

# How 5G will advance the manufacturing industry



Mobile<sup>UK</sup>

 BUILDING  
MOBILE  
BRITAIN

# 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 eight pamphlets 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](#)



By 2030,  
**3.8 billion**  
assets will be  
connected wirelessly  
within factories

It is estimated  
that 5G deployment in  
factories will generate  
an additional  
**5.2 billion**  
of GDP by  
2025

## How will 5G advance the manufacturing industry?

**While 4G plays a major role already in how the creative industries operate, 5G digital connectivity will provide added capabilities in two key ways:**

- **5G-networks will enhance capabilities of augmented reality and artificial intelligence in factory settings.** This will ultimately optimise performance, productivity and lower costs of manufacturing.
- **5G will enable network slicing, so manufacturers can operate on private 5G networks.** This will help to securely adapt factories to meet changing demands and business needs.

5G networks are being gradually rolled out across the UK. As and when you 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

# Uses of 5G in manufacturing

## Case Study 1:

### Improving productivity through connected and automated logistics

5G-enabled technology such as autonomous vehicles will increase productivity, allow remote operations to overcome unexpected situations and support economic growth. In the North East, Nissan are working with Sunderland City Council to use 5G technology to set up driverless deliveries to distribute parts and assemblies across the Nissan plant, linking to many local SMEs in its supply chain.<sup>1</sup>



## Case Study 2:

### Apply game-changing technologies to advance manufacturing

5G-enabled technology solutions in factory settings are expected to advance manufacturing capabilities to revolutionise the industry. In the North West, BAE Systems are trialling a 'factory of the future' to demonstrate how military aircraft could be built. The experimental hub is using robotic assembly, reconfigurable product assembly lines and VR and AR to advance manufacturing on the UK's next generation combat aircraft system, Tempest.<sup>2</sup>



## Case Study 3:

### Network splicing to create private networks

Manufacturers will be able to operate on their own private 5G networks to improve the logistics ecosystem, enhancing productivity, efficiency, and safety. The Port of Felixstowe is deploying 5G technology, through a private network installed by Three, to test the potential of 5G to enable remote-controlled cranes via CCTV, and use sensors and AI to improve efficiency and reduce unplanned outage by predicting the maintenance cycle of some of the port's cranes.<sup>3</sup>



## Case Study 4:

### Aid troubleshooting

The ability of 5G to relay real-time data using multiple sensors in a factory setting, will mean it is possible to predict machinery failure and explore preventative maintenance to improve productivity and factory output. In Worcester, the UK's first ever 5G smart factory trials were held from 2018-2020 to test what was possible with the adoption of 5G technology. The project showed up to 2% efficiency gains were feasible, these gains at UK-wide level would be the equivalent of generating efficiency savings of £2.6 billion.<sup>4</sup>



<sup>1</sup> <https://www.chroniclelive.co.uk/news/north-east-news/project-set-up-driverless-deliveries-18692685>

<sup>2</sup> <https://www.baesystems.com/en/factory-of-the-future>

<sup>3</sup> <https://hutchisonports.com/media/news/port-of-felixstowe-selected-for-uk-government-5g-trial/>

<sup>4</sup> <https://www.businessinnovationmag.co.uk/worcestershire-5g-testbed-report-shows-productivity-gain-with-5g-applications/> & <https://www.wlep.co.uk/government-backed-worcestershire-5g-consortium-switches-on-britains-first-5g-factory-trial/>

# The statistics



With augmented reality troubleshooting average fault detection time could be reduced by 15 percent. The just-in-time fault-finding data, combined with better ergonomics and faster information sharing, can boost productivity by 50 percent.<sup>5</sup>



It is estimated that 5G capabilities, including ultra-low latency, can deliver a decline in rework rates from 25% to 15% – a machine cost reduction of €3,600 per blade. This would equal an annual saving of €27 million for only one factory.<sup>6</sup>



Improving productivity by up to 50% and growing the manufacturing sector by 2 - 3% would provide an additional £8 billion per year in exports to boost to the UK economy, with an expected cumulative contribution of £224bn to UK GVA by 2027.<sup>7</sup>

<sup>5</sup> <https://www.ericsson.com/en/news/2018/1/5g-manufacturing---tallinn>

<sup>6</sup> [https://uk5g.org/media/uploads/resource\\_files/DC\\_113\\_5G\\_Manufacturing\\_Report\\_Digital.pdf](https://uk5g.org/media/uploads/resource_files/DC_113_5G_Manufacturing_Report_Digital.pdf)

<sup>7</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/823494/Industrial\\_5G\\_Testbeds\\_and\\_Trials\\_-\\_Sectors\\_Analysis\\_-\\_Digital\\_Catapult\\_-\\_April\\_2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/823494/Industrial_5G_Testbeds_and_Trials_-_Sectors_Analysis_-_Digital_Catapult_-_April_2019.pdf)

## 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](http://www.mobileuk.org)

# # 5G CHECK THE FACTS

[mobileuk.org](https://mobileuk.org)

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