

Challenges are our passion.  
Innovation is our response.



## Horizon Europe Latest Collaborative Research Projects for Space Competitiveness

Innovation is in the GMV DNA. The constant search for new horizons of development and innovation is one of GMV's main strategic thrusts. The company leverages existing products and services and develops entirely new ones when necessary to meet its clients' specific and unique needs, delivering innovation and technology on demand.

GMV is featured by its active participation on European collaborative research projects.

Discover some of the GMV's latest collaborative research projects, funded by the Horizon Europe programme. Our innovative initiatives span various market segments in the Space sector, driving advancements in technology, sustainability, and societal impact. Join us in shaping the future through cutting-edge research and strategic partnerships. Together, we're making a difference.

*Running in 2025*




FU  
TU  
RE

GMV will take you there


## A global technology group

Multinational technology group



Headquarters in Spain (Madrid)

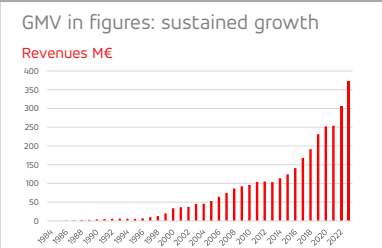
Over **3.500** employees




Aeronautics, Automotive, Banking & finances, Cybersecurity, Defense & Security, Health, Intelligent Systems of Transport, Public administrations, Space, Telecommunications and ICT for company

Private capital

GMV in figures: sustained growth



Roots tied to the Space and Defence industry



Engineering, development and integration of systems, software, hardware, specialized products and services

Founded in **1984**

## International technology leadership



**#1 Worldwide** Satellite Control Center provider to commercial telecom operators (+300 Satellite missions worldwide)



Reference supplier of C4I systems for the Spanish MoD

Spanish co-leader of the FCAS/NGWS Remote Carriers Pillar



Responsible of safety critical systems of European GNSS systems (EGNOS and Galileo)

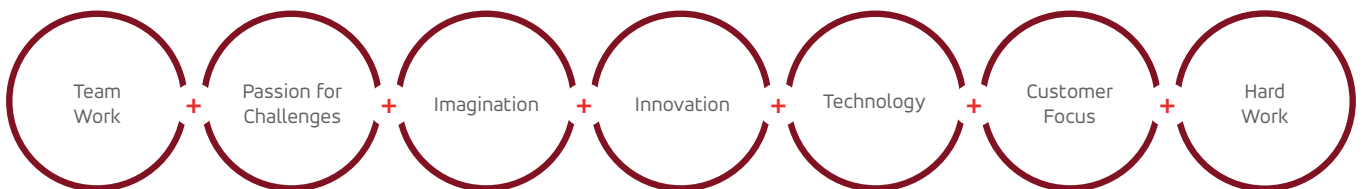


Leader of Intelligent Transportation Systems for the **public transport sector** (+100 cities in Europe, Asia and America)



GMV's **checker ATM security** is the worldwide leader as multivendor cyber security protection for ATMs

## An outstanding team



## GMV in the world

- Spain
- Germany
- Belgium
- Colombia
- USA
- France
- Malaysia
- The Netherlands
- Poland
- Portugal
- United Kingdom
- Romania



■ BRANCHES AND OFFICES  
 ■ PROJECTS



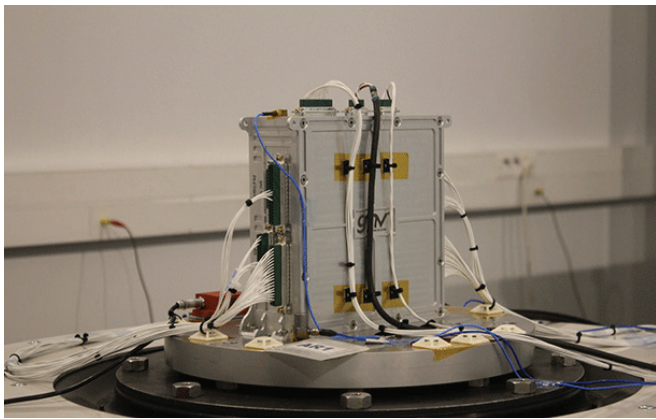
## Access to Space

### Reusable Strategic Space Launcher Technologies & Operations



**SALTO** aims to raise the maturity level of the first European reusable rocket technology.

GMV leverages expertise from previous developments in power electronics for rugged environments (in particular the ESA FLPP T1H PCDU) to evolve towards a Modular Power Unit (MPU) for T3 Themis. The MPU safely distributes power to launcher equipment with independent buses, employing a modular, configurable and cost-effective approach.



GMV is working since 2017 on the development and qualification of a complete avionics systems for micro-launchers and, in particular, on equipment for the power conditioning and distribution. This experience in power electronics design development and qualification for rugged environment is a prerequisite for the development of an efficient and modular unit MPU for **SALTO**.

SALTO is coordinated by ArianeGroup and embraces a consortium of 26 partners from 12 different countries.

<https://salto-project.eu/>



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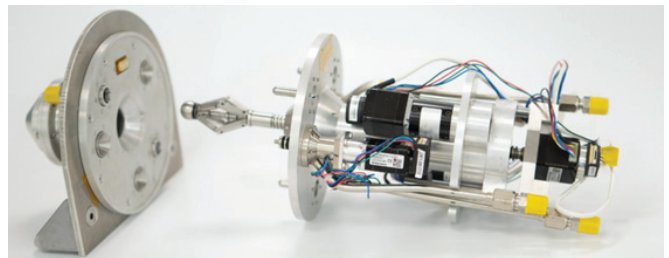
## In-Space Operations

### European Robotic Orbital Support Services Servicing Component



**EROSS SC** objective is to demonstrate the European solutions for the Servicers and the Served LEO/GEO satellites, in particular, to demonstrate autonomous rendezvous and robotics technologies in space.

GMV contributions are focused on the Autonomy of the Servicer Vision System (SVS) and the Autonomy of the Robotic Assembly System (RAS), both based on ESROCOS & ERGO, the rendezvous visual based navigation, and the interoperable Refuelling Unit (ASSIST) integrated with ERGO.



Moreover, GMV contributes with Avionic Test Benches for validation / demo (Optical Lab and Platform-art). **EROSS SC** follows the successful achievements from previous projects such as ESROCOS, ERGO, EROSS, EROSS+, EROSS-IOD, among others.

The plan is to commercialise a multipurpose servicer for LEO and GEO servicing by 2028; **EROSS SC** is a major stepping stone to provide the first go-to-market.

**EROSS SC** is coordinated by Thales Alenia Space and integrates 17 project partners from 9 different countries.

<https://eross-sc.eu/>



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# Quantum Space Gravimetry

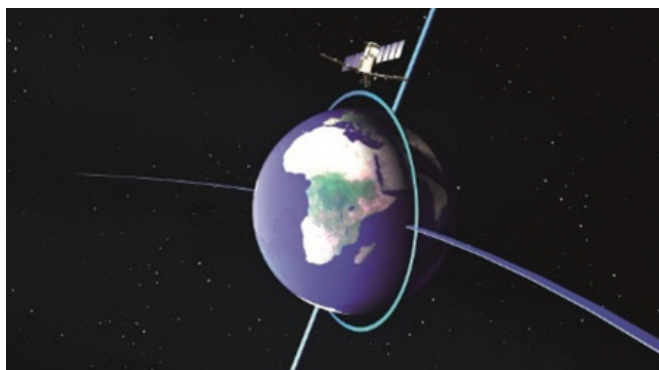
*Cold Atom Rubidium Interferometer in Orbit for Quantum Accelerometry*



**CARIOQA** projects focuses on quantum technologies for space gravimetry.

CARIOQA-PHA (Phase A) build the first step of a Quantum Space Gravimetry Pathfinder Mission. The overarching goal of CARIOQA-PHB (Phase B) is to establish a preliminary definition of the concept chosen for this mission called **CARIOQA**.

**CARIOQA** contributes to EU leadership and non-dependence of quantum sensors in space.



GMV contributions are focussed on the mission analysis, including the orbit and its evolution during the mission lifetime, analysis of debris avoidance and analysis of the reentry.

Both projects are coordinated by CNES involving 5 other partners from 4 different countries for Phase A, and 13 other partners from 5 different countries for Phase B.

<https://carioqa-quantumpathfinder.eu/>



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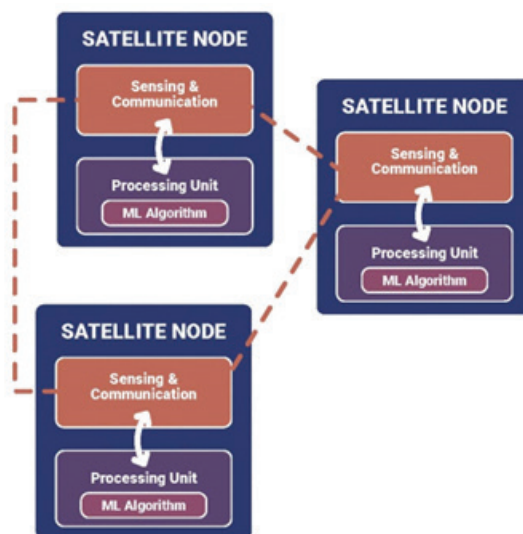
# Space embedded Edge Computing

*Trustworthy and Resilient Decentralised Intelligence for Edge Systems*



**TARDIS** focuses on supporting the correct and efficient development of applications for swarms and decentralised distributed systems. The underlying distributed middleware provides essential services, including data management and decentralised machine learning components.

Within the framework of **TARDIS** project, GMV leads a use case that aims to demonstrate the capabilities of autonomous navigation in LEO megaconstellations. By leveraging on-board navigation methods, machine learning models for orbit determination, and Inter Satellite Link (ISL) technologies, the main objective is to minimize Ground Stations and GNSS dependencies, showcasing an autonomous, resilient and fault-tolerant system



NOVA School of Science and Technology coordinates **TARDIS** which integrates 10 different partners from 8 countries.

<https://project-tardis.eu/>



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# Multi-Mission Earth Observation

## Earth Observation Multi-Mission Federation Layer



**DOMINO-E** aims at solving the key challenge of availability and reactivity of earth observations from space, by enabling multi-mission accessibility on a scalable and automated way through interoperable software components. It contributes to European non-dependence for the development of Earth-observation technologies and foster European competitiveness by supporting SMEs in developing multi-mission services agnostic to the end-to-end or ground segment systems integrators.



GMV is responsible for the Exploitation and performs the activities related to the market and commercialisation analysis as well as the multi-mission exploitation and roadmaps.

AIRBUS coordinates **DOMINO-E**, integrating 7 other partners from 6 different countries.

<https://domino-e.eu/>



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## Multi-Mission Efficient and Secure High Capacity End-to-End EO



**MESEO** aims to design, prototype and demonstrate an open, flexible and scalable multi-mission EO End-to-End system for massive processing. **MESEO** improves performance bottlenecks either on board or on ground while ensuring Space data sovereignty. The main goal of the proposed approach is to improve quality of service and timeline reactivity by improving the End-to-End EO chain at different levels and processing edges while reducing communication bandwidth and incorporating new technology optimised in power consumption and processing capabilities.

**MESEO** promotes a collaborative digital ecosystem enabled by an EO Coordinator Centre together with distributed and heterogeneous Processing Functions. Those Functions are shared through harmonized interfaces which ensures the data sovereignty. Green Deal related pilot applications serve to demonstrate the end-to-end performance.



**GMV** is responsible of the EO Coordinator Centre. Moreover, GMV coordinates **MESEO** that integrates other 8 partners from 7 different countries.

<https://meseoproject.eu/>



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# Multi-Mission Earth Observation

Large Earth Observation New Space Ecosystem Ground Segment



The Multi-Mission Earth Observation Ground Segment Service Platform is a federated environment of EO data providers that collaborate all together through harmonized interfaces, which are managed by a central automated multi-mission service, able to coordinate and produce complex EO product. Thus, **LEONSEGS** federates both New Space players supporting the heterogeneity of the New Space ecosystem through harmonized interfaces, and traditional EO products providers, with the aim to enabling interoperability among multiple EO missions.



GMV contributions are focused, on one hand, over a scalable, automatable, flexible and resilient multi-mission solutions for ground segment able to be adapted and able to operate efficiently in complex scenarios; and on the other hand, towards a proof of concept of a Multi- Mission Planning for the federated Earth Observation missions

**GMV** coordinates **LEONSEGS** which includes other 3 partners, involving three different countries.

<https://leonsegs.eu/>



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# Secure Satcom

GOVSATCOM Extreme Events Crisis Management Service



**GEXTRECS** defines and demonstrate an End-to-End GOVSATCOM Service supporting Crisis Management covering use cases in both land and maritime scenarios. **GEXTRECS** demonstrates secure satcom services to support the coordination and response activities in massive civil emergencies or security crisis situations.



**GEXTRECS** showcases the results with stakeholders interfacing to the maximum extent possible with GOVSATCOM Hub. It leverage synergies with other EU Space Programme components, notably with Copernicus-based added value products and new Galileo services, that are demonstrated as well.

**GMV** coordinates this project involving other 8 partners from 4 different countries.

<https://gextreecs.space/>



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# Added Value Space based Services for Society

*Environmental Crimes' Intelligence and Investigation Protocol based on Multiple Data Sources*



**EMERITUS** aims to realize and implement a protocol for effective environmental crime investigation, leveraging on the integration of innovative monitoring and analysis technologies (drones, satellite data, virtual sensors, geo-intelligence data, etc.), and on a complementary training programme aimed at fostering environmental enforcement authorities (e.g. Police Authorities and Border Guards Authorities) intelligence and investigation capabilities, at national and cross-border level. **EMERITUS** focuses on the co-creation of an investigation protocol centered on environmental crimes investigation, that orients to the creation of the geo-intelligence platform. This platform integrates several monitoring and investigation technologies and data sources, in a single view to support Police Authorities and decision-makers.



GMV leads the environmental crimes modelling, end-user needs and specific requirements gathering.

**GMV** coordinates the overall **EMERITUS** which embraces other 22 partners from 9 different countries, including 8 Police/Border Guard authorities.

<https://emeritusproject.eu/>



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*Copernicus Enhanced Tools for Anticipative Response to Climate Change in the Emergency and Security Domain*



**CENTAUR** objective is to respond to societal challenges derived from climate change threats by developing and demonstrating new service components for the Copernicus Emergency Management Service (CEMS) and Copernicus Security Service - Support to EU External and Security Actions (CSS-SESA), focusing on: 1/ complex emergencies and multi-dimensional (security) crises; and 2/ crisis events, in particular those triggered by climatic extremes. In the emergency domain, **CENTAUR** addresses the flood-related threats to population, assets and infrastructures in urban areas. In the Security domain, **CENTAUR** addresses water & food insecurity.



GMV leads the **CENTAUR** platform development tasks and is mainly involved in the thematic products catalogue coordination and the associated demonstrations execution.

**CENTAUR** is coordinated by E-GEOS and incorporates 13 other partners from 7 different countries.

<https://centaur-horizon.eu/>



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# Added Value Space based Services for Society

*Developing a Holistic, Risk-Wise Strategy for European Wildfire Management*



**FIREURISK** aims at improving wildfire risk management in Europe by developing an integrated science-based strategy that includes new tools for assessing the danger and the vulnerabilities of communities and landscapes. This strategy focuses on reducing wildfire risks, and adapting for a resilient future.

GMV coordinates the demonstration of products developed at local and regional scales across Europe and its technical work is focused on: 1/ the development of added value satellite-based products for fire risk reduction concerning forest condition and ecosystem vulnerabilities, such as biotic damages; and 2/ reporting multi-level integration activities, including the wildfire risk cascading effects and interactions with other risks.



**FIREURISK** is coordinated by ADAI and comprises 38 additional partners from 18 countries, including Europe, North America, and Oceania.

<https://fireurisk.eu/>



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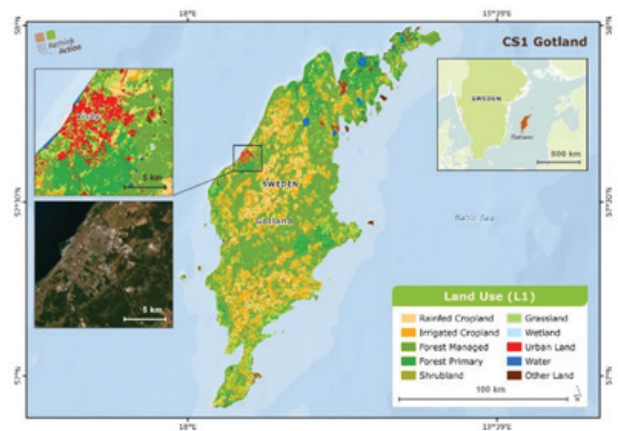
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*Cross-sectoral Planning Decision-making Platform to Foster Climate Action*



**RETHINK ACTION** develops a cross-sectoral user-friendly decision-making platform tailored to the needs of different end-users for delivering valuable information on climate change, supporting local land-use decision making.

GMV leads the activities related to data processing for climate and land use modelling including data enrichment in order to implement land use and climate assessments. Also, GMV is responsible for high resolution land use maps and GIS database development. Mapping plays a relevant role as visual representation of the spatial distribution of climate data, helps to understand climate hazards and, in turn, supports the identification of the climate risks. Moreover, GMV collaborates on the end-users requirements extraction and on the development of the maps visualizations in the RethinkAction platform.



CARTIF is the project coordinator who counts with other 12 partners from 9 different countries.

<https://rethinkaction.eu/>



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# Added Value Space based Services for Society

## Monitoring, Reporting and Verification of Soil Organic Carbon and Greenhouse Gas Balance



The **MRV4SOC** project aims at designing a comprehensive, robust, and cost-effective Tier 3 approach accounting for changes in carbon pools and their interaction with nitrogen cycles through process-based models. **MRV4SOC** embraces 15 Demonstration Sites with a total of 9 different land use / land cover types that cover a wide variety of pedoclimatic conditions in arid, temperate, and continental climates at sub-landscape and landscape scales. MRV4SOC belongs to the the EU Mission 'A Soil Deal for Europe' to promote sustainable land and soil management, and to lead the transition towards healthy soils by 2030.

GMV contributes to the development of soil and vegetation indicators using remote sensing data and AI algorithms for modelling frameworks that assess the results of traditional management practices and carbon farming.



**GMV** coordinates the project, which integrates other 19 partners from 10 different countries.

<https://mrv4soc.eu/>



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## Secure and Sustainable Supply of Raw Materials for EU Industry



**S34I** researches and innovates new data-driven methods to analyse Earth Observation data, supporting systematic mineral exploration and continuous monitoring of extraction, closure and post-closure activities with the aim to increase European knowledge and autonomy on raw materials resources. **S34I** results are validated at six different locations in different phases of the mining life-cycle: (i) land exploration in Spain; (ii) coastal exploration at the Iberian Peninsula Atlantic coast; (iii) extraction phase in Austria and; iv) closure/post-closure phase in Finland and Germany.



GMV leads Methods Pipelines and Prototyped Services activities and is prototyping very innovative AI based methods, including the effective identification of both active mining zones and potential instability risks. Besides, GMV is involved in the related field trials preparation, coordination, execution and assessment.

University of Porto is coordinating the project which comprises 20 other partners from 13 different countries.

<https://s34i.eu/>



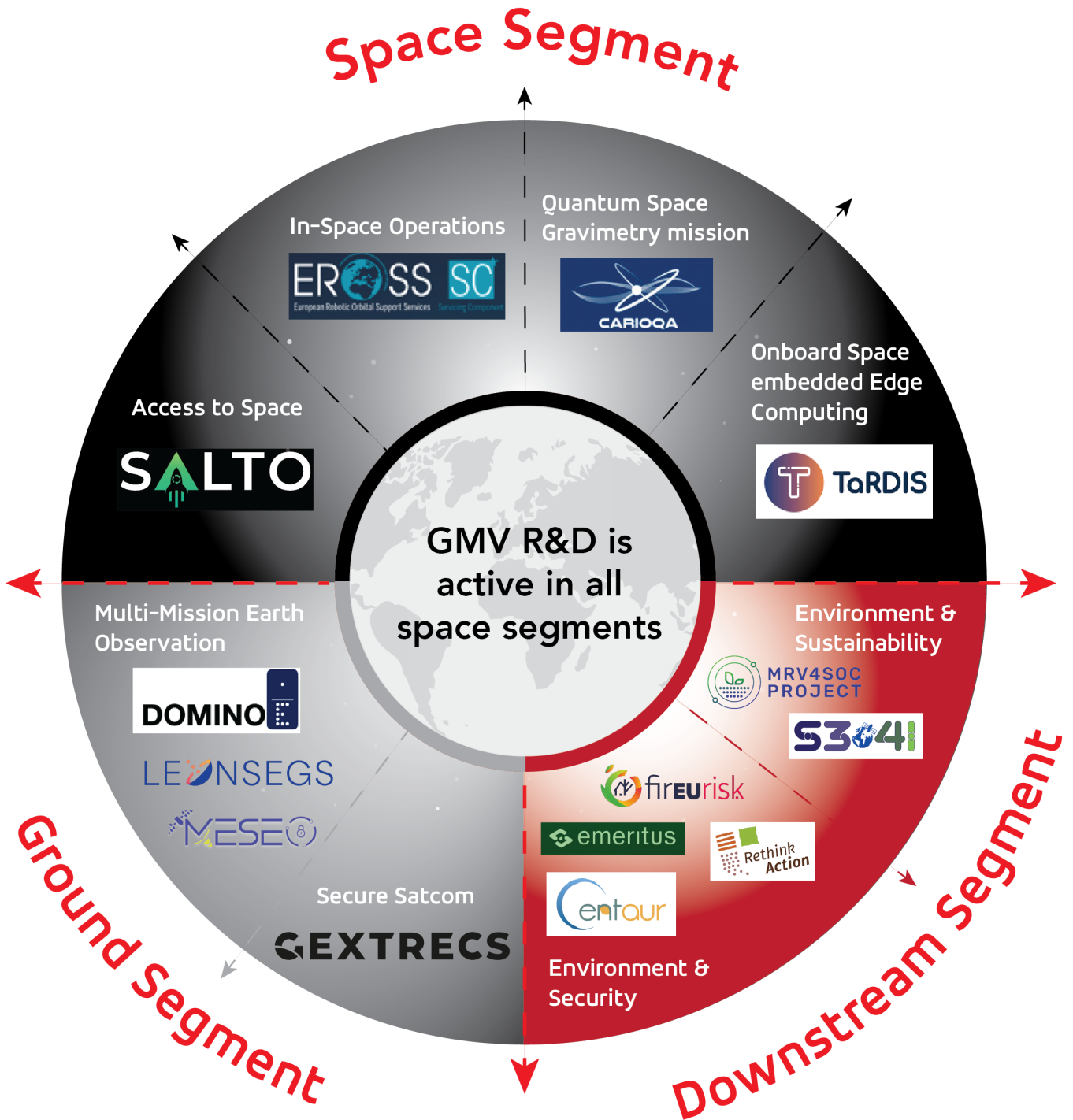
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GMV is among the most relevant Spanish participants in Horizon Europe for Space.

*Efficient coordinator. Reliable partner.*



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