

Government-backed 5G facility to be built in Oxfordshire

The engineering hub, set to be built by the IT and business consultancy CGI in ESA-ECSAT at the Harwell Campus in Oxfordshire, is being backed by over £3 million of government investment and due for completion in 2021.

Providing a base for UK researchers and businesses to experiment, the new 5G hub – eventually planned to extend across the entire Harwell campus – will provide a testing facility that can show the benefits of hybrid 5G and satellite communications networks. The hope is that once the technology is demonstrated the techniques can be rolled out to other businesses across the UK.

5G connectivity is likely going to change the world and its considered the next meteoric leap in wireless communications, offering faster data speeds and less latency across networks. This low “latency” – the millisecond gap between action and reaction – has the potential to accelerate the green revolution needed to tackle climate change. It paves the way for vehicles to swap data nearly instantly, which can aid navigation and, for example, mean a car can begin to apply the brakes before a driver is aware of an accident.

Science Minister Amanda Solloway said:

This year staying connected has taken on a new profound importance – from keeping in touch with loved ones and competing in Zoom quizzes to helping us tackle COVID-19.

This new state-of-the-art facility backed by government funding will enable our brightest researchers and engineers to better understand how 5G can help connect us all, creating new business opportunities, while delivering green efficiencies across the UK.

Space and tech companies are focusing on 5G because it allows for a broad range of applications across industries, including Internet of Things technology and augmented reality, all of which can be applied to manufacturing, public safety, enterprise and communications software and entertainment and gaming.

5G will enable more devices to be connected for more of the time: the “Internet of Things”, where chips in billions of devices talk to one another, bringing the prospect of huge efficiencies in everything from medicine and manufacturing to farming. It is also a quick, affordable way of bringing a fast data network to places where cables will not reach, from remote villages to disaster zones.

This new facility will develop software that allows satellite networks, including low-Earth orbit networks, to be integrated into terrestrial public

and private communications networks. This will create new business opportunities for application developers and mobile network providers.

Credit: ESA

The centre is being backed by a European Space Agency contract, and as part of the development CGI is working with BT, Avanti Communications and the University of Surrey on a project to see how it can connect rural communities to 5G in the most affordable way possible.

Elodie Viau, director of telecommunications and integrated applications at ESA, said:

ESA's novel 5G Hub will showcase how space technology enables connectivity, partnering with industry to foster innovation in the realms of autonomous vehicles and smart cities, and to enable machines to exchange information with one another via the Internet of Things.

Adding satellites to existing terrestrial 5G infrastructure is essential to ensure a reliable and safe telecommunications network that supports such connectivity, which in turn promotes a seamless and more environmentally friendly experience. Investing in space improves life on Earth.

Shaun Stretton, Senior Vice President for UK & Australia Space Control and Information Solutions at CGI, said:

This exciting facility will bring closer the potential benefits of satellite integration into 5G networks.

Through our work with the European Space Agency and industry partners, including the development of our Carnot-Sat hybrid network planning tool, it became apparent that the ability to demonstrate the benefits of integrated 5G and satellite communications networks would help to accelerate the delivery of 5G in the UK and across Europe.

CGI invested in our own innovative 5G Accelerator lab which is being used as a model for the 5G Hub at the European Centre for Space Applications and Telecommunications.

Matthew Evans, Markets Director, techUK, said:

This facility is another indication of the UK's commitment to being a global leader in 5G innovation. Hybrid solutions such as these could be a powerful way of providing connectivity and services to

hard-to-reach areas across the UK, as well as enhancing the capabilities of our space sector to global markets.

In October three UK employers pledged to create 5,000 tech-related jobs. Liberty Global, the owner of Virgin Media, and 02's parent, Telefónica, unveiled plans to create 4,000 jobs in the UK and another 1,000 apprenticeships to accelerate the rollout of 5G.