



Geospatial Integration, Earth Observation, and Digital Twins

Our end-to-end capabilities give us a unique position from the upstream work of launching, navigating and operating satellites, to building and running the ground segment.



CGI builds Data Platforms and Applications for clients who want to use satellite data to solve today's business and environmental challenges.

At CGI we have more than 40 years' expertise in geospatial data processing and management, providing systems integration, data handling systems, and user applications. We deliver a complete set of services to integrate Earth Observation and Geospatial Data into applications and digital twins. We help our clients to create scalable, modular and secure solutions, fusing data from multiple sources to create decision-ready insights. We help our clients by:

- Advising on how to exploit satellite data in business and government processes to solve challenges
- Building cloud-based data platforms to manage and process large geospatial datasets in systematic and ad-hoc ways
- Develop instrument data processing chains and bespoke analysis algorithms
- Build web-based visualisation systems using maps to provide complex datasets, allowing users to query datasets and analyse the results using interactive online tools
- Provide stream-based IOT processing chains for integrating non-satellite based data
- Provide infrastructure management services including cloud migration and hosting in our own secure data centres

We are able to provide solutions based on Open Source Components, CGI GeoData360, QGIS, and ESRI. Our technology agnostic approach ensures that customers benefit from best-of-breed solutions. We work with free data-sets from ESA and NASA, as well as commercial imagery providers across the globe.

Our solutions are used by multiple markets including government, defence, forestry, mining and telecommunications.

Moving from data to insights

CGI has been building instrument data processing systems for decades and has been central to many ESA missions. As a major IT company we are able to bring a full spectrum of capabilities as EO systems move into the cloud and data volumes explode. We build systems that are able to process and make available this information to provide insights which can be used for decision making.

CGI GeoData360

Whilst we work with a range of Open Source tools and commercial offerings, including ESRI, we developed a reusable data platform for processing and managing large data-sets in the cloud. CGI GeoData360 provides a scalable cloud-based workflow management system, tailored to complex geospatial problems, as well as a complete set of data management components. CGI GeoData360 can be deployed on public or private cloud allowing users to develop custom algorithms and workflows, as well as acting as a data server and visualisation engine. This solution can be deployed directly into a client environment so that they retain full control of data and algorithms at all times.

Towards federated platforms and infrastructure

One key challenge in managing the vast amount of information available today is the ability to access the data without incurring high operational costs through data transfer, compute and storage. We manage data across multiple industries we are able to provide advice and systems to optimise the cost of cloud infrastructure, but increasingly we are working to provide cross platform access for users.

User Applications and Digital Twins

Exploiting CGI's position as a partner to hundreds of commercial organisations around the world we have been active in promoting and developing the use of EO data to solve business and societal challenges. Recent applications developed by our team of experts include:

- Wildfire monitoring
- Crop yield
- Forest extend and land cover
- Flood monitoring

Clients are increasingly interested in combining multiple data sources with digital simulation to provide geospatial data platforms which provide real-time information and forecast functionality. We're working on the Digital Twin Earth Precursor project, alongside the ESA and other partners, to develop a Food Systems Digital Twin which combines weather forecasts, earth observation and socio-economic data to provide forecasts for crop yields and food pricing.



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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