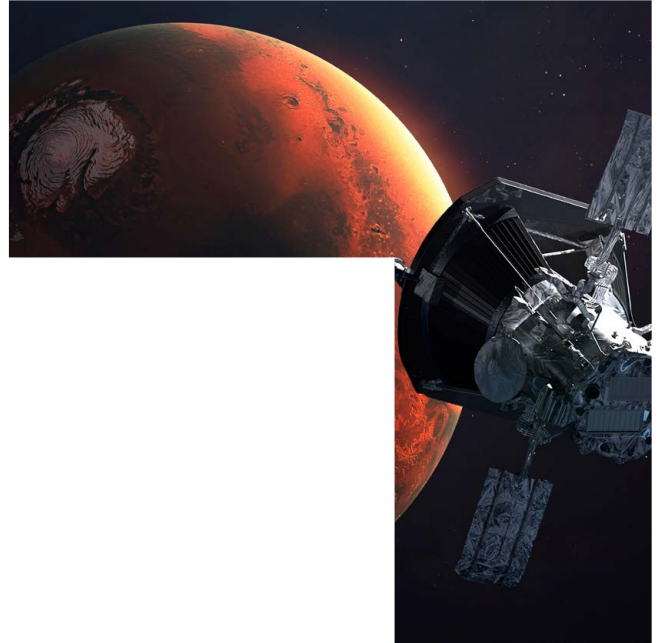Image credit: ESA

Developing the eyes of ExoMars Rover

The ExoMars Rover mission by the European Space Agency (ESA) will be Europe's first surface mission to Mars. Our technology has been built to help scientists understand Mars remotely at an unprecedented level of detail through the eyes of a remote Martian rover using our on-board and off-board autonomy and AI systems.

Safety, reliability and robustness are critical when physical maintenance is impossible, and uncertainty is high. Our validation and verification processes ensure that we deliver intelligent software that delivers when it matters most.

CGI

The mission

The mission aims to examine the geological environment on Mars and search for evidence of environments that may have once, and perhaps could still, support life. The rover will have a suite of instruments on-board and uniquely be equipped with a drill capable of drilling 2m below the surface. This will enable it to determine if evidence of life is buried underground, protected from the destructive radiation that impinges the surface today.

CGI's Intelligent Autonomy

CGI is providing the VisLoc (Vision-based localisation) system, which is a critical part of the autonomous navigation solution.

CGI will also design, develop and verify the Mission Management Software Instruments Layer (MMS-IL). This AI software component will support the second objective of the mission – to move autonomously across the surface, providing localisation and visualisation capabilities, enabling the rover to traverse greater distances than could be previously achieved without this level of intelligence.

About CGI

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 76,000 professionals provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

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 about CGI, visit cgi.com/uk/space, or email us at enquiry.UK@cgi.com

CGI