

5G: A catalyst for change



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What is 5G?

Dubbed the 'fifth generation' of mobile technology, 5G is due to succeed 4G technology in the UK towards the end of 2019. Whilst a successor to 3G and 4G, 5G technology is vastly different to these previous advancements resulting in capabilities which are going to change the way we live and work in years to come.

The 5G network relies on a greater quantity of small mobile transmitters to make up its network. This provides the technology with wider and more reliable coverage coupled with faster speeds and greater capacity for users. The true impact of 5G is yet to be defined, however, it is widely held to be the necessary catalyst required to facilitate the development of the next generation of technology and assist existing concepts such as the internet of things and the Smart Cities agenda.



What are the features of 5G that creates a step change in the sector?

Some of the key features of 5G, which distinguish the technology from previous telecommunications upgrades are the download speeds, the enhanced level of connectivity and the ability to "splice" the network. These features are predicted to allow 5G to entirely replace broadband and physical connectivity, allowing certain industries to develop their strategy in a manner previously unavailable. Accordingly, these 5G features will encourage innovation, new business activity and scope for a wider marketplace, adding much needed economic value to the UK.

The current download speeds for 3G and 4G are 384Kbps and 100Mbps respectively. 5G offers potentially 10 times the speed of 4G (1GBps) and together with the wide distribution of mobile transmitters, the increased speeds will widen the potential for, in particular, the construction, medical and automotive sectors. These sectors have experienced a marginal impact from telecommunication developments in the past due to the importance of reliability for these industries.

Private and public sector involvement is key to capitalising on these enhanced features. 5G is a significant deviation from the UK's previous progress in the telecoms sector and the consequences will have economic repercussions nationally especially as the UK recalibrates its relationship with the EU and more broadly with the rest of the world.

How can businesses benefit from the new technology?

Depending on the size of the business, the impacts can be wide ranging. Direct benefits may include faster B2B and B2C communication, greater data sharing potential and increased use of mobile technology, all resulting in higher levels of productivity and efficiency. More indirectly, businesses are predicted to benefit from easier flexible working, creating a virtual office environment for a new generation of workforce, delivering cost savings and truly reacting to needs of the modern workplace.

What is seen as the key benefit for businesses of all sizes, however, is not an iterative move forward but the scope on the world stage for huge innovation associated with this technology. All businesses will be starting to think of the individual impacts of the technology. A wider level of service across the UK will open up a whole new clientele for many businesses in rural locations. The technology could ultimately aid in the redistribution of wealth more evenly across the UK and more easily expose many parts of the UK to a global audience.



How is the public sector proposing to use the technology?

The public sector is proposing to approach the introduction of 5G technology in a different manner to that previously seen in the telecommunications sector. The public sector's foray into this market, in conjunction with the private sector, is likely to increase the roll out speed for the technology whilst encouraging the development and investment in products and services for the public sector which might otherwise be initially overlooked. The mindset behind this collaborative approach is to provide specific focus on sectors with the greatest economic and practical impact for the public. The Government's ultimate aim appears to be to create an environment where investment is forthcoming and future advancements are easily implemented.

Specifically the health, transport and construction industries could greatly benefit from 5G due to the reliability required by users of such technology in these industries. In the medical sector, 5G technology is predicted to enable medical related sales worth \$1.1 trillion. On top of this, the introduction of 5G will allow a shift in the way we think about health, potentially presenting greater focus on personalised health care.

In the transport industry, public sector collaboration with the major car making and global tech companies will aid in the development of autonomous vehicles in the UK. Once again, the positioning of the UK in this regard will not only dictate the economic performance of the country but also simplify the way we travel and has the potential to prevent major accidents, improve traffic flow and reduce air pollution. The construction industry will benefit similarly in this regard.

The public sector will also be a key partner when rolling out 5G technology as its assets can be used by operators to create the cell networks needed for 5G.

What is the UCC project?

The Urban Connected Communities (UCC) Project is a project led by the West Midlands Combined Authority in collaboration with the Department for Digital, Culture, Media and Sport. The UCC Project was formed as part of the Government's industrial strategy to place the UK at the forefront of the digital sector and capitalise on the economic advantages.

The UCC Project is currently mobilising a programme of testbeds and trials to develop the use of 5G technology in key sectors such as within the remit of the aforementioned health, construction and transport industries. The UCC Project intends to engage both the public and private sectors in this new technology; placing the UK on the world stage to showcase its wider offering.

How is the West Midlands to benefit from the 5G test beds?

The West Midlands was selected to become the innovative hub to the UK public sectors' first incursion into the telecommunications market. The West Midlands is acting as the first multicity 5G test bed with Birmingham, Coventry and the Black Country offering locations to see the first major introduction of the technology in the UK.

Through millions of pounds of public investment and capacity for involvement from the private sector, the UCC Project, will provide employment opportunities and huge investment in the region.

The short term benefits will include the immediate work in relation to the UCC Project, however the longer term ambitions will include capitalising on the infrastructure established in the region and the potential for growth due to firms settling in the area in order to use the technology.

Regional businesses are likely to be sourced for their expertise on the Project across all sectors and coupled with the upcoming 2022 Commonwealth Games, the region is poised to showcase what it has to offer to a worldwide audience.

5G development benefits everyone in the region, both commercially and personally and across all sectors.



How are international projects using the technology?

The UK is striving to make its mark on the international 5G stage however the UCC Project is inevitably not the only player vying for this crown. China, the USA, South Korea and the EU are also currently developing this technology. The European Commission established a Public Private Partnership on 5G in 2013 with €700m of associated funding. This partnership is looking at certain emerging areas such as machine to machine learning. Artificial intelligence is a big theme for many countries exploring 5G technology and is thought to be the next key sector for economic growth.

As part of the EU's work in relation to 5G, other projects include research into smart cities, e-health, intelligent transport, education, entertainment and media. Whilst conducting research with a wider remit and investment potential than the UK, the EU's focus on similar themes and new markets as the UK illustrates the importance of the UK establishing themselves in this marketplace.

Wider afield in China, 5G was announced to be a key pillar to its 'Made in China 2025' strategy with the intention of making the technology available by 2020. Many Chinese companies are at the forefront of developing the technology and companies such as Huawei have even attempted to drive development of the technology internationally which has caused some countries concern. Whether this concern is founded or not, the investment potential from China will be key to shaping this technology and ultimately to shaping the corresponding international standards for the 5G network. This intervention by China has provoked a political debate and highlights the significance of getting this technology right.

The USA and South Korea are in the running to become the first countries to currently offer 5G to commercial users, permitting industry development prior to a consumer roll out. The UK is marginally behind these countries as it currently stands, however the UK (specifically the West Midlands) is perfectly placed to become the first region to introduce this technology in Europe and it is the intention that both the public and private sectors benefit from the technological capabilities and economic consequences.

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