

# HOW TO: DEPLOY A 5G NETWORK AND OVERCOME BARRIERS

Across our how-to guide series, we have so far explored what 5G is, how it can support manufacturers, and help them decide if 5G is right for their organisation. We have also detailed just how vital 5G and the adoption of digital technology is for the journey to Industry 4.0.

Now that manufacturers are ready and equipped to manage a 5G network, we explain how organisations can deploy 5G and overcome any barriers to connectivity.

## What's the use case?

Before deploying any type of 5G connectivity, manufacturers must decide on their 'use case', or even better, use cases, that outline of an anticipated scenario where the use of technology solves defined problems.

The use case will provide a sense of purpose, clarity, and direction throughout the deployment, underpin all decisions made and set out what you aim to achieve and offer a clear benchmark for success against your KPIs (Key Performance Indicators), a necessary measure to ensure your objectives are being monitored and achieved.

For added inspiration, you can view examples of WM5G use cases across the manufacturing industry: <https://www.wm5g.org.uk/projects/manufacturing/>.

## How to connect your factory

### *The Private Network*

Now you have established your chosen use cases, it's time to get connected. There are several ways to connect your factory, and one of the benefits of 5G is the ability to install a private network within your organisation to deploy your use cases. A private network is a cellular network that is built specifically for an individual enterprise, differing largely from public mobile networks, that support wide network areas.

With in-built security as standard, only authorised persons can approve what devices and how many of them can connect to and use the 5G private network. 5G allows for the connection of up to 1 million devices per km<sup>2</sup> without performance impact. In real terms - for the footprint of a 16,500 square feet factory, you can connect roughly 1,500 devices without loss of bandwidth.

A range of technology partners are already working with manufacturers to deploy 5G private networks, so it's important that you choose the right one. Through the government's supplier diversification strategy, more technology organisations with the ability to deploy 5G are coming to the fore, so explore your options and pick a technology partner that you feel works best for you, and truly understands YOUR needs!

It is important that you feel fully understood and are clear of your expectations of the partner and the partnership you are about to begin on. After all, your backgrounds are in very different industries and clarity in conversation and trust is crucial to a successful outcome.

## **Hardware**

Hardware are the physical components that make up the networks in play. Your technology partner can support with suggesting hardware suppliers, or alternatively manufacturers can independently source a hardware provider. To learn more, visit the [UK5G Supplier Directory](#).

The integration of 5G to an existing network architecture will require the addition of an onsite 5G radio network (so-called RAN, Radio Access Network) comprised of macro or small cells, which will need to be fully IP-enabled. For more information, we encourage a visit to the [Telecom study](#).

Once you have a brand-new and shiny 5G private network ready, you will want to ensure your existing equipment can integrate with the technology. The next generation of technology (NextGen), which enables wireless control of highly sophisticated mobile machines, will allow for the possibility for machines to take advantage of the enormous computing power and cloud storage options available, without being tethered by physical wires.

Installation of integrated sensors will for example, facilitate monitoring of equipment conditions and identifying potential issues before they occur. Any insights generated from the data should be applied to create greater efficiencies within the factory setting. We will discuss how to draw useful insights from the data in a later guide.

Within an ERP environment, there are several tools, such as [FitFactory's analytics tool](#), which takes data from multiple sources and produces metrics and visual management outputs that helps manufacturers make data driven decisions.

The technical requirements of 5G can be challenging in the industrial space, which by its nature is diverse and can cover many applications and use cases. Of course, the deployment of a 5G private network only needs to happen once and the harnessed capabilities in terms of security, network slicing and synchronizing devices are set to transform factories forever, future-proofing the business for growth.

There are a range of organisations that can support 5G procurement, including us! Get in touch with us to discover how we can help you. Contact us to begin your 5G journey: <https://www.wm5g.org.uk/contact/>.

## **Learn more**

If you've identified an operational issue and have a desire to explore new technology, we'd love to hear from you. Contact us to begin your 5G journey:

[wm5g.org.uk/contact](https://www.wm5g.org.uk/contact)

[Telecom - Challenges Associated with Implementing 5G in Manufacturing](#)