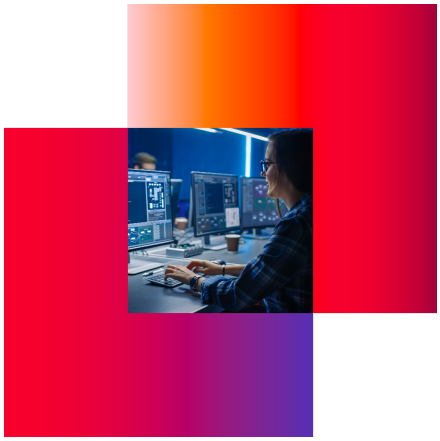
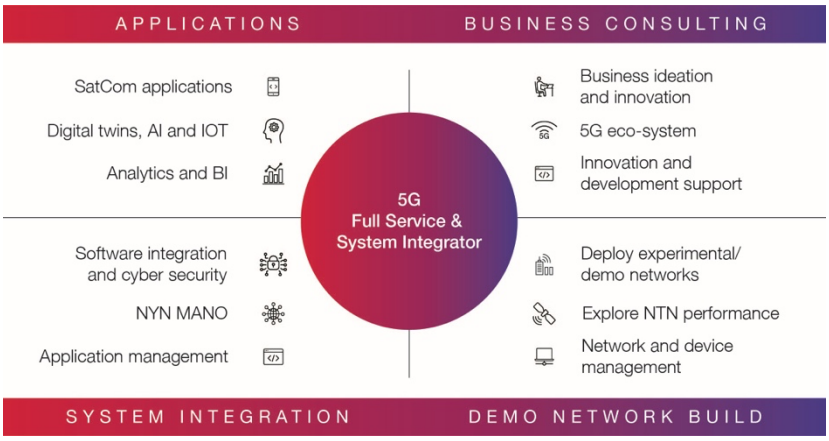
# CGI as a 5G Full-Service & Systems Integrator

## CGI understand 5G. And we understand how satellite communications can complement 5G, opening up new applications and markets.



While low latency and high throughput are commonly understood advantages of 5G, the technology can offer so much more, from processing vast amounts of data securely at a local site to ‘slicing’ part of a network to dedicate to secured, prioritised traffic. Satellites enable us to reach wider areas, provide a resilient secondary signal, or boost throughput on demand.

CGI can help you progress your ideas and deploy demonstration/validation networks or supply our own for you to use. We can transform your business with fully orchestrated hybrid networks and develop downstream applications which take full advantage of 5G.




## Our solutions and capabilities:

### CGI Future Networks lab

The CGI Future Networks lab is our private hybrid network facility where we have integrated a 5G network with two satellite links, orchestrated by CGI’s Management and Orchestration (MANO) software.

The lab enables us to experiment with satellites in various links in the communication chain, including classical backhaul, as well as switching between terrestrial and non-terrestrial and prioritising traffic over different parts of a hybrid network.

We have developed a range of demonstrations, including VR applications, designed to provoke new ideas and discussion.

## European Space Agency 5G/6G Hub

CGI delivered this cutting edge hybrid 5G-satcoms hub[WN1] , which provides European Space Agency (ESA) with a compelling showcase of how space enables 5G. The 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 project was based on CGI's innovative Future Networks lab in which an initial hybrid network capability was created. CGI designed the facility so it is easy to use by non-engineers demonstrating to VIPs. We developed an intuitive user interface, which includes pre-set scenarios that could be loaded at the touch of a button.

The Hub also enables users to apply different types of secure connectivity protocols and understand their impact on the end-to-end system.

## Hybrid Network Orchestration at Scale

When planning to use hybrid networks in future, network operators are met with the challenge of operating two distinct networks as one. The ability to deploy and manage access nodes quickly and easily, and share compute and communication resources between networks, is key to many use cases for satcoms as 5G backhaul.

To meet these challenges, CGI has developed a Hybrid Networks Management and Orchestration tool which simplifies the creation, operation and maintenance of a hybrid network. It combines technologies such as network functions virtualisation (NFV), software-defined networking (SDN) and multi-access edge computing (MEC) and can be demonstrated remotely or in our Future Networks lab.

## Carnot-Sat

CGI CarnotSat is a software tool that allows mobile network operators to carry out scenario-based modelling and to explore use cases across vertical markets. CGI CarnotSat can create new or augmented network designs with any backhaul solution, including satellites, microwave backhaul and fiber.

These designs can then be analysed for cost and performance versus business goals. The tool will show where bringing satellite communications into a 4G or 5G network can provide reduced time to market, wider geographical coverage at a lower cost and improve network performance.

The solution will help accelerate delivery of 5G connectivity everywhere, reduce the cost of rolling out large-scale and rural networks, and support next-generation, hybrid applications, such as connected cars.

## Satellites for Digitalisation of Rail (SODOR)

CGI are working with the UK rail industry and other partners to develop concepts for integrating mesh networks with moving vehicles, seamlessly switching between 4G/5G/satellite.

This creates opportunities for passenger connectivity and wide-scale data harvesting enabling IOT beyond conventional limitations, particularly when terrain prohibits cost-effective mobile coverage, and data-sets are large.

The project will include a pilot of broadband using satellites on UK trains and a networking concept designed around 5G for future FRMCS integration.

## Our Promise

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

Visit cgi.com/uk/space

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