# CGI

# Network Integration Services



CGI helps organisations to benefit from satellite networks by building hybrid communications solutions to support new digtial services.

## Developing a 5G/6G lab for the European Space Agency



Visualisation of ESA 5G/6G Hub (credit@ESA)

Many industries, particularly those with a mobile or remote workforce have struggled to deploy enterprise IT solutions extensively. Even for large industrial sites connectivity can be a challenge, especially for implementing automation and robotics. Satellites can provide connectivity when terrestrial mobile networks have poor coverage and fibre connectivity is prohibitively expensive. The recent significant cost reduction and performance increase in satellite communications make this a real option for many businesses when considering an enterprise solution. Building on our expertise in the satellite and telecoms industries we have been helping organisations to:

- Understand the new landscape of satellite communications (satcom) and solutions via early-stage advisory and analysis

- Architect and manage wireless networks, including implementation of network software solutions

- Assess the risk and operate networks securely

- Implement mission critical communications

- Cost-effectively implement end-user access combining terrestrial mobile and satcom links

- Deploy private 5G networks using satcom

Our services are underpinned by our network management systems solutions and overall OSS/BSS capability.

## Always-on connectivity improves productivity and safety

With an end-to-end capability from networks to applications, we understand that improving connectivity for an organisation goes hand-in-hand with modern applications and the overall employees/customer experience. We are working with organisations to develop new use cases taking advantage of improved connectivity including robotics and industrial automation. We are also working on mobile Augmented Reality to provide the mobile workforce with on-the-spot training and operations data, superimposed on the real-world.

As an example, we are working with Inmarsat on the IRIS programme to deliver high bandwidth safety critical communications to airline cockpits, reducing air travel delays. Our team is responsible for implementing the security and safety, as well as the core network gateways.

## Always-on connectivity drives revenue and customer satisfaction

As businesses seek to increase revenue, providing improved connectivity improves customer experience and drives new revenue-generating use cases. For example, we are working with train companies to integrate satcom into the rail network for improved customer connectivity and to improve rail operations – leading to fewer train delays. CGI was chosen because we understand satcom, mobile telecoms, and the end user industry.

## CGI 5G Lab

To enable further collaboration with clients we developed our own terrestrial/satcom lab which is available to innovate:

• Exploring new use cases, applications and concepts

• Implementing low-cost, rapid proofs-of-concept for connectivity

• Analysing and optimising mobile private networks and technology

• Experimenting with handsets and other user devices

Our lab is a valuable tool in helping you to understand how satcom and cellular technologies can enable new use cases as well as experimenting with and demonstrating them in the real world.

## Developing a 5G/6G lab for the European Space Agency

The European Space Agency (ESA), wanted to develop a lab for exploring and developing 5G technologies at its Harwell campus. We worked with ESA to design and specify this lab, installing a 5G private network backhauled by 2 geostationary satellites. This has enabled ESA to run many demos and experiments using the network, helping to expand its own capabilities and ecosystem. ESA awarded us a contract in 2023 to expand this network with an outdoor mobile private network (MPN) in collaboration with Vodafone, as well as integrate Low Earth Orbit (LEO) satellite connectivity.

Collaboration with CGI has given ESA access to expertise in satellites and 5G, as well as wider expertise in non-space market verticals such as health.

## 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 an IT Systems Integrator working to advise, build and operate bespoke, technically complex, mission-critical information systems. Bringing innovation to our clients using proven and emerging technologies, agile delivery processes and our expertise across space, defence, intelligence, aerospace and maritime, all underpinned by our end-to-end cyber capability.

**For more information**
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