SPACE

Why GMV's Ground Segment?

GMV as a **Ground Segment Integrato**r, provides **end-to-end** solutions for the whole ground segment or the main **sub-segments**: Payload Data Processing (PDGS), Payload Control Centre (PCC), Mission Operations Centre (MOC), Satellite Simulators, Space Situational Awareness (SSA), Horizontal Elements (HE), and Ground Stations (GS). Our **holistic understanding** of the system, its functionalities, and how its components interact enables us to grasp the client's perspective and deliver **the best value-for-money** solution. By pioneering the strategy of offering COTS in a business dominated by bespoke solutions, GMV has become an industry leader in providing **cost effective** products with **significant operational heritage** and **low development timescales**.

GMV's products are considered a worldwide reference, endorsed by satellite operators and platform providers globally. They span all elements in the ground segment from Flight Dynamics, Mission Planning, Mission Control Systems, Payload Management, Payload Data Processing, Collision Avoidance, right down to Ground Station Monitoring and Satellite Simulators. These products have proven operational heritage, offering a solid foundation with minimum risk.

GMV will now offer **Ground Segment Systems as a Service** as well as **Satellite Operations as a Service**, while integrating with any third-party provider of **Ground Stations as a Service** to provide a full **Ground Segment as a Service** to our customers, increasing flexibility and reducing costs.

gmv®
INNOVATING SOLUTIONS
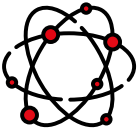
Scalable from Single Satellites to Mega-Constellations

GMV products are designed to be both multi-mission and multi-satellite, supporting missions of any size, from a **single satellite** to **mega-constellations**. Our products support all major satellite platforms on the market and integrate the common functionalities within a homogenous user interface, enabling the operation of a heterogenous fleet in an integrated manner.
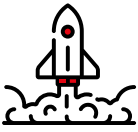
Situational Awareness

Asset supervision is critical to mission success. GMV's products provide complex systems situational awareness through **relevant semantic KPIs**, using **advanced visualization** and aggregation techniques, capable of drilling-down from high-level to detailed views. Getting the right data to the right people at the right time ensures that nominal operations are maintained.

Security

Cybersecurity protection is an essential aspect of our products to keep mission data secure and protect against vulnerabilities. GMV's products provide **advanced authentication, network protection** and enforces with word-class software all the applicable **security policies**, preventing and defending from cybersecurity threats.

Automation

Automation is synonym of **cost-effectiveness of operations** and **risk reduction**. GMV's products support unattended operations to enable full automation of the ground segment. Our solution implements a **continuous operation schema** that does not require operator intervention for routine operations. This results in a fully automated chained order processing, capable of processing the raw data up to customer dissemination of images and products without the operator's intervention.

State-of-the-Art Technologies

GMV are passionate about technology as a tool to build systems designed to last for decades. Our products exploit a combination of a **microservices-based** backend with a **web-based** frontend enabling **cloud deployment** and ensuring horizontal **scalability**. This design provides modularity, facilitating potential distributed systems and provides an enhanced user experience. Operators can control their satellites from any location through a variety of different devices.

Interoperability

GMV's products use standard interfaces, from **CCSDS Packet** and **PUS Standards** for space and ground protocols to **RESTful** and **GraphQL APIs** for data exploitation and exchange. They promote interoperability and are designed to facilitate integration with third-party systems and services with ease. We provide off-the-shelf support to all relevant commercial satellite buses, major baseband vendor protocols and encryption units in the market. While conforming to standards, our approach to the implementation of interfaces offers enough **flexibility** for operators to **customise interfaces** according to the needs and preferences of different missions.
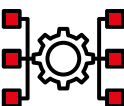
End to End Orchestration

Operations can be orchestrated from end to end, spanning all tasks from space to ground. Mission plans can be prepared by the **mission planning** function for the following days or weeks, while the **scheduling, coordination, execution and monitoring of the tasks across all subsystems** spanning the ground, satellite control and flight dynamics is carried out by a dedicated Orchestrator. Payload operations can also run in assisted mode when triggered by the operator.

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