

PASSION FOR CHALLENGES  
**AN OPPORTUNITY  
FOR INNOVATION**



**gmV**<sup>®</sup>  
INNOVATING SOLUTIONS

We in business group GMV believe that behind each new need, behind each new problem, lie a challenge and a chance to innovate. Technology is not an end in itself; it is the means to make something new or make something old better. In GMV we draw on our existing range of products and services or, if need be, we develop completely new ones to meet the particular needs of each client, providing bespoke innovation and technology. We take on our clients' challenges as our own, spurring us on to new heights of innovation.

GMV goes even beyond its clients' brief, exploring their real needs with a total readiness to find solutions. This allows us to come up with the right response, often imaginative, sometimes unique and always honest.

## PASSION FOR CHALLENGES

# AN OPPORTUNITY FOR INNOVATION

Our goal is to support our client's processes on the strength of technologically advanced solutions, providing integrated systems, specialized products and services covering the whole life cycle. These range from consultancy and engineering services right through to the development of software and hardware, the integration of turnkey systems and operational support.

GMV is a Spanish, technology multinational. It has taken out numerous international patents and has now reached CMMI level 5. CMMI is the world's most prestigious model in terms of enhancing an organization's process capability. GMV is now the world's foremost independent supplier of ground control systems for commercial telecommunications-satellite operators and European leader in the ground segment of navigation systems (EGNOS and Galileo); the number-one supplier of C4I command and control systems for the Spanish army; the top national supplier of telematic systems for public transport. In the ICT sector it has become a national benchmark as provider of advanced cybersecurity services and solutions in IP networks, mobility applications, ICT applications for the public sector and development of e-government systems.

In the global world we live in, our clients have singular and complex needs and are faced with an increasingly complex and bewildering supply of products, solutions and services to choose from, constantly changing from day to day. To make matters worse, these products have not been designed with their specific and singular needs in mind but only with a one-size-fits-all approach to the global market.

GMV has built up its leadership in these sectors on the basis of an in-depth knowledge of its clients' needs, allowing it to come up with solutions ideally suited to each particular client. GMV offers its clients the best solution, totally in tune with their particular specifications and including all the necessary support for obtaining the best result at the right price, delivering tailor-made innovation and technology. GMV's employees, operational model and business culture are all geared up for ensuring that each client gets exactly what it wants.

100% of its added value is tied up with hi-tech activities in sectors such as space, defense and security, intelligent transportation systems, healthcare, cybersecurity, telecommunications and ICTs for the public and private sector. The company's growth strategy is based on continuous innovation, plowing back 10% of its sales revenue into R&D.

# AERONAUTICS

GMV is a tried-and-tested supplier of products and services not only for leading aeronautical manufacturers such as Airbus, but also for providers of air navigation services and for regulatory authorities such as Spain's air-navigation authority ENAIRE, the International Civil Aviation Organization ICAO, and Eurocontrol. GMV participates in the main aeronautics programs, providing engineering services and developing state-of-the-art aeronautical systems and software while always adhering to the highest quality standards. In particular GMV has spearheaded the development of aeronautical approach and landing systems based on Global Navigation Satellite Systems (GNSS) and is one of the few European companies with comprehensive knowledge of advanced avionics architectures, testbeds and verification systems and their associated regulations.

The most important areas of activity within the aeronautics sector are the following:

- Flight dynamics
- Development of safety critical software and hardware (DO-178 / DO-254)
- Avionics and equipment design
- Integrated Modular Avionics (IMA)
- Remotely Piloted Aircraft Systems (RPAS)
- Engineering and operator- and pilot-training simulators
- Testbeds
- Approach and landing systems
- GNSS technical assistance for air-navigation operators and authorities

## SOME KEY PROJECTS

■ **ATLANTE RPAS.** ATLANTE is a tactical long-endurance unmanned air vehicle. GMV is responsible for developing the Flight Control Computer (FCC), which sees to the navigation, control and guidance of the aircraft, and the Automatic Take-Off and Landing system (ATOL) within the Ground Control Station (GCS).

■ **GMV has developed software modules** for full flight simulators, part task trainers and CBTs, and has participated in aeronautical programs such as Eurofighter, CN-235, C-101, C-295, A400M, A-330 MRTT, F-18 MLU, Super Puma, C-130 and ATR-42.

■ **Safety Critical Software for Airbus Military.** GMV collaborates with Airbus Military in the development of safety-critical airborne software for A-330 MRTT, A-330 FSTA and A400M. GMV plays a key role in the certification of Airborne Software compliant with the RTCA/DO-178 standard.

■ **Tactical Mission Systems.** GMV is responsible for the development and integration of several subsystems for the airborne and ground segments of the Full Integrated Tactical System (FITS) of the C-295 aircraft for various nations. GMV has also developed mission software for the TIGRE and NH90 helicopters.



GMV develops the flight control computer (FCC) of the RPAS ATLANTIS

■ **GBAS and ILS simulation and inspection.** GMV has developed GBAS-station simulating systems for Eurocontrol and has collaborated with AENA (the Spanish Airports and Air Navigation Authority) in certification of the GBAS deployed at Malaga airport. GMV has also developed for AENA an ILS and VOR ground-inspection system at Barajas airport in Madrid and El Prat airport in Barcelona.

■ **GMV develops Electronic Control Units (ECUs) within the logistics systems of the A400M aircraft.** GMV is supplier of the complete ECU (HW and SW) of the A400M crane system, under DO-178 and DO-254 standards.

■ **Integrated Modular Avionics (IMA).** GMV has developed products and tools for numerous IMA projects, such as the ASHLEY project, which aims to develop avionics systems hosted on a distributed modular electronics demonstrator for various types of large aircraft.

■ **Implementation of LPV approaches.** GMV is supporting AENA in the introduction of GNSS-based air operations in Spain. GMV has also developed the European GNSS NOTAM service for Eurocontrol, and has provided the Polish Air Navigation Services Agency (PANSNA) with a solution for monitoring the GNSS navigation service within its territory.

■ **CleanSky2 UBBICK (Utility Building Blocks Integration for Cockpit) Project.** GMV is developing a groundbreaking real-time operating system, ARINC-653, compatible with the most stringent aeronautic certification requirements (RTCA DO-178, Development Assurance Level A) as part of the Large Passenger Aircraft (LPA) demonstrator.

■ **CleanSky2 EMA4FLIGHT and VALEMA projects.** GMV is helping to develop the software of an Electronic Control Unit for flight control with electromechanical actuators (EMA), within the FTB2 regional aircraft demonstrator.

# SPACE

GMV is one of the world's top suppliers working for space organizations and agencies, and also for the major satellite manufacturers and operators.

With over 30 years of experience behind it and nearly 500 satellites carrying its technology, GMV can safely claim to be a technological partner of cast-iron dependability, capable of meeting the most stringent needs under the strictest quality standards. It has now achieved CMMI Level 5 certification, covering the whole range of activities and services within the Space sector:

- **Flight Segment:** System-engineering and mission analysis; Guidance, Navigation and Control (GNC) systems; autonomy and robotics; satellite and mission simulators; ground validation and testbeds; onboard software and independent validation; processors and simulators of astronomy and Earth-Observation instrument data
- **Navigation:** Engineering and algorithms of satellite navigation systems; major global satellite navigation signal-generation and -processing centers and systems; precise positioning solutions and augmentation systems
- **Ground Segment:** Design and integration of complete ground systems; satellite control centers and monitoring stations; science-mission operations centers; orbital dynamics systems; mission planning systems; payload management, optimization and planning centers for telecommunications missions
- **Data Processing:** Instrument processors for Earth-Observation and Science missions; quality-control and calibration systems; space applications, solutions and services
- **Support for operators of space-missions of any type**

## SOME KEY PROJECTS

■ **ESA.** After more than 30 years of ongoing collaboration, GMV has become one of the main suppliers of the European Space Agency (ESA) and has provided its specialist services and solutions for almost all of ESA's missions and operating centers.

■ **EUMETSAT.** GMV is one of the main suppliers of control centers, flight dynamics systems, mission-planning systems, systems for processing the readings of earth-observing instruments and support services of EUMETSAT. Good examples are its contributions to the missions EPS, Sentinel 3, MTG and EPS SG; in the latter two GMV is the prime contractor of the ground control segment, including monitoring stations in the case of the EPS-SG mission.

■ **NASA.** The US space agency has selected GMV's mission planning products for the LRO (Lunar Reconnaissance Orbiter) moon mission and its flight dynamic systems for NOAA's GOES-R mission. GMV also provides mission control technology for the Landsat and TDRS missions.

■ **EUTELSAT.** GMV is the main supplier for the ground segment of EUTELSAT's satellite fleet, including the control center, flight dynamics systems, management of monitoring stations, and network and access security. EUTELSAT is currently the world's third biggest satellite operator.

■ **CNES.** GMV is a framework-contract supplier of CNES's systems and services, contributing to the development and maintenance of the orbital dynamics systems used by this agency today, including the next-generation SIRIUS system. GMV is also inputting mission-analysis and operational-engineering expertise plus development of onboard software.

■ **DLR.** GMV is one of DLR GSOC and DLR GfRs' main suppliers of engineering and operational services for the Galileo and Columbus missions, the latter representing Europe's biggest contribution to the International Space Station.

■ **Space Exploration.** GMV is playing a standout role in the major technological challenges represented by space-exploration missions such as Exomars and moon missions.



*GMV plays a key role in the development and deployment of the European Satellite Navigation System Galileo*

■ **Galileo/EGNOS.** GMV is one of the companies that has made the biggest contribution to the development and deployment of the European Union's flagship space program. In EGNOS and Galileo GMV is responsible for the processing core and fundamental, performance-affecting and system-enabling components in the ground structure. Equally noteworthy is GMV's leadership in important centers such as the GNSS Service Center, Galileo's Time and Geodetic Validation Facility (TGVF), the SAR Signal Return Center and the Galileo Reference Center.

■ **Copernicus.** GMV is making a notable contribution to the European Union's Copernicus program, including satellite simulators, instrument processors, control centers, orbital dynamics systems, mission planning and precise orbit-determination services. GMV is also leading a European Commission framework contract for definition of the next generation of Copernicus.

■ **Telecommunications.** In 2010 GMV became the world's number one independent supplier of ground control systems for commercial telecommunications satellite operators, holding onto this ranking ever since. Over 250 satellites of the main operators on the five continents are being operated today with GMV's control systems. This number will soon be notably increased when the satellite operator Oneweb's new control center comes into operation.

■ **Space Traffic Management.** GMV is playing a key role in ESA's space surveillance program, with a standout leadership of operations and datacenters. GMV is likewise leading development of the Spanish Space Surveillance Center. Lastly, GMV is providing anti-collision and safety services within the commercial market.

■ **Technology.** GMV is playing a crucial role in technology-developing space missions such as PROBA-3 (formation flying), AIM (asteroid impact), and OPS-SAT. In space robotics too, GMV is leading the European Union's PERASPERA R&D program.

■ **NEW SPACE.** GMV is now driving some of the main New Space initiatives. It is developing Oneweb's control center for its thousand-strong satellite constellation. It is also the technology partner of PLD SPACE, which is developing a low-cost launcher.

# DEFENSE AND SECURITY

GMV is a tried-and-tested supplier of armed forces and international defense and security organizations. Its activities in this field take in the engineering, design, development, integration, testing, verification and maintenance of defense and security systems covering their whole life cycle.

The products and services provided in the defense and security area cater for the most demanding needs and are developed under strict quality standards. They cover the following areas:

## DEFENSE

- Engineering and development of C&C systems and integration with C4ISTAR
- Intelligence systems, signal and data processing and fusion
- Cyberdefense
- Training, operational-research and R&D simulators
- Development of military navigation systems based on GPS, EGNOS and Galileo PRS
- Onboard equipment, military avionics software and testbeds
- Logistic and maintenance services for systems and software
- Military space applications

## SECURITY

- Perimeter-surveillance and access-control systems
- Border protection and surveillance systems
- Advanced security systems incorporating new technologies
- Emergency and crisis management systems, 112, SOS centers
- Monitoring and management systems for vehicles and personnel of security forces
- Onboard security and video-surveillance systems

The company, its personnel and the various sites and facilities have all obtained the necessary security clearance for carrying out classified projects.

## SOME KEY PROJECTS

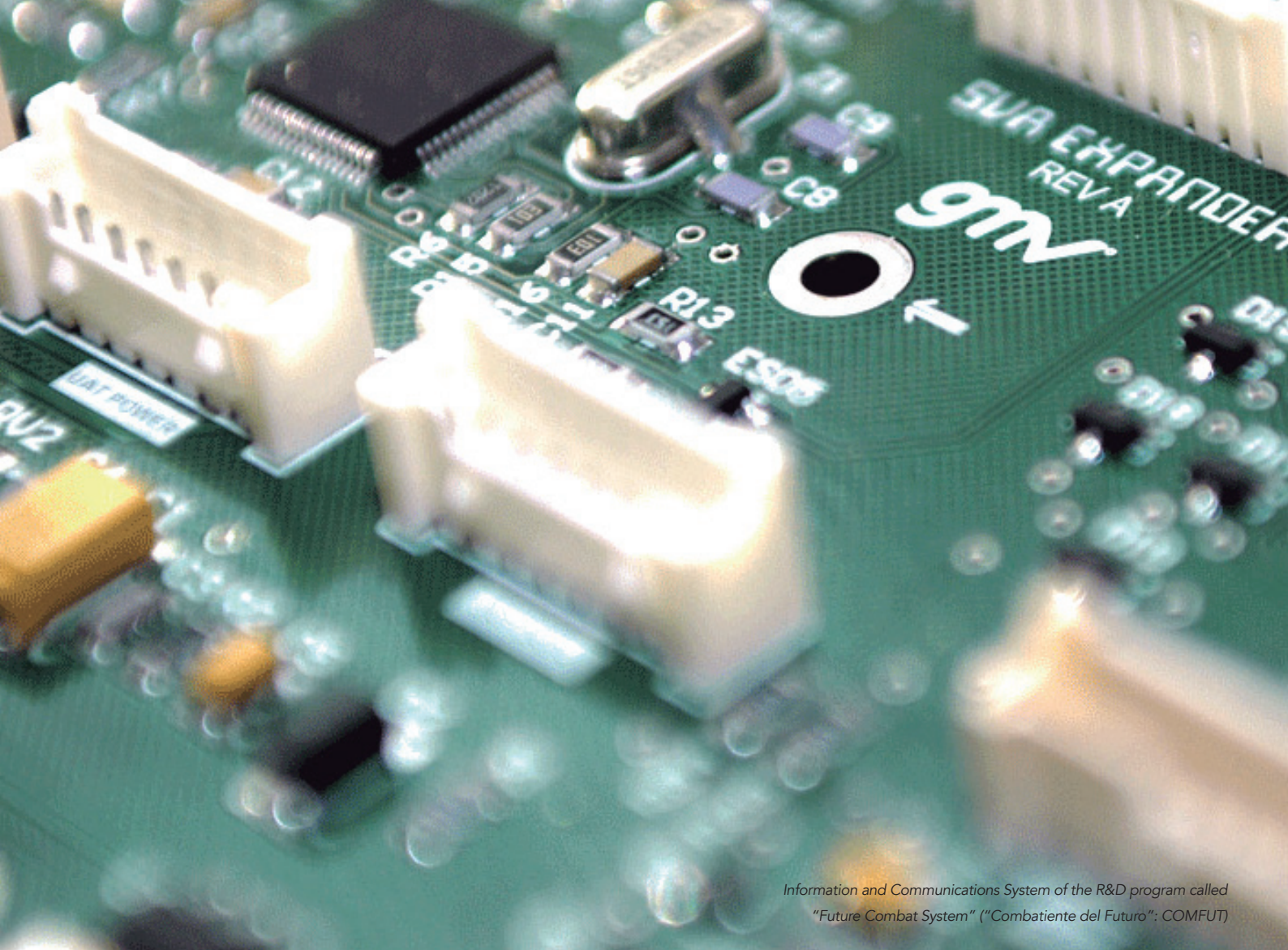
- **Command and control system for the European External Action Service (EEAS).** GMV has won the contract for maintenance and development of the C3I System used in EU-coordinated international missions.

- **JISR Systems.** GMV's solution provides the intelligence community with the necessary tools for exchanging ISR information and establishing workflows to ensure proper interaction in all phases of the JISR cycle, in due accordance with the interoperability mechanisms developed and demoed in the multinational program MAJIC. GMV is the Spanish MoD's provider of JISR systems for rollout of this capacity at NATO level, having supplied several JISR licenses directly to NATO.

- **EUROSUR network** for the European Border and Coast Guard Agency (FRONTEX, shortened from the French *Frontières extérieures*). GMV is developing this system as part of the EU's European Border Surveillance System. This project sets up an operational and technological environment to enhance border awareness and control and boost the response capacity.

- **Combat C2 Systems.** GMV is leading the EDA-STASS-II study for defining a reference open architecture for soldier systems. GMV was responsible for the design and development of the Communication and Information System (CIS) software of the Spanish Future Combat System and is now playing a key role in the development of the Spanish MoD's Foot-Soldier System program.

- **Advanced Navigation Systems.** GMV is responsible for the design and development of the RPAS ATLANTE navigation system, the SENDA navigation system for the F110 frigate as well as the navigation system of the Spanish army's new 8x8 vehicle.



Information and Communications System of the R&D program called "Future Combat System" ("Combatiente del Futuro": COMFUT)

■ **Signals intelligence systems (SIGINT).** GMV is the main supplier of SIGINT data fusion and processing centers of the Ministry of Defense.

■ **TALOS Command and Control system for field artillery of the Spanish army and marine infantry.** Modern, automated C3I system for help in the planning, targeting and coordination of artillery.

■ **Landing craft control system for the Spanish navy.** The remit of this system is to control landing craft in the assault phase of any amphibious operation. The system has been fitted on the amphibious assault ships Galicia and Castilla as well as on the Spanish navy's LCMs and in the amphibious vehicles of the marine infantry.

■ **R&D and operational research simulators for the Spanish navy.** GMV has been collaborating with the Spanish navy for over 18 years in the development of advanced simulators of engineering and operational research for antimissile and antitorpedo defense. In 2015 GMV began working on the simulation and testing environment of the new Infra-Red Search and Track (IRST) sensor of the F110 Frigate.

■ **Access-control systems for the Spanish MoD.** For the Ministry of Defense, GMV has developed and installed a system for integral access control for personnel, visitors and vehicles, plus surveillance and emergency management.

# HEALTHCARE

Over twenty years ago now GMV decided to bring its proven R&D expertise to bear on the challenge of improving the world's health. Drawing on its knowledge built up in robotics and space simulation, and working in close collaboration with hospitals, healthcare research institutes, universities and flagship organizations like Innovative Medicine Initiative (IMI) and EIT Health, it has now developed trailblazing inhouse products and services while driving cutting-edge projects.

GMV's healthcare portfolio is bulging. Its telemedicine products and services now range from specific applications for telepediatrics, teleophthalmology, telerehabilitation and the care of chronic patients through platforms for the mining of epidemiological and clinic data based on advanced analytics to the design of surgical simulators and intraoperative radiotherapy planners.

- Epidemiological- and clinical-data-mining solutions: Big Data and Smart Data
- Cybersecurity services and solutions
- ICT-based mobility solutions
- Medical-image management and processing solutions
- Remote healthcare systems (telemedicine) working on both a patient-physician and physician-physician basis: telepediatrics and teleophthalmology platforms
- Intraoperative surgery and radiotherapy planning and simulation systems
- Monitoring and follow-up systems for chronic, multi-pathology patients
- Telerehabilitation systems
- Mobility systems, humanitarian-aid-infrastructure and emergency-management systems.
- Technology consultancy and optimization of processes

## SOME KEY PROJECTS

■ **antari**. GMV's Digital Health Suite, **antari**, is set up as a remote healthcare platform (telemedicine) that can be adapted to various scenarios (home, health centers, care homes, schools, high-street opticians, etc.) plus a clinical and epidemiological data-mining platform (hospitals, pharmaceutical labs, insurance companies...).

■ **HEXIN**, Big Data for the mining of clinical and epidemiological data. Platform rolled out for the Galician Health Service (*Servicio Gallego de Salud*: SERGAS). This represents the first ever regional use in Spain of a healthcare Big Data infrastructure for clinical evidence purposes.

■ **HARMONY**, Big Data for blood diseases. Project to improve and personalize the treatment of patients with chronic lymphocytic leukemia, non-Hodgkin lymphoma, myelodysplastic syndromes and blood disorders in babies and children. GMV is designing and developing a Big Data platform for mass processing of information to help physicians in their decision-making procedures and researchers in the development of new drugs.

■ **radiance™** is the first ever intraoperative radiotherapy (IORT) planning system of this type in the world. It provides the exact parameters for pre-surgery application of intraoperative radiotherapy. It calculates the Dose-Volume Histogram (DVH) for all indicated risk regions, thus concentrating radiotherapy on the tumor and sparing healthy tissue. The system has obtained CE Marking clearance for marketing in all European Union member states, and also clearance from the US Food and Drug Administration (FDA). **radiance™** has now been taken up by some of the most important hospitals in Europe, the Middle East and the United States.

■ **MOPEAD**, Big Data for mind illnesses. Project for clinical-scientific research into Alzheimer's disease, GMV is developing a web app based on the Citizen Science concept for recruitment of early-phase Alzheimer patients. It is also deploying and implementing a Big Data system for analysis of the data recorded from these patients.



The ICT are essential for the development of future healthcare:  
Predictive, preventive, personalized and participating

■ **Renewal of ICT and anti-fraud systems of COOSALUD, Colombia**  
Consultancy service for setting up a computerized system for online authorization of healthcare-treatment entitlement under COOSALUD, one of Colombia's Subsidized Health Promotion Entities (*Entidad Promotora de Salud Subsidiada*).

■ **eHealth Vision. My Vision 360, telemedicine for an ophthalmology service.** A trailblazing teleophthalmology platform allowing for real-time video conferences from high-street opticians.

■ **Rehabilita, telemedicine for rehabilitation services.** This GMV-led CENIT project of the Industrial Technology Development Center (CDTI in Spanish initials) incorporates ICTs into the rehabilitation process. It allows administration of individualized, ubiquitous treatment under a patient-physician interaction platform.

■ **FACET, telemedicine to prevent and mitigate frailty.** Project applying GMV's inhouse telemedicine platform, **antari**, for prevention and mitigation of the functional deterioration of 13.5 million Europeans of advanced age, doing so by means of remote monitoring and surveillance.

■ **KidsCare, telemedicine for a pediatrics service.** A telepediatrics service for infant- and primary schools.

■ **Telemedicine for traffic-accident diagnosis and treatment-prescribing service.** Rolled out in the specialist clinic of Grupo Campbell, the Colombian leader in the treatment of traffic-accident victims.

# CYBERSECURITY

GMV has been Spanish leader in the development of network security services and technologies and information systems for over 20 years now. GMV provides integrated cybersecurity engineering and solutions, security governance and intelligence centers, managing the technological risks and ensuring compliance with applicable legislation.

- Protection of critical infrastructure
- Security engineering, services and solutions
- Cybersecurity in industrial environments
- Security audits and vulnerability management
- Definition and rollout of Information Security Management Systems and Business Continuity Plans
- National Security Scheme compliance plans
- CSIRT managed services

## SOME KEY PROJECTS

■ **Cibersecurity for ESA.** GMV has been chosen by the European Space Agency (ESA) to conduct an analysis of cybersecurity risks and set up a policy that establishes a series of control recommendations for the different types of space missions. GMV's inhouse digital surveillance solution, **atalaya**, based on the compilation of company information using multiple sources (search engines, blogs, social networking sites, forums, P2P networks, anonymous networks), will be used to cull vital information for this project.

■ **SUAC3I.** A GMV-led, European-Commission-brokered project for providing Critical Infrastructure Control Center users with a secure authentication system by means of transparent, secure access to control posts without forfeiting necessary screen visibility.

■ **SIEM\_NG.** GMV has drawn on all its Big Data, artificial-intelligence and cybersecurity experience to set up a robust and flexible system that expands and complements traditional SIEMs, grafting on vast amounts of assorted information and categorizing the behavior of users and systems, flagging up any anomalous situations. This solution, pushing back the SIEM envelope, enables any organization to enhance its security on the strength of diverse and heterogeneous information sources.



GMV is leading the development of ICT security services and technology in Spain

■ As an expert in managed security services, GMV is responsible for running various projects with the Regional Authority of Castilla y León, the Regional Authority of La Rioja, the National Cybersecurity Institute (*Instituto Nacional de Ciberseguridad*: INCIBE) and Red.es to cut down the probability of security incidents, pinpoint room for improvement, analyze and assess risks and come up with answers to potential threats. In this competitive business GMV always aims to stand out from the pack, offering intelligent 24x7 monitoring services to head off problems and deal instantly with any incidents. It also inputs its vast experience in the definition and development of e-government solutions.

■ GMV boasts CERT (Computer Emergency Response Team) certification granted by the prestigious US university Carnegie Mellon. GMV-CERT now has a wealth of experience and boasts a group of experts responsible for carrying out preventive and reactive measures to thwart information-system security threats of both national and international clients. GMV's CERT provides services of monitoring, digital surveillance, vulnerability management, incident management and evidence management.

■ GMV's industrial-cybersecurity business goes from strength to strength. The firm continues to provide a host of specific technologies and services to harden the security of industrial environments and protect critical infrastructure. GMV's client portfolio includes such giants as Endesa and Iberdrola, for whom it provides cybersecurity services to protect their information systems.

# INTELLIGENT TRANSPORTATION SYSTEMS

GMV is a leading and trailblazing firm in the design, development, implementation and rollout of Intelligent Transportation Systems (ITS) based on IoT, mobile communications and GNSS, guaranteeing compliance with sector standards such as GTFS, SIRI, NeTEx and CAN bus. Not only does GMV offer all-in, turnkey, ready-to-go solutions, but it also gets involved in the complete development of the project, incorporating its own inhouse hardware and software along the way.

GMV provides solutions for all the various means of transport and types of fleets: public transport, railway transport, paratransit fleets and the automotive industry.

- Advanced passenger-transport fleet management systems
- Transport-service scheduling and planning systems
- Fare and ticketing systems (electronic fare collection systems for vending and validation of various types of tickets, farecards and other travel credits)
- Ticket Vending Machines (TVMs) and point-of-sale management systems
- Demand-response transport management systems
- State-of-the-art passenger information systems: onboard, bus-stop, APPs, webpages with real-time information and trip planners
- Eco-driving systems
- Advanced fleet-management systems for railway transport (**SAE-R®**)
- Onboard video-surveillance (CCTV) systems
- Onboard digital intercom and PA systems
- Special fleet-management systems: public services, emergencies, maintenance, distribution, logistics, etc.
- Advanced car telematics units
- Electronic tolling and information systems on toll-roads, highways and at bridges and tunnels
- Connected-car and autonomous-vehicle solutions: software and end-2-end services, cybersecurity, advanced positioning technologies
- Advanced mobility services: PAYD/UBI insurance, car-sharing, car-pooling, MaaS

## SOME KEY PROJECTS

- **Advanced fleet management systems for public transport.** GMV is the world's number-one supplier of systems of this type, now fitted on over 34,000 vehicles (over 25,000 of public transport) of 750 clients from over 30 countries on the five continents.

- **Fleet management platform (*Palview/Moviloc®*).** Complete platform for internet-based fleet management and tracking, incorporating state-of-the-art GIS display technology, GPS tracking and fleet-management web applications. The **Moviloc®** service operating on this platform has now been installed on over 16,000 vehicles.

- **Planning and scheduling platform (*gmv planner*).** This is now being used for planning about 95% of Polish railway operators' passenger services and 70% of their freight services. **gmv planner** is also the leading planning solution for Poland's bus fleets, with a notable takeover too in other countries such as Spain, Malaysia, Kazakhstan and Finland.



**SAE-R**<sup>®</sup>, GMV's fleet management system for railway transport

- **Advanced railway fleet-management system (SAE-R<sup>®</sup>)** for national operators like Spain's RENFE (over 1800 trains equipped), Morocco's ONCF (over 400 vehicles) and the high-speed Mecca-Medina line. **SAE-R<sup>®</sup>** is also being used for running urban services such as the tramlines of Warsaw, Zaragoza and Kaohsiung (Taiwan) or Sydney's light rail transit (LRT) line.

- **Electronic fare collection system** for the main public-transport authorities and operators, clocking up more than 1.7 billion journeys validated in over 100 cities of Europe, Asia, America and Africa.

- **Services for the automotive industry.** GMV provides software- and hardware-engineering services for Tier-1 suppliers and OEMs. GMV's inhouse firmware is currently installed in over 2 million TCUs (Telematics Control Units) around the world.

# ICTs FOR THE PUBLIC AND PRIVATE SECTOR

GMV designs, develops and implements state-of-the-art ICT solutions to improve the processes of leading organizations, acting as long-term technological partner. GMV's proven ability to come up with secure solutions has won it the trust of government authorities and major companies.

This sector is continually developing at breakneck speed and our range has to be made increasingly complete and groundbreaking to keep apace, anticipating market needs on the strength of constant research and mastery of new technologies.

- Web portal platforms, intranet, document management and contents management
- Cybersecurity services
- e-Government solutions
- Online channel and mobile applications
- IoT solutions
- Corporate email and agenda solutions and synchronization with mobile devices
- Open Data platforms
- Cloud solutions
- ICT infrastructures design, implementation and management
- BI and Big Data solutions
- Mobility and messaging solutions
- User experience and usability consultancy
- 7x24 support and operation services
- Open source software

## SOME KEY PROJECTS

### ■ Web platform of Barcelona's Autonomous University (*Universidad Autónoma de Barcelona - UAB*).

Design, development and implementation of UAB's web platform, designed for the rollout of a great number of services, both intranet and extranet, and taking in the security and system-protection aspects. More than 150 applications have been set up on this platform, both internal and external. This upgrade has placed UAB's portal at the top of the university internet ranking in Spain, sometimes recording the highest number of worldwide hits.

■ Single Administrative Information System (SIAU in Spanish initials) of the Regional Council of Castilla y León (*Junta de Castilla y León*). GMV develops and upgrades this platform, upon which over 60 intranet and extranet apps have been developed, making the corporate web portal much more user friendly. The Junta can therefore safely claim to run one of the most modern and advanced websites in Spain.

■ Management of ICT infrastructure for Madrid's Autonomous University (*Universidad Autónoma de Madrid*): UAM) Implementation, management and maintenance of diverse ICT infrastructure such as the UAM virtualization platform, the email system and database infrastructure.

■ **RENLand.** GMV has developed the RENLand solution for REN - Redes Energéticas Nacionales. The main objective of RENLand is to allow in an integrated and expeditious way the management of the contracts related to the maintenance of the vegetation in the areas of easement of powerlines and pipelines, as well as of the properties of REN. RENLand consists of a collaborative solution developed on an ESRI geographic information infrastructure. It allows the registration and monitoring of the activities of the maintenance teams in the field through the usage of mobile devices, thus streamlining the whole process of gathering and sharing information.

■ **Lisboa Interativa.** GMV developed the Lisboa Interativa (Interactive Lisbon) platform for Câmara Municipal de Lisboa (Lisboa Municipal Council). Lisboa Interativa consists of the municipality's geographic data exploitation and management platform. This system, developed in a modular way to allow the growth and evolution of the functionalities, presents both an external portal and an internal collaborative side. Lisboa Interativa and some of its related applications, also developed by GMV, were awarded for their innovative character by institutions such as IDC.



GMV designs, develops and implements the most advanced ICT solutions

- **Open data platforms.** GMV is one of the prime specialists in open data platforms, having set up such systems as that of the Regional Council of Castilla y León (*Junta de Castilla y León*) or the new platform of Red.es (*datos.gob.es*). This new open-data platform has become number one at national level. Red.es is hence a sure indication of the government's growing interest in improving public services and boosting transparency.
  - **Public-sector email solutions.** GMV is one of the Spanish market's foremost specialists in email solutions based on open-source software. It has set up and run email systems in a wide variety of organizations such as the institutions CSIC and AEMET, the universities UAM and Universidad de Huelva, the regional authorities Junta de Andalucía and Junta de Comunidades de Castilla La Mancha, the Guardia Civil policeforce plus other public entities and the satellite operating company Hispasat.
  - **Portal do Regante.** GMV has developed Portal do Regante (Irrigation Portal) for EDIA, Empresa de Desenvolvimento e Infraestruturas do Alqueva (the Alqueva Development and Infrastructure Company). This geographic-based portal offers a public and an extranet strand, allowing EDIA to streamline the relationship with its associates and the irrigation community in general. It offers a channel of expeditious communication and information sharing in support of the agricultural activity.
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- **MásMóvil,** Spain's fourth biggest converged telecommunications operator, asks GMV to set up its new MásMóvil and HappyMóvil commercial website. GMV develops a website based on cloud architecture entirely rolled out on Amazon Web Services, providing a highly reliable, scalable, secure and low-maintenance-cost platform.
  - **For Amazon Web Services,** GMV rolls out infrastructure projects supporting both the company's internal services and Amazon Web Services (AWS) offered to its customers (e.g. CloudFront or Direct Connect). These projects are based mainly on the implementation of fiber equipment, with its corresponding cabling, and integration with the network infrastructure of each datacenter, with the aim of improving performance and the availability of the services in different geographical areas: Madrid, Berlin, Munich, Marseille, Prague, Stockholm and Frankfurt.

# BANKING AND INSURANCE

Major banks and insurance companies trust in GMV's expertise to ensure such a crucial aspect as the security of their information networks and systems. GMV also provides specialized solutions for critical processes such as fraud prevention.

GMV's range here takes in all the following activities:

- Cybersecurity
- Fraud prevention
- Risk and law abidance
- Big Data – Cyber-analysis
- Security in Cloud environments
- Digital identity management
- Digital payment solutions
- Financial self-service security
- All-in corporate-security management - FARO Security

## SOME KEY PROJECTS

- **Specialized ATM security, *checker ATM Security*<sup>®</sup>.** This solution is conceived as a virtual barrier against any external ATM attack. **checker** enables banks, using a centralized management system, to keep track of which applications are being run on any ATM, which local or remote resources are being accessed and which other systems are being communicated with. **checker** has now been taken up in many countries round the world: Spain, USA, Russia, Italy, Mexico, Brazil, Colombia, Argentina, Chile, Ukraine, Venezuela, India, Thailand and Romania, among others. The system has now been fitted in nearly 120,000 ATMs around the world.

- **e-laCaixa.** GMV provides e-laCaixa with technological consultancy on the state of the art of handheld technologies and services now available or in the pipeline in Spain and other countries. GMV is also carrying out ITNow's infrastructure-maintenance and -operation projects.

- **Sociedade Interbancária de Serviços.** Several years ago Portugal's Society of Interbank Services entrusted GMV's Portuguese subsidiary with the task of updating and upgrading the platform supporting the interbank exchange of credit-card information.



GMV develops **checker ATM Security**<sup>®</sup>, a solution to protect ATMs from any external attack

- **Global management of physical security.** Faro Corporativo (Corporate Lighthouse) is an overall security management system of Grupo BBVA for monitoring all security incidents that may crop up in the group's head offices and banks around the world. It is also a detailed inventory of all existing security devices and a tool for planning surveillance services, ranging from budgets through detailed billing to assessment of suppliers and penalties for any breaches. Faro Corporativo also incorporates a document manager that stores all documentation associated with any incident (reporting of the incident, client documentation, cash reconciliations, photos, videos, etc) and other types of documentation associated with each bank and building. Faro Corporativo provides different types of reports and dashboards and is designed as a multi-country, multi-currency platform, ensuring the proper security vision of a major multinational group.

■ **The Inter-American Development Bank (IDB)** turns to GMV's Big Data and Machine Learning expertise for defining a strategy for extracting value from its stock on information by analyzing its systems, processes and data.

■ **Artificial intelligence for fraud detection.** Development and application of groundbreaking artificial-intelligence technology (dubbed "Artificial Immune Systems") for early fraud detection in important banking firms.

■ **GMV hardens Banco Sabadell's corporate email security,** protecting the bank from a slew of threats and vulnerabilities such as malware, spam and phishing.

## OUR PROPOSAL

- Listen to our clients' needs
- Provide groundbreaking solutions capable of meeting these needs
- Take a flexible attitude towards meeting these needs
- Give our support throughout the whole lifecycle of the systems provided
- Add value to clients' systems and processes
- Keep up a total commitment to quality throughout

## OUR STRENGTHS

- Solid reputation as a supplier and partner that keeps its word
- Completely client-centered
- Quality of our human teams
- Capacity of technology transfer between markets
- Permanent orientation towards excellence and quality
- Capacity of rising to challenges



## COMMITMENT TO QUALITY

GMV's various firms have all obtained the requisite certificates to suit their areas of activity and specialization:

### **GMV Aerospace and Defence S.A.U.**

CMMI Level 5 / UNE-EN ISO 9001:2008 Quality management / PECAL/AQAP 2110, PECAL/AQAP 2210 & PECAL/AQAP 2310 Specific for purposes of defense / UNE-EN 9100:2010 Quality systems in the aerospace and defense sector / UNE-EN ISO14001:2004 Environmental systems

### **GMV Insyen AG**

NRTL-C/US / ISO 9001:2008 Quality management

### **GMV Soluciones Globales Internet S.A.U.**

UNE-EN ISO 9001:2015 Quality management / UNE-ISO/IEC 20000-1:2011 IT service management / ISO 13485:2003 Health product quality management: intraoperative radiotherapy planning systems. / UNE-EN ISO14001:2004 Environmental systems / ISO/IEC 27001:2013 Information security management / ISO 22301:2012 Business continuity management. Resilience / UNE 166002:2014 R&D management

### **GMV IS Skysoft S.A.**

CMMI Level 5 / UNE-EN ISO 9001:2015 Quality management / ISO 14001:2015 Environmental systems / ISO/IEC 27001:2013 Information Security management / UNE-EN 9100:2010 Quality systems in the aerospace and defense sector / UNE-EN ISO 9001:2008 Quality management

### **GMV Innovating Solutions, Inc.**

CMMI Level 5 / UNE-EN ISO 9001:2008 Quality management / UNE-EN 9100:2010 Quality systems in the aerospace and defense sector

### **GMV Innovating Solutions Sp.z o.o**

CMMI Level 5 / UNE-EN ISO 9001:2008 Quality management

### **GMV Innovating Solutions S.R.L**

UNE-EN ISO 9001:2008 Quality management

### **GMV Sistemas S.A.U.**

UNE-EN ISO 9001:2008 Quality management / UNE-EN ISO14001:2004 Environmental systems / UN/ECE N. 10

GMV has also undertaken to carry out its activity within the parameters of sustainable development, keeping a proper control over all the environmental aspects involved in its work. Hence the fact that the Environmental Management System, covering the activities in GMV's central Madrid site, conforms to the UNE-EN ISO14001: 2004 standard. In 2015, too, and with the aim of cutting down energy consumption and thus curbing any environmental impact, GMV implemented and certified the power management system of its Madrid office under the energy-efficiency ISO 50001 standard.

GMV

# IN THE WORLD

- BRANCHES AND OFFICES
- PROJECTS





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