the ability for self-drive vehicles to operate safely in areas that would otherwise suffer from poor mobile signal. The project has seen the conversion of two Renault TWIZY electric cars into driverless cars. By using 5G connectivity, the O2 team has been able to remotely track and test the status of each TWIZY, including their position, movement and speed.³



Ericsson and Volvo Cars successfully test connectivity across borders.

Ericsson and Volvo Cars have carried out a pilot test between two mobile 5G networks to test the continuous driving experience across borders. The successful initiative, which took place at the AstaZero test track in Sweden, proved that 5G networks could tackle this challenge with positive results. The Ericsson/Volvo trial used 5G connectivity to ensure maps were constantly updated with the latest-real time information. The trial tested future autonomous driving operations, and increased understanding of the environment beyond the range of the vehicle and its sensors to detect and distinguish between the driving lanes ahead.⁴



5G has the power to cut traffic congestion.

A joint project between West Midlands 5G and Transport for West Midlands demonstrates the ability of 5G technology to cut traffic congestion on some of the West Midlands' busiest roads. A congestion-busting network of 5G sensors relayed live traffic information to the regional control centre to enable swift action to be taken as queues built up. The data has been used to divert buses, implement diversions and issue instant warnings to motorists. The traffic data is also used to spot traffic trends and help plan future transport development. This provides critical insight in reducing congestion and predicting and managing increasing levels of traffic, particularly during major events or incidents.⁵



New centre for innovation tests 5G-connected and automated vehicle technologies

CAM Testbed UK, a world-leading centre for the innovation and connection of self-driving vehicle technologies has been created by the UK Government and industry to focus on key areas of capability. Six core centres across the UK aim to come together to shape the 5G-connected and self-driving ecosystem. The varied environments offer capabilities for the testing and development of connected and automated vehicle technologies and services, using the enhanced capability which 5G offers. The comprehensive, safe and integrated testbeds, offer virtual and physical facilities, as well as the ability to share data and support collaborative working.⁶



³ O2 launches UK's first driverless cars lab | [gov.uk](https://www.gov.uk)

⁴ Volvo cars and Ericsson in connected car milestone | [ericsson.com](https://www.ericsson.com)

⁵ The power of 5G to cut traffic congestion | [uk5g.org](https://www.uk5g.org)

⁶ [zenic.io](https://www.zenic.io)

The statistics



In 2018, there were 46 million connected cars on the road worldwide. By early 2022, that figure will have risen by 270%, to 125 million.⁷



The global connected car market is projected to grow at an annual rate of 22.3%, increasing five-fold from \$42.6 billion in 2019 to \$212.7 billion in 2027.⁷



Future autonomous cars will generate nearly 2 petabits of data, which is equivalent of 2 million gigabits. With an advanced Wi-Fi connection, it will take 230 days to transfer a week's data from a self-driving car, with 5G, it would take just over 2 days.⁸



Autonomous vehicles could reduce the number of fatal vehicle crashes by 90 percent just in the US, potentially saving approximately \$190 billion per year.⁹

⁷ [Four arguments for connected cars](#)

⁸ [5 things to know about 5G if you work in the auto industry](#)

⁹ [Why 5G and MEC are accelerating the arrival of autonomous vehicles](#)

Frequently Asked Questions

1. How do I get access to 5G?

Firstly, you need a 5G signal in your area (just as you need a 4G signal to get 4G now). Secondly, you need a device that can receive 5G signal - some 5G-enabled smartphones are available now, with more coming onto the market.

2. Does 5G pose a danger to your health?

5G uses radio waves - as does 4G, 3G etc. - which have been found safe in numerous studies when used within guidelines. Public health organisations around the world support this conclusion.

3. Does 5G mean more masts and antennae?

Some new infrastructure will be needed to connect more remote communities to the 5G network. But existing masts will be adapted for 5G wherever possible. If new sites are needed, relevant planning rules will apply to them being built.

4. Is 5G bad for wildlife?

No. Despite many false claims, wildlife has not been found to be negatively affected by 5G.

5. Will 5G offer an alternative to broadband?

4G and 5G can both provide mobile home broadband connections. However, while 5G will offer potentially near gigabit capable speeds in the future, currently UK 5G mobile networks don't provide the same capacity or offer speeds as fast as 'full fibre' for home broadband.

Source: Mobile UK - www.mobileuk.org

5G CHECK THE FACTS

mobileuk.org

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