

## CGI designed and built a cutting-edge hybrid networks facility for the European Space Agency.

### Challenge

The European Space Agency (ESA) is at the leading edge of innovation for the highly competitive global market for satellite communications and applications.

ESA wanted to create a facility at the European Centre for Space Applications and Telecommunications (ECSAT) site in the UK, to become a focal point for industry collaboration and innovation in space for 5G. The facility would have a dual mission:

- Demonstrating use cases for the combination of 5G terrestrial networks and Satellite Communications networks
- Providing an engineering facility for organisations to explore their own technology and collaborate with others, within this context, and push the boundaries of what is possible.

### Solution

CGI delivered the first-of-a-kind hybrid 5G-Satcoms hub, which provides ESA with a compelling showcase of how space can enable 5G. The ESA 5G/6G Hub enables the demonstration and experimentation with satellite platforms playing various roles in the end-to-end communications chain, including backhaul to the core network and adding resilience to existing connectivity.

The Hub contains a dedicated private 5G network, into which CGI integrated two live satellite comms feeds from antennas on the roof of the facility, and a simulator for exploring the potential of the best current and planned satellite constellations. Using these facilities, users can explore many different concepts of operations and perform over-the-air validation of their own technology solutions.

The design was based on CGI's innovative Future Networks laboratory in Leatherhead, in which an initial hybrid network capability was created. CGI understood that the facility needed to be easy to use by non-engineers demonstrating to VIPs, so an intuitive user interface was created, which included pre-set scenarios that could be loaded at the touch of a button.

CGI developed a management and orchestration (MANO) solution which enables the use of quality of service requirements to prioritise and route traffic across different parts of a hybrid network.



“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”.

Former UK Science Minister,  
Amanda Solloway MP

And to make a visit to the Hub an unforgettable experience, we created immersive augmented reality demonstrations which draw the user into an interactive exploration of the amazing possibilities enabled by hybrid networks.

## Benefits

The Hub now sits at the heart of ESA's 5G activities and is used as a base for many VIP visits and technology demonstrations.

CGI managed the end-to-end engineering process, from requirements definition to creating technology demonstrations to showcase in the facility.

CGI delivered the Hub, including physical deployment of 5G network infrastructure, satellite antennas and all integration work in less than 9 months during the COVID-19 pandemic, which restricted on-site attendance. In spite of these challenges, the Hub was delivered on-time.

## Our Promise

5G offers a real opportunity to do things differently, like enabling faster digital transformation, developing new approaches to connectivity solutions and changing a business culture.

As a 5G ecosystem integrator, we understand the importance of collaborative planning for the success of 5G. That is why we will work closely with you to define the right transformation journey for you to realise the opportunities that 5G can bring to your business and customers.

Contact us to find out more about delivering transformation with 5G.

## About CGI

Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-based to help accelerate returns on your investments. Across 21 industry sectors in 400 locations worldwide, our 82,000 professionals provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

### For more information

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Email us at [enquiry.UK@cgi.com](mailto:enquiry.UK@cgi.com)