Getting the most out of Space

Experience the commitment®

Software is the key to unlocking the full potential of space – for the economy, society, defence, science and even for personal entertainment.

Software ensures space services are affordable, effective, flexible and secure. As in all forms of software-based systems it is hard to make a service simple – it requires knowledge of the user domain and of the technology. CGI has the experience to bring these together and has been doing so for 40 years.

SPACE IN THE SERVICE OF SOCIETY

APPLICATIONS & SECURITY

We use satellites in space to help perform a wide range of everyday tasks – often without realising it. Here are just a few examples.

- Weather forecasts rely heavily on data measured by satellites in orbit around the Earth. Software calculates wind speed, direction and height by analysing cloud movements in successive satellite images. The temperature of the ocean surface, statistics of cloud cover and many other important parameters can be extracted from the satellite data.

  CGI has provided software to perform these and related tasks for Europe's weather forecasters since the 1970s and for their Japanese counterparts since the 1990s.

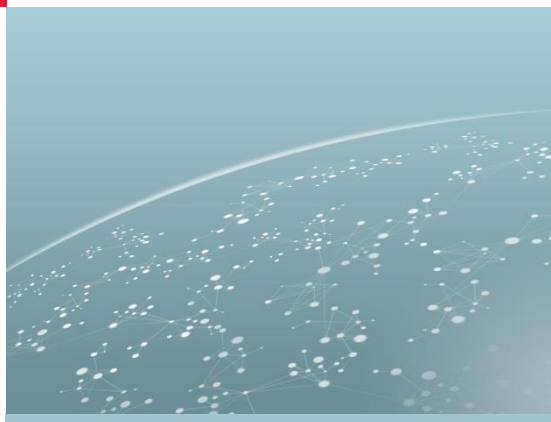
- We increasingly rely on navigation satellites ("satnav") to guide us in our automobiles. Trucks, ships, aircraft and even some trains also depend on satnav to get them to their destinations as quickly as possible. Software transforms the time data broadcast by GPS and similar satellites into position and velocity information.

  CGI provided the computer system that verifies the integrity of GPS position data for aircraft in Europe – part of the EGNOS[1] system.

- Our armed forces rely on satellites for secure communications when deployed across the globe. Satellites also provide surveillance information in hard-to-access locations, and all NATO countries rely on GPS for navigation.

  CGI was the security architect for Britain's Skynet 5 military communications satellite system, and we have continued to support the system since it entered service in 2007.

  CGI is deploying security systems and services to ensure that Europe's new satnav system, Galileo, is reliable and resilient.



KEY BENEFITS

- A leader in mission critical software systems for the space industry
- We work on the major European navigation, communication and earth observation programs and are specialists in space security and ground control systems
- Over 35 years' experience in the space business coupled with commercial and technical expertise
- A reputation for resilient, secure and highly cost-effective programs
- Our highly qualified people bring years of specialist knowledge and experience to space projects
- Our software has supported the missions of more than 200 satellites
- We share innovative uses of space and satellite technology with commercial organisations to help them solve their business problems effectively

"*CGI is an important player on Galileo ..... CGI's ability to combine leading security capability with the implementation of complex technical systems is central to the success of Galileo.*"
European Space Agency (ESA)

[1] EGNOS – European Geostationary Navigation Overlay Service

AFFORDABLE SPACE

MISSION CONTROL & ENTERPRISE SOFTWARE

Software is crucial to ensure that satellites provide services which are efficient and effective. For example:

- Mission control systems analyse status information radioed to Earth and send commands back to the satellites to ensure they continue to operate correctly.

  CGI supplied the mission control system for Europe's new 30 satellite Galileo satnav constellation, building on experience of managing scientific, surveillance and commercial satellites since the 1970s.

- Service and network management systems help satellite operators maximise the traffic (and therefore revenue) their satellites can carry.

  CGI has supplied traffic management software to many of the world's leading commercial satellite operators for more than 20 years.

- Modern enterprise software helps public and private sector satellite organisations perform their mission efficiently.

  CGI designed and delivered the enterprise management facility for the start-up Paradigm communications satellite operator (part of the Airbus Group) and we support similar systems for many others.

TECHNOLOGY STRETCH

DATA EXPLOITATION, FLIGHT DYNAMICS & DEEP SPACE MISSIONS

Space systems push technology to the limits and software is no exception. Reliability, flexibility, effectiveness and efficiency are at a premium, so the utmost professionalism is required in designing and implementing space software.

- Surveillance satellites generate enormous quantities of data that has to be captured and processed.

  CGI is designing the next generation of ground processing facilities for the European Space Agency's Earth Observation missions.

- Ensuring space probes reach their destinations millions of miles from Earth requires in-depth understanding of orbital mechanics and of the space environment.

  CGI has one of the largest industry groups of flight dynamic experts, including a team that developed software to analyse data from the European Space Agency GOCE satellite that measured Earth's gravity field with unprecedented accuracy.

- Radio signals from missions far from Earth are significantly delayed (10+ mins to Mars, 60+ mins to Saturn) and so must operate autonomously.

  CGI supplied the software that controlled the Huygens probe as it landed on Titan (Saturn's largest moon) in 2005.

  A CGI team has helped the European Space Agency to guide the Rosetta spacecraft to its rendezvous with a comet in the outer solar system.

ABOUT CGI

With over 68,000 professionals in 40 countries, CGI fosters local accountability for client success while bringing global delivery capabilities to clients' front doors.

Founded in 1976, CGI applies a disciplined delivery approach that has achieved an industry-leading track record of on-time, on-budget projects.

For over 35 years we have worked in the Space industry delivering complex, mission-critical space systems. Our solutions are secure, often working in complex technical environments, proven to work first time, every time, ultra-reliable and delivered on time to avoid costly delays.

We work on the major European navigation, communication and earth observation programmes and are specialists in space security and ground control systems. We share innovative uses of space and satellite technology with commercial organisations to help them solve their business problems effectively. Our software has supported the missions of more than 200 satellites.

Our high-quality business consulting, systems integration and outsourcing services help clients leverage current investments while adopting new technology and business strategies that achieve top and bottom line results.

As a demonstration of our commitment, our average client satisfaction score for the past 10 years has measured consistently higher than 9 out of 10.

For more information about CGI, visit

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