Annual Report 2019

gmv®
INNOVATING SOLUTIONS

GMV business group believes that behind each new need, behind every new problem, there is a challenge and a chance to innovate. Technology is not an end in itself; it is the means to make something new or to 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 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.

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Letter from the President

MÓNICA MARTÍNEZ

In summer 2019 GMV opened a new Tres Cantos office to cater for the company's nonstop growth over recent years. In this past year we upped our turnover by over 20%, doubling it in the last five years. Our staff has been growing accordingly, adding up to well over 2000 highly skilled professionals by the end of 2019.

All these professionals find in GMV an attractive working environment, tackling challenging, cutting-edge projects that ensure a continual growth in their skillsets and professional development, both individually and within the team. The ambition, inquisitiveness and eagerness of our professionals to take on new challenges have enabled us to break into many diverse business areas, pushing back the envelope in each one.

In space GMV is participating in long-running programs like Copernicus, space surveillance and tracking (SST), government and commercial communications satellites and far-reaching exploration projects like Mars Sample Return or planetary defense projects like HERA, phasing new functions into our existing solutions and investing in new skills, for example with the development and certification of the avionics of the microlauncher Miura. In aeronautics we are participating in the development of flight systems for manned aircraft but also for drones, as well as solutions for safe integration of drones into the airspace. In defense and security our systems of control, data fusion, secure communications and information and navigation have been taken up by both national and international organizations. Our skills in areas like automation and robotics, which originally developed in the space sector, are spilling over into other sectors such as Industry 4.0. Technologies like IoT, Big Data and Artificial Intelligence are now being applied across the board. Our new range of public-transport solutions draws on cutting-edge software- and hardware-technology to lever intermodal transport and diverse forms of fare payment for passengers all over the world. In healthcare too we boast products that are unique in the world, often resulting from technology transfer and spinoff ideas from other sectors and the collaboration with clinicians and health researchers. Witness our ***Antari*** telemedicine platform that allows family doctors to remotely treat patients in their homes as well as to tele-consult the required specialists in each case, integrating full access to medical data and documentation.

A good deal of our growth in recent years has been fueled by major international projects calling for a blend of advanced technologies from several of GMV's areas of expertise.

Thus GMV is leading the maintenance and upgrades of Galileo's ground control segment, successfully fulfilling our all-time biggest contract. This contract was won back in 2018 on the strength of our proven excellence in satellite control programs but also our standout cybersecurity skills, widely proven with clients from other sectors like finance, pubic administration or defense and security.

GMV is also leading several Galileo mission segment centers and has built up a profound knowledge of Galileo in particular and satellite navigation systems in general. These skills, taken together with our experience in onboard automotive systems, our mastery of cybersecurity and experience in the certification of critical systems, all came together this year to win us another significant project, this time in the area of autonomous driving. The solution now being developed by GMV for BMW's new generation of autonomous vehicles will consist of onboard positioning software and a GNSS correction service to be run in secure infrastructure using data from a global network of stations. The upshot is a positioning system of the utmost precision and reliability, representing GMV's biggest ever product-development investment.

A comprehensive skillset, hard to find in any other company, together with our robust corporate structure, an unflinching determination to achieve excellence and a thoroughgoing quality control enable GMV to successfully carry out the increasingly complex projects our clients entrust us with. We take them on with ambition, inquisitiveness and enthusiasm.

Mónica Martínez

Letter from the CEO

JESÚS B. SERRANO

GMV's strategic development stayed bang on course this year. All major projects awarded to the company in 2018 were performed largely to plan, while further development and growth were sought and found elsewhere. Both turnover and EBITDA are up on 2018, chalking up two figure growth (18.2% and 16.1%), the former reaching €236 million and the latter soaring past €14.2 million. Net profit increased by 23% to €6.3 million.

Although commercial activity has once more improved on the previous year's figure, our new-contract rate, measured as a multiple of annual sales, is down on 2018. This was due to the huge amount of tenders still to be decided, adding up to 2.7 x the new-contract figure. Even so 2019's end-of-year order book recorded a figure of 1.07 x turnover. This bulging order book, taken together with the fact that these pending tenders include some really big projects that are highly likely to fall our way, means the prospects are bright for the coming year and GMV's longer-term future.

Client-centeredness. One of GMV's hallmark traits. And we are true to our word. Last year's annual-report letter stressed the award of the contract for maintenance and upgrading of Galileo's ground control center in its operational phase; we said back then we were well aware of the responsibility we were taking on and were determined to come up to scratch. One year later we can safely say that, thanks to the motivation and dedication of the whole team GMV, we have ticked off all the 2019 milestones. For us this contract was a great challenge and is now turning out to be a great success. We also feel really proud of having fulfilled expectations and repaid the trust placed in us by ESA, GSA and the European Commission.

GMV's competitiveness is based on technological development and innovation. The company's sustainable growth, in turn, is based on a multidirectional internal technology transfer model: harnessing technology developed in one area for application with other customers, in other geographical areas or even other markets. GMV has been developing satellite navigation technology since the end of the eighties, including not only space-infrastructure technology but also technology for various high-performance applications in a very diverse range of markets. The development of critical software, for its part, has featured in GMV's systems produced since the early nineties in all the sectors we trade in (space, defense, transport, automotive, telecommunications, banking, etc.). Last but not least GMV's cybersecurity technology, first developed in the finance sector over twenty years ago, is now holding us in good stead not only in this original sector but also in defense, security, space and even the automotive industry.

All these pieces of GMV's strategic puzzle came together in the BMW contract awarded to us in 2019: the high-precision and -integrity GNSS system for the German carmaker's new generation of autonomous vehicles. The system to be developed by GMV includes the critical positioning software and a GNSS correction service to be run in secure infrastructure using data from a global network of stations. The performance requirements for this system are right at the cutting edge of what today's technology can achieve. One of our watchwords, after all, is "Passion for challenges; a chance to innovate".

BMW did not even know GMV when the tendering process kicked off, but someone clued them in. After a fiercely competitive process, in which all the abovementioned technological skills came good, GMV's satellite-navigation expertise was apparently the clincher. BMW valued very highly too, as could hardly be otherwise, our customer base, our client references and the sheer importance and criticality of the systems developed in the various sectors we trade in.

We have focused on these two contracts because they are a clear sign of GMV's values and strategy, which we roll out in all our activities. GMV contributes towards all types of space missions: earth observation, navigation, telecommunications, science, robotic exploration, manned flights, technological demonstration and launch vehicle demos. We support and facilitate the digital transformation of government authorities and companies from diverse sectors of activity, tapping into our vast store of systems, products, inhouse developments and ICT. In the intelligent transportation systems market we are now chalking up our first successes with our products based on the new strategy launched back in 2016. Finally, in the defense and security market, GMV is playing a key role in the design, development and rollout of operational systems used by the armed forces, law enforcement agencies and multilateral defense and security organizations.

Our thanks go especially to our customers for the trust they have placed in us, growing with each passing year. Once more, special mention here must go to the huge contribution towards GMV's ongoing development made by its 2150-strong staff with their bottomless well of talent, passion and commitment, as well as the fine collaboration of our shareholders, partners and suppliers, without whom we could never tackle the many challenges placed tantalizingly before us.

Jesús B. Serrano

Corporate structure

Grupo Tecnológico e Industrial GMV, S.A.

GMV Innovating Solutions, S.L.

GMV Aerospace and Defence S.A.U. / Aerospace and Defense Markets

Grupo Navegación por Satélite Sistemas y Servicios S.L / Galileo development and exploitation

GMV Soluciones Globales Internet S.A.U. / Telecommunications and e-business Markets

GMV Seguridad Integral S.A.U. / Security Market

GMV Sistemas, S.A.U. / ITS and Industry Markets

GMV Innovating Solutions S.A.S. / Aerospace, Defense, ITS, and Telecommunications Markets of COLOMBIA

GMV Innovating Solutions SARL / Aerospace, Defense, ITS and Telecommunications Markets of FRANCE

GMV Insyen AG / Aerospace, Defense, ITS and Telecommunications Markets of GERMANY

GMV Innovating Solutions Sdn. Bhd. / Aerospace, Defense, ITS and Telecommunications Markets of MALAYSIA

GMV Innovating Solutions B.V / Aerospace, Defense, ITS and Telecommunications Markets of THE NETHERLANDS

GMV Innovating Solutions Sp.z o.o. / Aerospace, Defense, ITS and Telecommunications Markets of POLAND

GMVIS Skysoft S.A. / Aerospace, Defense, ITS and Telecommunications Markets of PORTUGAL

GMV Innovating Solutions S.R.L. / Aerospace, Defense, ITS and Telecommunications Markets of ROMANIA

GMV Innovating Solutions Limited / Aerospace, Defense, ITS and Telecommunications Markets of UNITED KINGDOM

GMV Innovating Solutions Inc. / Aerospace, ITS and Telecommunications Markets of USA

Syncromatics Corp. (GMV SYNCROMATICS) / ITS Markets of USA

Payload Aerospace S.L. / Aerospace Market

Governing bodies

MÓNICA MARTÍNEZ WALTER
President

JESÚS B. SERRANO MARTÍNEZ
Chief Executive Officer

JAVIER LÓPEZ ESPAÑA
Member of the Board

SUSANA MARTÍNEZ WALTER
Member of the Board

FCO. JAVIER MARTÍNEZ CENDEJAS
Chief Finacial Officer

IGNACIO RAMOS GOROSTIOLA
Chief People Strategy & Infrastructure Officer

MIGUEL ÁNGEL MARTÍNEZ OLAGÜE
Chief Business Development & Marketing Officer
General Manager Intelligent Transportation Systems

JORGE POTTI CUERVO
General Manager Space

LUIS FERNANDO ÁLVAREZ-GASCÓN PÉREZ
General Manager Secure e-Solutions

MANUEL PÉREZ CORTÉS
General Manager Homeland Security & Defense

ALBERTO DE PEDRO CRESPO
Managing Director GMV Portugal

RICARDO TÓRRON DURÁN
Member of the Board (GMV Aerospace and Defence, S.A.U.)

Company history

GMV was born in 1984 from the business initiative of Professor Juan José Martínez García. At first GMV centered on the space and defense sectors, taking its initial steps in fields like mission analysis, flight dynamics, control centers, simulation or earth-observation and satellite-navigation, all areas in which GMV is nowadays a leading light worldwide. Starting out as a small group of engineers who won a contract from ESA's European Space Operations Centre (ESOC) in an open international tender, GMV then went from strength to strength, quickly growing into a solid firm running a 100-strong staff by the late eighties. It played a key role in ESA's first space missions and defense programs and provided highly specialized services for the major international satellite manufacturers and operators.

In a few short years the sheer quality of its work won GMV a cast-iron reputation in the European space sector. In 1988 it was declared to be a "Center of Excellence in Orbital Mechanics" by the European Space Agency (ESA).

In the early nineties GMV decided to branch out into other sectors by way of technology transfer. This engendered new business lines in the sectors of intelligent transportation systems, Cybersecurity and telecommunications, and in information-technology applications for the public and private sector. By breaking into these new markets GMV became a trailblazer in fields like internet solutions or satellite-navigation applications, still in their infancy in those days. In the transport field GMV became a pioneer in intelligent transportation systems, developing the first GPS-based fleet tracking and management systems. From the space sector the company thus began to transfer to other markets its knowhow and expertise in control centers, data processing, onboard software, geographic information systems (GISs), satellite navigation, telecommunications services and data networks.

It was also during the nineties that GMV found its feet in the defense and security sector, especially in the fields of command and control systems, simulation and military satellite applications (communications, Earth Observation and navigation).

By the end of the nineties GMV's diversification process had been successfully negotiated; its business structure was solid and its staff had built up to almost 300. Turnover now topped 20 million euros, about 50% of which came from sectors like intelligent transportation systems, Cybersecurity, telecommunications and information technologies.

In 2001 the founder and president of GMV, Professor Juan José Martínez García, passed away. This led to a change in the executive structure of business group GMV; the post of CEO was created while the presidency of the group was taken on by Dr. Mónica Martínez Walter.

In these years GMV embarked on a new stage with a dual objective: firstly to maintain its business independence and secondly to draw up a forward-looking plan that would guarantee ongoing profitable growth both in its traditional business areas and in other new ones. It therefore invested heavily in the development of new products, services and solutions in space, defense, intelligent transportation systems and information technology; the company also decided to break into new sectors and unfurled an ambitious program for internationalizing the longstanding business lines.

As a result of this international expansion policy GMV took a crucial step forward in 2004 with the creation of its US-based company, thus becoming a multinational trading on two continents. The new company focused on the US aerospace market with the aim of becoming a tried and trusted supplier in this sector.

In May 2005 business group GMV upped the stakes in its international growth and development strategy by buying a 58% holding in Skysoft, a Portuguese firm with very similar business lines and target markets to GMV's. In 2007 the operation was completed with the purchase of 100% of Skysoft, its operations then being knitted seamlessly into the rest of the business group.

GMV's new corporate identity was officially launched in September 2006, to bring its image into line with the actual situation of the multinational technology group GMV. The group had by now broken into many new sectors and expanded its business internationally. To make sure the corporate brand did not lag behind this new situation we decided to carry out a thoroughgoing overhaul of the group's identity, unifying all the corporate brands under a single denomination. As a result, all the subsidiaries took on the new GMV brand as a single corporate identity.

In June 2007, GMV purchased a 66% stake in Masisconvi, S.A., a company specializing in the design, development, manufacture and marketing of advanced ticket-vending and fare-collection systems. This transaction allowed GMV to round out its range of passenger-transport telematics, traditionally founded on advanced fleet-management systems. In early 2011 GMV completed the 100% purchase of Masisconvi, S.A. and in 2012 it was wholly integrated into the group structure by means of a merger-based takeover.

In late 2007, giving a new kick to its worldwide expansion, GMV decided to internationalize those business lines that had attained number-one status in the Spanish market, such as the intelligent transportation business. This strategy soon came good; by 2009 the company had won its first contracts in Asia and Eastern Europe. Since then this process has thrived, important new contracts being won in Poland, Malaysia, Indonesia, Morocco, Sweden, Mexico, Chile, United Arab Emirates, Australia and Cyprus, etc.

From 2008 to 2015 GMV's growth slackened slightly but never ceased. Its strong suits of business specialization, unbeatable competitiveness and ongoing internationalization helped it to stave off the worst effects of the worldwide

downturn. During this period important contracts were also won with new clients, such as telecommunications satellite operators like Measat, Azersat, Nilesat and international agencies and organizations like GSA-Galileo-, EMSA, FRONTEX, the UN and EUMETSAT. The company also kicked on in growth areas where GMV had already built up a healthy client portfolio, such as physical security and Cybersecurity, healthcare, automotive software, robotics, big science facilities, Big Data, Internet of Things, testbeds and control and instrumentation.

In July 2015 GMV and the California-based technology firm Syncromatics Corp, a provider of Software as a Service (SaaS) solutions for the intelligent transportation systems (ITS) market, signed an agreement under which GMV made a strategic investment in Syncromatics Corp's capital. One year later GMV's investee company Syncromatics then bought 100% of Mobilitat Works Inc., a technology company specializing in the North American market of ITS-based demand-response public-transport systems and paratransit (special transport services for people with a disability or functional diversity). In 2018, as part of its ongoing strategy of investment and growth in the USA's ITS market, GMV completed its takeover of Syncromatics, which from that moment on began to trade under name GMV SYNCROMATICS. This latest outlay increases GMV's expansion capacity in the USA and consolidates its position in the worldwide ITS market.

In 2016 GMV GmbH, GMV's German aerospace subsidiary trading in the aerospace, defense, ICT and ITS markets, signed a merger agreement with INSYEN AG, a leading German space-missions firm. The resulting company, GMV-INSYEN AG (under the GMV INSYEN brand), was then fully integrated into the whole set of companies making up GMV Group. At the end of 2016 GMV also bought a stake in PLD Space, a young Spanish space startup that has now been working for some years on the design and testing of space launcher technology.

By the end of 2018, on the strength of this international expansion process initiated back in 2004 with the creation of the US company, GMV was running subsidiaries in Germany, Colombia, Spain, the USA, France, Malaysia, The Netherlands, Poland, Portugal, the UK and Romania, plus permanent establishments or project offices in Morocco, Cyprus and Mexico, among others. As of today GMV is a 2000-strong business group established in Europe, the Americas and Asia, trading in several hi-tech sectors with a bulging client portfolio in all five continents.

With this 35-year track record behind it GMV in 2019 still looks to the future with undimmed, upbeat enthusiasm, maintaining its original aim of building up a strong knowledge-based company whose main resource is still the talent, far-sightedness and industriousness of its personnel.

GMV in 2019

Main figures

Total Income:	236.85 M€
EBITDA:	14.22 M€
Net profit:	6.30 M€
Number of employees:	2,176

Activity sectors

GMV provides turnkey systems and solutions, specialist hi-tech products and services. Its activities take in the whole life cycle, ranging from engineering and consultancy services, the design and development of software and hardware, to the integration of systems and subsystems, verification and testing, operational support and maintenance. Through its stable of subsidiaries this business is carried out in eight sectors: Aeronautics, Defense and Security, Space and major installations, Intelligent Transportation Systems, Cybersecurity, Information Technologies for the public and private sector, Telecommunications and Healthcare.

Assessment

In 2019 GMV continues its growing participation in programs to control and manage the use of drones, Remotely Piloted Aircraft System (RPASs), Unmanned Aerial Vehicle (UAVs) and Unmanned Aerial Systems (UASs).

Especially noteworthy is its participation in all the following: ENAIRE's DOMUS project under the European SESAR program; the development of U-space services in projects like the European Commission's EGNSS4RPAS or the SUGUS project, under the aegis of EU's R&D program and carried out by a consortium jointly led by GMV; the award of EDA's SAFETERM project; and development with Aurea Avionics of the unmanned aerial vehicle Seeker. In this area GMV has developed the ***Dronelocus®*** family of products to come up with answers for the growing takeup of unmanned vehicles of this type.

As well as its participation in SESAR, GMV is also involved in another major European aeronautics program, Clean Sky 2, taking part in several projects such as EMAFLIGHT and VALEMA, to develop electromechanical actuators and ECUs for flight control systems; vACCINE, to detect intrusion in communications between the aircraft and air traffic control systems; PASSARO, dealing with materials and structures; and UBBICK, to simplify cockpit utility management architectures.

Throughout 2019 GMV continues to collaborate with the first-tier suppliers of Europe's aeronautics sector, collaborating, among other programs, in Clean Sky 2. Again in collaboration with Airbus, GMV is also involved in diverse areas and capacities for development of the programs of the transport aircraft A400M and C-295, the air tanker A-330 MRTT and the multipurpose Eurofighter aircraft.

ACTIVITIES 2019

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 airport and 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 development of aeronautical approach- and landing-systems based on satellite navigation 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)
- Pilot- and operator-training and engineering simulators
- Testbeds
- Approach and landing procedures and systems
- GNSS technical assistance for air-navigation operators and authorities

Aeronautics. Main milestones

1 The Spanish Ministry of Defense turns to GMV for developing the ground segment systems for capturing, storing and distributing information from the unmanned aerial vehicles MQ-9 Predator Bs, used on intelligence and surveillance missions. These systems, known as Coalition Shared Databases (CSDs), receive real-time information from various sources, then facilitating distribution, also in real time, to the armed forces' intelligence and surveillance centers.

2 July sees the first demo, successfully carried out, of the DOMUS project, in which GMV is providing services of tracking, emergency management, GNSS performance prediction for navigation and surveillance. Primed by ENAIRE, DOMUS is one of the five European projects selected by the Single European Sky ATM Research (SESAR) program for demonstration of U-space services for Unmanned Traffic Management (UTM).

3 Growing from GMV's participation in DOMUS, as well as its involvement in drone-use and -management programs, GMV has developed the U-space product family, ***Dronelocus®***, aiming to come up with a response to the problem posed by the growing number of civil unmanned aircraft likely to be sharing the airspace in the near future. ***Dronelocus®***'s tracking and emergency-management capabilities help drone operators to ensure compliance with established constraints and to carry out missions in zones restricted to specially authorized operators.

4 In 2019, in the framework of U-space services, three test campaigns of the European Commission's EGNSS4RPAS project are held. Carried out by a consortium made up by GMV, FADA-CATEC and VVA, the project aims to standardize EGNOS and Galileo services in aircraft like drones, Remotely Piloted Aircraft System (RPASs) and Unmanned Aerial Vehicles (UAVs). The tests, held in different environments, will assess the drone potential of Europe's navigation systems (EGNOS and Galileo) for air traffic management and for typical applications in different environments. The drones used in these tests have been fitted with GMV's inhouse user terminal, ***MagicUT***, which supports Satellite Based Augmentation Systems (SBASs) and Precise Point Positioning (PPP), allowing this performance to be weighed up in different scenarios and working environments.

SuguS

5 At the end of the year GMV is awarded the SUGUS project (Solution for E-GNSS U-space Service), which aims to speed up the takeup of GNSS and Galileo in the Unmanned Aerial Vehicle (UAV) segment. SUGUS, a European Union R&D project, is to be carried out by a consortium jointly led by GMV and Everis Aeroespacial, Defense and Security, with the further participation of VVA Brussels, ESSP, FADA-CATEC and Unifly. This project, aiming to develop services geared towards the effective integration of drones in the airspace, will focus on the categories of Open and Specific flights, reviewing the results of previous E-GNSS projects while also pinpointing the needs of drone operators and unmanned traffic service providers in complex operations and built-up areas, holding several flight tests in complex environments.

Clean Sky

6 Under the aegis of the European aeronautics research program CleanSky 2, significant progress was made in 2019 in EMAFLIGHT and VALEMA, projects that aim to develop and validate electro-mechanical actuators and ECUs for flight control systems to prove the validity of electro-mechanical actuators for aviation purposes. In 2019 the Planning Process Review (PPR) and Software Requirement Review (SRR) of the Electronic Control Unit (ECU) of the spoilerfor the C-295 demonstrator aircraft were held.

7 Also under Clean Sky 2, GMV was appointed as the coordinator entity for the vACCINE project. vACCINE aims to design an aircraft onboard security filter to detect intrusion in communications between the aircraft and the air traffic control (ATC) systems. Based on modern

digital-transformation concepts and cyber-security technology, the vACCINE project will employ an innovative approach to catalyze the resilience of existing aeronautical communication systems against cyberthreats.

8 Once more under Clean Sky2, GMV continues to work this year on the PASSARO project. The aim of PASSARO (caPAbilities for innovative Structural and functional teSting of AeROstructures) is to work simultaneously in several areas identified by Airbus D&S for functional and structural on-ground tests for advanced fuselage structures. Significant headway is also made in the Utility Building Blocks Integration for Cockpit (UBBICK) project, which proposes a simplification of current cockpit utility management architectures. In 2019 a first version of all UBBICK documentation is developed in support of certification of GMV's real time operating system XKY, a necessary step towards eventual marketing.

9 After a busy campaign of qualification tests, the Electronic Control Unit (ECU) of the crane system of Airbus's strategic long-range transport and air tanker aircraft A400M completes the software certification process, a sine qua non of its subsequent production and supply for aircraft. Developed by GMV for the *Compañía Española de Sistemas Aeronáuticos* (CESA), the ECU has the function of controlling and braking the crane's two motors according to the operator's orders and the data furnished by system sensors (loading cells, proximity sensors fitted along the rails, inclination sensors of the crane cable, temperature and speed sensors of the engines, etc).

10 During 2019 GMV continues to provide various engineering services for Airbus Defence and Space. Worthy of particular note here is its collaboration in the A330 MRTT air tankers program, where GMV is taking part in many aspects of the flight refueling system (control laws, onboard boom-control software, onboard monitor software, system simulators, etc) and also in the development of simulators. These activities are rounded out by participation in simulators for the C-295 aircraft plus increasing work on the A400M, where GMV has participated in engineering simulators (especially the landing-gear and electricity system simulation models), plus diverse collaborations in the Eurofighter project.

11 GMV wins a contract under the Spanish MoD's RAPAZ program for the supply of four Class I Seeker RPASs, to be integrated into the intelligence units of the Paratrooper Brigade and the Tercio de Armada de Infantería de Marina (Marine Infantry Protection Force). The UAS Seeker, developed by Aurea Avionics and supplied by GMV, is an autonomous, rapid-deployment system designed for surveillance and reconnaissance missions calling for rapid deployment and high mobility, with the overall aim of carrying out low-level intelligence, surveillance and reconnaissance tasks within a 15 km radius.

12 The European Defence Agency (EDA) awards GMV the SAFETERM project, which sets out to assess the different technological and certification approaches to autonomy, in order to ensure predictable yet adaptive aircraft behavior in any emergency leading to a Flight Termination. Although this capability might potentially be used in a wide range of RPASs, the target platform will be a fixed-wing large tactical or Medium Altitude Long Endurance (MALE)-type RPAS with a Maximum Take Off Weight (MTOW) of more than 500 Kg, operating fully integrated into the European Air Traffic Management System (ATM).

Assessment

In 2019 GMV records all-time high space figures. Some of the operations contributing to these figures were the contract for Galileo's Ground Control Segment, GMV's biggest ever contract, won the year before; leadership in Galileo's future ground segment (control and mission) as well as in many Galileo centers (Service Centre, Reference Centre, Search & Rescue, TGVF, Commercial Service and High Accuracy Service). Public Regulated Service (PRS) developments also figure prominently; as do the SBAS operational center installed in Australia and New Zealand; and the high-precision and -integrity products, such as those carried out for the German carmaker BMW's new generation of autonomous vehicles.

GMV reinforces its position this year as the world number one in control centers, both in commercial and institutional markets. Key operations kicking off this year include OneWeb's mega-constellation, major developments for Eumetsat and responsibility for Galileo's control center. In 2019 a total of 12 satellites controlled by GMV's systems were launched. In telecommunications GMV remains world number one too, with equally notable developments and engineering work for ESOC, Eumetsat, CNES and DLR.

In the area of space surveillance GMV boasts a leadership in technological developments and service provision.

In the area of data processing, simulation and applications, GMV wins an eyecatching contract for developing the processor of the Carbon Dioxide Monitoring Mission (MicroCarb), and is equally busy developing Instrument Quality Tools for the Meteosat Third Generation (MTG). Similarly, the European Commission's framework emergency and security contracts show GMV to be one of the Copernicus mainstays in Europe, successfully participating in WekEO's Data Information Access Services (DIAS).

In the flight segment area, 2019 represented a huge step forward, confirming GMV's status as a supplier of complete avionics systems, including GNC/AOCS subsystems, flight software and integration with flight equipment. GMV figured prominently in missions like Hera, Mars Sample Return, Space Rider, ADRIOS, OPS-SAT, Heracles, ExoMars, lunar missions and also helped to achieve successful qualification of the microlauncher MIURA-1's complete avionics.

At sector level, one of the most notable developments in 2019 was creation of the Portuguese Space Agency and the holding of ESA's Ministerial Conference in Seville, which proved to be a great success and will undoubtedly help to drive Europe's space industry forward.

ACTIVITIES 2019

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 35 years of experience behind it and nearly 500 satellites carrying its technology, GMV can safely claim to be a technology 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
- Testbeds
- Onboard software and independent validation
- Data and satellite simulators for astronomy and earth observation instruments

NAVIGATION

- Engineering and algorithms of satellite navigation systems
- Major systems of processing and generation of Global Navigation Satellite System signals
- Precise positioning solutions and augmentation systems
- Accurate time management
- Augmentation systems
- Satellite-navigation service centers
- Galileo security centers, Galileo public regulated service, PRS

GROUND SEGMENT

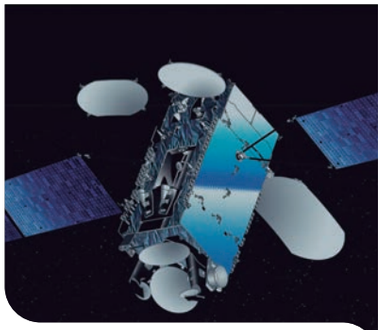
- Design and integration of complete ground systems
- Satellite control centers
- Flight dynamics systems
- Mission planning systems
- Ground station control and tracking
- Security systems
- Networks and Cybersecurity
- Configuration, planning and payload-optimization systems for telecommunications missions
- Science mission operations centers

DATA PROCESSING

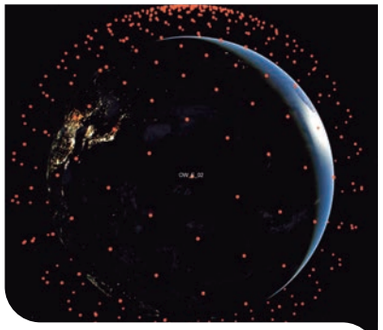
- Earth-observation and science-mission instrument processors
- Quality control and calibration systems
- Data archiving and dissemination
- Space applications, solutions and services

OPERATIONAL SUPPORT FOR SPACE MISSIONS OF ALL TYPES

Space. Main milestones

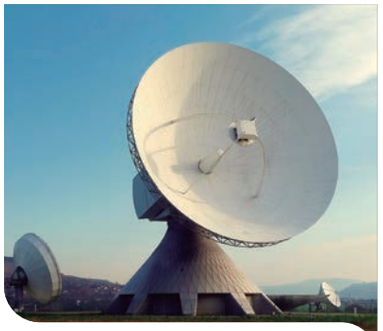


1 For yet another year GMV underscores its status as the world's number-one supplier of control centers for commercial telecommunications satellites. Marquee developments under this heading in 2019 are those for Eutelsat, OneWeb and Arabsat. 2019 sees the launch of 12 satellites to be controlled with GMV's control centers and flight dynamics systems. The number of clients in this area now adds up to over 36 operators, with the recent incorporation of Space Norway and Nilesat, both of which choose GMV in 2019 as supplier of the ground segment for new satellites. PN6, Hellas Sat 4/SaudiGeoSat 1, Hylas 4, EDRS-C, Eutelsat 5 West B and EUTELSAT 7C join the fold of over 250 operating satellites now controlled by GMV's ground segment systems.



2 2019 sees the launch of the first 6 satellites of the OneWeb mega-constellation, whose GMV-developed control center will give a service to thousands of satellites. This control center includes solutions deriving from the inhouse ***Hifly®*** products, which is capable of tracking and controlling this number of satellites; it also includes specific automation utilities thanks to ***Flyplan***, and keeps a precise knowledge of the fleet and overall state of the constellation through ***FleetDashboard***.

3 GMV also holds onto its world number-one status in flight dynamics. Particularly noteworthy this year are the developments and operations engineering for ESOC, Eumetsat, CNES and DLR, as well as development and supply of the flight dynamics system (FDS) of the satellites of the Inmarsat-6 mission and the support given to South Korea's Aerospace Research Institute, Kari, in the operations of the GEOKOMPSAT program.



4 GMV also reinforces its position as main contractor of the ground segment in the institutional market. Noteworthy here is this responsibility in Galileo's control segment, in the second generation of EPS and the third generation of Meteosat. Other examples worth quoting are the ExoMars control center, the ground control segments of CHEOPS, PAZ and Ingenio. It has also supported infrastructure of ESA's EDRS mission, making key inputs and taking on top-level responsibilities in the development of the payload control center of the satellites EDRS-A and EDRS-C.

5 In the area of satellite navigation GMV has played a standout role in development of the processing core of Galileo's Ground Mission Segment (GMS). Equally notable this year is GMV's leadership in one of the definition projects of the future Galileo Second Generation (G2G), as well as the significant progress made in the developments of the Galileo Reference Centre, the Galileo Service Centre, the Time and Geodetic Validation Facility (TGVF) and the Return Link Service Provider (RLSP) of Galileo's Search and Rescue Service (SAR), all of them led by GMV.

6 Other eyecatching developments this year came in the Public Regulated Service (PRS), the SBAS operational demonstrator, installed in Australia and New Zealand, as well as the high-precision and -integrity products being developed by GMV for the German carmaker BMW's new generation of autonomous vehicles. GMV also featured in various initiatives of the European Space Agency (ESA) and the European Commission, providing high-precision positioning and tracking services such as GINTOC, for integration of GNSS in 5G wireless networks.

7 GMV is one of European space industry's main players in the fight against the space-debris threat. As part of the activities within the European Union's Space Surveillance and Tracking (SST) consortium, in 2019 GMV renews the operations and development contract of Spain's SST system operations center (S3TOC) and hands over the operational software for development of the Space Surveillance and Tracking center of Poland's Space Situational Awareness Centre (SSAC-PL). In mitigation of this threat GMV continues during 2019 to provide the tried and tested ***Focusoc*** commercial service, now working with an increased catalogue of the Joint Space Operations Center (JSpOC) to improve collision-alert and tracking capabilities.

8 As for space-debris withdrawal activities, GMV in 2019 is priming ESA's PRINCE project (Passive Mechanical and Rendezvous INterface for Capture after End-of-life). Under ESA's ARTES program, too, GMV begins, jointly with Eutelsat, to develop an Autonomous Collision Avoidance System.

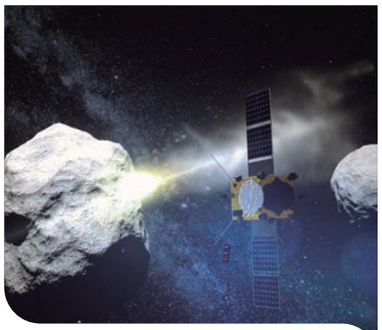
9 In 2019 GMV likewise cements its leadership in the area of data processing, simulation and applications, winning a contract for development of the processor of the Carbon Dioxide Monitoring Mission (MicroCarb). GMV is also busy building up a set of Instrument Quality Tools for the Meteosat Third Generation (MTG). Notable projects that kicked off this year include CYBELE, for studying the potential of supercomputing as applied to high-precision animal- and crop-farming and HAPSVIEW to demonstrate the benefits of High Altitude Pseudo Satellites (HAPS).

Promising headway is likewise made in the AfriCulturRes project (Enhancing Food Security in African Agricultural Systems with the support of Remote Sensing), as well as other projects for application of new Delay/ Disruption Tolerant Networking (DTN) technologies.

10 GMV is one of the stalwarts of the Global Monitoring for Environment and Security program called Copernicus. In 2019 GMV leads the consortium developing WEkEO, Europe's fifth DIAS platform (Data Information Access Services), the remit of which is to facilitate access to Copernicus data and its online use. GMV also forms part of the consortium that in 2019 wins the framework contract for the Rapid Mapping Component of Copernicus' emergency management service (EMS).

11 In the flight-segment area GMV makes huge strides in 2019 as supplier of complete avionics systems, including GNC/AOCS subsystems, flight software and integration with flight equipment. Particularly noteworthy in 2019 is GMV's leadership in ESA's MODEX initiative (Model exchange for Software Engineering), which aims to further define and improve the onboard software development process; successful qualification of the complete avionics of PLD Space's MIURA-1 microlauncher and the company's participation in projects like Quadrant and Guibear and missions like Space Rider, ADRIOS and OPS-SAT, the latter being successfully launched in 2019.

12 Late December sees the launch of Cheops (CHaracterising ExOPlanet Satellite). GMV has been involved in Cheops from the word go, taking on responsibility for mission analysis, which verified mission viability and defined its main characteristics. As for the ground segment, GMV has also been responsible for integrating MOC's control center, including development and integration of the Flight Dynamic System (FDS), the Mission Control System (MCS), the Spacecraft Simulator (SCSIM) and the operations automation system.



13 In 2019 GMV cements its position as number-one firm in technology developments in key areas of GNC (Guidance, Navigation and Control), robotics, software engineering and microelectronics. Particularly noteworthy in 2019 is GMV's participation in missions like Hera and its CubeSat, Juventas, Mars Sample Return, Heracles, ExoMars and lunar missions. Another leadership position consolidated this year is in the European Commission's robotics strategic research cluster (SRC). In its first phase GMV led three of the six technology building blocks to serve as the base for future orbital missions. In 2019 the program's second phase kicks off, in which GMV looms large in four of the five selected projects.

Assessment

In 2019 GMV's defense and security business goes from strength to strength on the international stage. The European Commission once more displays its ongoing faith in GMV by renewing the framework contract for development and maintenance of the European Border Surveillance System (EUROSUR) network, where GMV has been responsible for execution, management and supervision since 2014. GMV also signs a new contract with the European External Action Service (EEAS) for maintenance, support and upgrading of the European Union's command and control system (EUCCIS).

Beyond Spain's borders GMV is also featuring in various R&D projects and programs of the European Defence Agency (EDA) and GMV's experience in communication and information systems (CIS) for command and control stand it in good stead for the EDA award of a 2-year framework contract for the rollout of a platform to manage medical support capabilities in European operations. The Nato Communication and Information Agency (NCIA), for its part, awards GMV a contract for developing the intelligence, surveillance and reconnaissance resource storage and dissemination system.

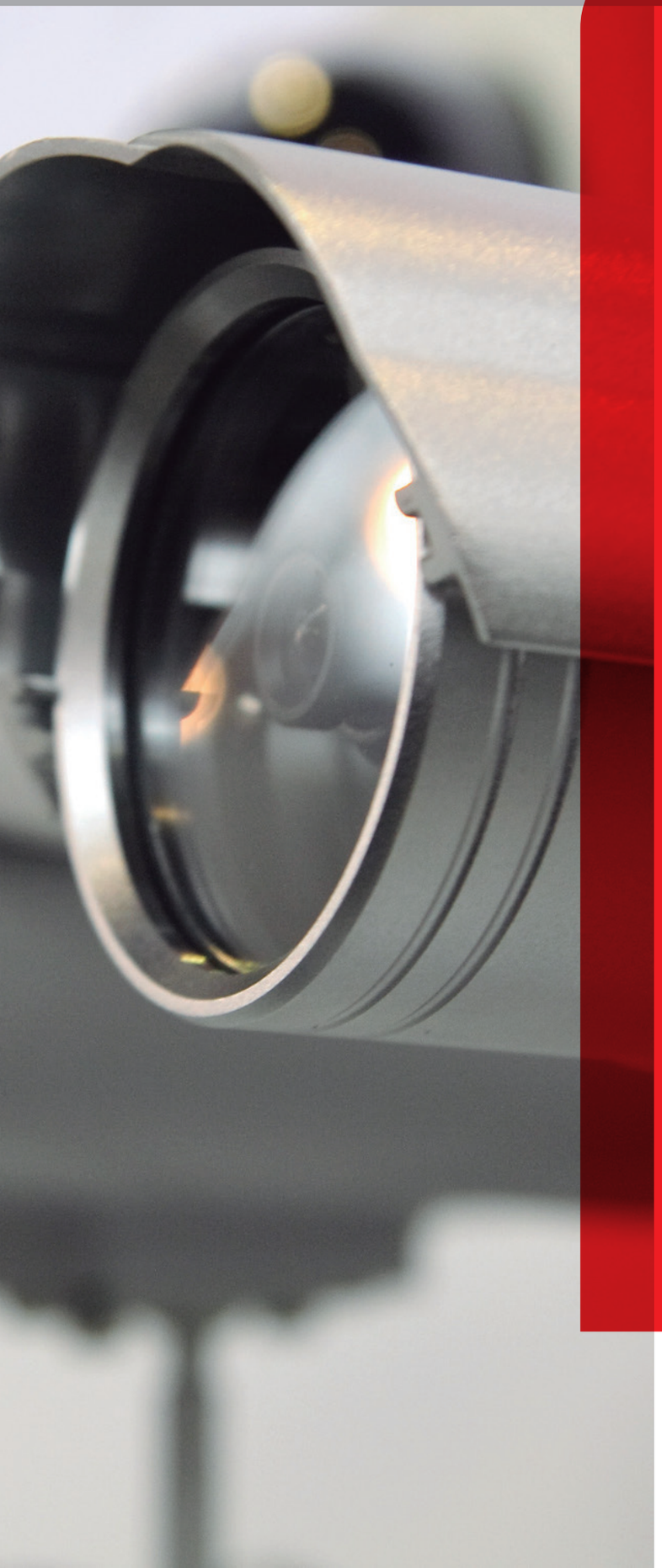
GMV likewise features prominently in the EU FP7 project DRIVER+, which aims to come up with an answer to the current and future challenges posed by the increasingly serious consequences of natural disasters and terrorist attacks. GMV is also leading the design of system architecture and participating in one of the project's EU-cofunded demo scenarios, ANDROMEDA, which kicked off in September 2019 and aims to boost the capacity and takeup of the CISE data model.

In coordination with the Spanish MoD, the Directorate General of Armaments and Materials (DGAM) and the Spanish Navy, GMV forms part of the European Commission's OCEAN2020 consortium for the development of maritime surveillance technology. GMV's particular contribution focuses on C2 and JISR, with one of the project's two scheduled demos being carried out at the end of the year. Also in the area of maritime surveillance, 2019 sees two operational tests, Iberian Sea Trial and Ionian Sea Trial, of the H2020 MARISA project (Maritime Surveillance Awareness), where GMV is playing a key role.

GMV continues to carry out important activity within the DGAM's R&D projects. Pride of place here goes to GMV's activity in support and development of the F-110 Frigate, particularly the SENDA navigation system and the infrared search and tracking system. Under the TALOS program, a C4I system planning, management and execution of military operations at tactical level being developed by GMV for DGAM, a new contract is signed in 2019 for integration of TALOS in the ASCA (Artillery Systems Cooperation Activities) interoperability program. The company also takes part in the 2019 TORO exercises under a support agreement laid down in two contracts with the Headquarters of the Spanish Army's Terrestrial Force (*Cuartel General de la Fuerza Terrestre del Ejército de Tierra:* FUTER).

Within the Spanish army's wheeled combat vehicle (VCR in Spanish initials) 8x8 program, GMV is responsible for the GNSS/INS navigation subsystem, the shot-detection subsystem, integration with the TALOS command and control system and finally integration of the dismounted-soldier C2 system. In 2019 GMV completes design of the ISNAV navigation subsystem, kicking off the manufacturing phase of its operational units.

As for cyberdefense, in 2019 GMV keeps up its participation in the Cyberdefense Training and Exercise Coordination Platform (CD TEXP), installed in the Military Academy of Portugal's armed forces in Lisbon.



ACTIVITIES 2019

Defense and Security

GMV is a tried-and-tested supplier of the Spanish MoD and Interior Ministry as well as 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, development and integration of C4I systems
- Design, development, deployment and maintenance of JISR systems (STANAG 4559)
- Intelligence systems, signal and data processing and fusion
- Cyberdefense, artificial intelligence and big data
- 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 video-surveillance and security systems

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

Defense and Security. Main milestones

1 GMV plays a key role in many R&D projects of the European Defence Agency (EDA). In 2019 GMV wins the contract for the study called "Artificial Intelligence and Big Data for Decision Making in C4ISR – ABIDE". This project will be applying Artificial Intelligence and Big Data techniques to Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems to improve their performance and boost their capabilities. GMV's past experience in communication and information systems (CIS) for command and control also stood it in good stead for winning a two-year EDA framework contract to develop a platform for managing medical support capabilities in European operations. Under this contract GMV will be responsible for training services and instructing system users, plus maintenance and post-deployment support.

2 In 2019 GMV is chosen to prime a new framework contract for maintenance and upgrading of the EUROSUR network, where GMV has been responsible for execution, management and supervision since 2014. As part of the European Commission's European Border Surveillance System, EUROSUR establishes a cooperation and information-swapping mechanism, making sure member states are better prepared for preventing, detecting and combatting illegal immigration but also for responding more quickly to save the lives of immigrants in danger on the sea, especially in the Mediterranean.

3 The NATO Communications and Information Agency (NCIA) awards GMV a contract for developing the intelligence, surveillance and reconnaissance resource storage and dissemination system. The project, called Coalition Shared Data (CSD) Services Enduring Solution, to be integrated into NATO's system infrastructure, sets out to specify, develop, design, test, deploy and support CSD capability based on the MAJIIC2 program (Multi-Intelligence All-Source Joint Intelligence Surveillance and Reconnaissance Interoperability Coalition). CSD Enduring Solution will upgrade the results of this NATO program to an operational state, providing intelligence analysts with the necessary tools for maximizing the use and exchange of ISR information. GMV is participating with funding from the Spanish MoD (Directorate General of Armaments and Materials: DGAM).

4 September sees the kickoff meeting of ANDROMEDA, an EU-funded project in which 19 participants from 9 different countries are working together with the main aim of boosting the takeup of the CISE data model. GMV is playing an upfront role in the project, leading system architecture design, inputting the Socrates command and control tool and participating in one of the demo scenarios.

5 After rollout of the upgrades required in the third year of operation of the EU's command and control system (EUCCIS) and successful participation of EUCCIS in the CWIX 2019 exercise, GMV signs a new contract with the European External Action Service (EEAS) for carrying out the activities scheduled from December 2019 to November 2020. This new project falls under the 7-year framework contract for maintenance, support and upgrading of the EU's command and control system, in which GMV is the sole contractor.

6 In the framework of the command and control system TALOS being developed by GMV since 2010 for the Directorate General of Armaments and Materials (DGAM) of the Ministry of Defense, a new contract is signed in 2019 for integration of TALOS in the ASCA (Artillery Systems Cooperation Activities) interoperability program, enabling TALOS to be integrated with the artillery systems of the countries involved in the program and to participate in international maneuvers like Dynamic Front and Bold Quest. TALOS is a C4I system for the planning, management and execution of military operations at tactical level, allowing integration of various combat functions in the same mission.

7 In November the TORO exercises 2019 are held simultaneously in several different locations, representing the army's main training exercise for the year. Services put through their paces include the intelligence capability of the SAPIIEM systems, the command and control capabilities of the TALOS system and integration of the sensors of the IRIS system, all developed by GMV for the Spanish MoD's Directorate General of Armaments and Material (DGAM). GMV's support for this exercise falls under a system-deployment contract with the Headquarters of the Spanish Army's Terrestrial Force (*Cuartel General de la Fuerza Terrestre del Ejército de Tierra:* FUTER), an activity also including system-operator and -administrator training, plus in situ exercise support.

8 GMV plays a standout role in the technological programs and accompanying R&D projects initiated by DGAM in support of the F-110 Frigate, jointly designed by the Navantia shipyard and the Spanish Navy and due to replace the current Santa María class frigates, which have been carrying out escort duties since the mid-eighties of last century. The program comprises a multi-mission design with a variety of capabilities ranging from undersea and surface warfare to asymmetric warfare and anti-aircraft defense. GMV's participation in the development of the F-110 Frigate focuses on two areas: the SENDA navigation system and the infrared search and tracking (IRST) system. In 2019 GMV delivers the SENDA navigation system prototype, a solution with functions analogous to those of the American NAVSSI system, but with substantial improvements such as new systems, navigation technologies and a Galileo PRS receiver.

9 Within the Spanish army's wheeled combat vehicle (VCR in Spanish initials) 8x8 program, GMV is responsible for the GNSS/INS navigation subsystem, the shot-detection subsystem, integration with the TALOS command and control system and finally integration of the dismounted-soldier C2 system. In 2019 GMV completes design of the ISNAV navigation subsystem, kicking off the manufacturing phase of its operational units. GMV has developed a vehicle navigator based on a hybrid architecture of inertial navigation and satellite navigation, integrating an inertial navigation unit and a multi-constellation receiver (GPS, Galileo and GLONASS) and with the capacity for phasing in the future signal receiver of Galileo's Public Regulated Service (PRS) PRESENCE 2, being jointly developed by GMV.

10 In November one of the two scheduled demos of the OCEAN2020 project is held. OCEAN 2020, carried out under the European Union's Preparatory Action on Defense Research (PADR), is Europe's biggest maritime-surveillance technology development program. Led by the Italian multinational Leonardo, the project involves a total of 42 partners from 15 European countries. GMV's particular contribution focuses on C2 (Command and Control) and JISR (Joint Intelligence, Surveillance and Reconnaissance), in keeping with the company's international track record in these areas.

11 Under the EU-funded H2020 MARISA project (Maritime Surveillance Awareness) two operational tests are held in 2019, Iberian Sea Trial and Ionian Sea Trial. The 22-partner project includes national and multinational firms from each participating country, national research and NATO institutions and end users (navies, coastguards and the Spanish Guardia Civil). GMV, crucially, is responsible for system design, the development of various fusion- and anomaly-detection algorithms and also the trials to be held in Spain and Portugal in collaboration with the Spanish Guardia Civil and the Portuguese Navy.

12 After its final demo in late November the DRIVER+ project (Driving Innovation in Crisis Management for European Resilience) reaches its initial operational capacity. Driver +, a European Commission, FP7-financed project, aims to come up with an answer to the current and future challenges posed by the increasingly serious consequences of natural disasters and terrorist attacks. As well as taking part in all DRIVER+ subprojects, GMV is busy working on development of the pan-European testbed for Crisis Management Capability Building. Furthermore, within the Portfolio of Solutions (PoS) tested during the scheduled trials, GMV includes its complete command and control environment, SOCRATES. Lastly, GMV is acting as coordinator of all solutions included in the first of the project trials, held in Warsaw.

13 In 2019 the Cyberdefense Training and Exercise Coordination Platform (CD TEXP), installed in the Military Academy of Portugal's armed forces in Lisbon, enters its adaptation and updating phase with the implementation of a set of features to meet the system's operational needs. CD TEXP, set up with the participation of GMV, CINAMIL and EDA, has been up and running since 2018 and has now become a key part of Europe's cyberdefence training wherewithal.

Assessment

In 2019 ***Radiance™***, GMV's inhouse intraoperative radiotherapy planner, is taken up by yet more leading hospitals in Europe, the Americas and Asia. 2019 is also the first anniversary of the signing of the contract between GMV and IntraOp Medical Corporation to incorporate ***Radiance™*** into Mobetron®, the linear accelerator for administering electron-beam IORT, taken up by hospitals as prestigious as the Institut Jules Bordet of Brussels.

Telemedicine has now become one of GMV's healthcare strong suits. It already has some of its inhouse developments up and running, like ***Antari***, its telemedicine platform, which continues to make international inroads in 2019, especially in South America. In 2019 the European research and innovation project FACET (FrAilty Care and wEll funcTion) comes to an end. For FACET GMV has adapted its telemedicine platform ***Antari HomeCareTM*** for remote care of the elderly and pre-frail. Also coming to an end this year is the European project SwitHome, which lays down the bases for the use of wearable technology to monitor and personalize post-stroke rehabilitation treatment.

Healthcare application of Big Data is now providing priceless information for the detection and treatment of diverse medical conditions. GMV has been participating in projects of this type for several years. 2019 sees the completion of MOPEAD (Models of Patient Engagement for Alzheimer's disease), an early Alzheimer diagnosis system, which also made the final of the 2019 Internet Award Scheme on the strength of its groundbreaking character in digital healthcare. GMV also continues to work on the HARMONY project, Europe's biggest public-private research initiative in the fight against blood cancers, where GMV, as the sole technology partner, has developed a Big Data platform to pool huge amounts of data from blood-disease sufferers to help clinicians make diagnosis and treatment decisions. In 2019 the system chalks up a key feat with the collation of data from 45,000 patients. GMV also wins a contract to phase a new function into the Galician Health Service's epidemiological and clinical data mining platform called HEXIN. The purpose of this new upgrade is to identify patients likely to suffer from osteomalacia and hypophosphatemia.

GMV continues to push back the envelope of healthcare R&D, participating in the H2020 project RAINBOW, which aims to build up knowledge in specific areas of clinical simulation. GMV is turning to good account here its experience in the development of the surgical simulator insight and the intraoperative radiotherapy planner ***Radiance™***. GMV is also continuing to participate in NAVIPHY, short for "Navigation, physical simulation and imaging in intraoperative procedures", which aims to improve soft-tissue navigation and planning.

In the field of healthcare cybersecurity GMV joins the European Cyber Security Organisation (ECSO), a public-private association brokered by the European Commission, which sets out to pinpoint and raise awareness of cybersecurity training needs in healthcare, where the privacy of personal data is especially important.

ACTIVITIES 2019

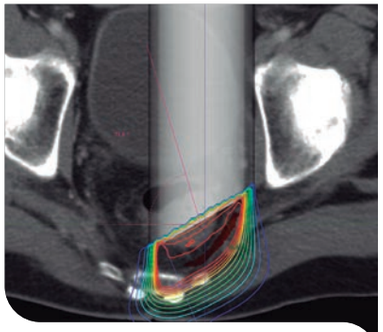
Healthcare

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 in-house products and services while spearheading cutting-edge projects.

GMV's healthcare portfolio is bulging. Its telemedicine products and services now range from specific applications for telepediactrics, teleophthalmology, telerehabilitation and the care of chronic patients through 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 mobility solutions
- Medical-image management and processing solutions
- Remote healthcare systems (telemedicine) working on both a patient-physician and physician-physician basis: telepediactrics 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 and process-optimization consultancy

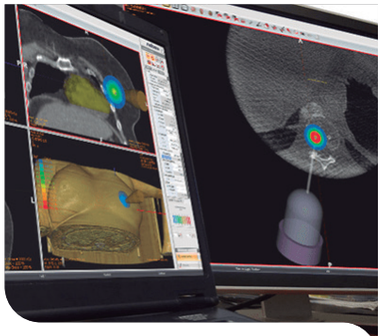
Healthcare. Main milestones



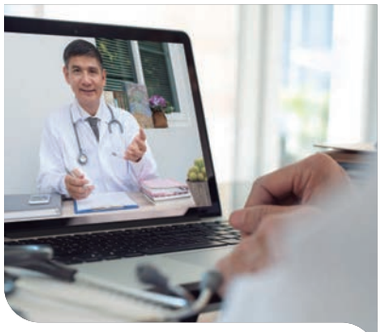
1 In 2019 nine new ***Radiance™*** licenses are issued and it is taken up by hospitals in Europe, America and Asia. Top billing here goes to the New York Presbyterian Hospital, IM Sechenov First Moscow State Medical University, Subang Jaya Medical Centre, Hospital Universitario Central de Asturias, Centre de Lutte Contre le Cancer, Loh Guan Lye Specialists Centre, Institut Jules Bordet, St John of God Hospital, West Virginia University Hospital Health Care.

2 2019 marks the first anniversary of the signing of the contract between GMV and IntraOp Medical Corporation, making IntraOp sole distributor of ***Radiance™***. During the year renowned hospitals like the Institut Jules Bordet of Brussels take up Mobetron®, the linear accelerator for administering electron-beam IORT, while GMV's new surgical navigation upgrades are built into linear electron beam IORT accelerators.

3 In 2019 GMV continues its activity within the research project NAVIPHY, short for "Navigation, physical simulation and imaging in intraoperative procedures", which aims to improve soft-tissue navigation and planning. NAVIPHY is being carried out by a consortium involving the Research Institute of the Hospital Universitario La Paz (IdiPAZ), the Virtual Reality and Modelling Group (Grupo de Modelado y Realidad Virtual: GMRV) of the Universidad Rey Juan Carlos and the Canary Island Healthcare Research Foundation (Fundación Canaria de Investigación Sanitaria: FUNCANIS); GMV is acting as technology partner and global coordinator of the project. The three-year NAVIPHY project, subsidized by the European Union (EU) through funds of the European Regional Development Fund (ERDF), falls within the Ministry of Science, Research and Universities' research challenges R&D call. During this year GMV takes on the challenge of establishing clinicians' needs for improving precision and prediction in brain and maxillofacial surgery, and then designing technology to suit.



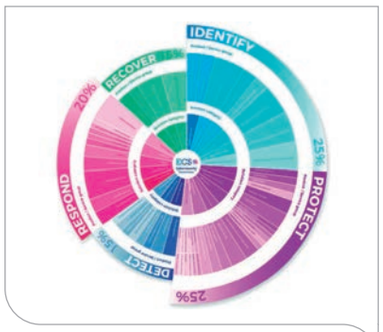
4 GMV also continues to participate in the H2020-funded RAINBOW project, which aims to harness the full potential of computational medicine and ICTs to develop user-friendly simulation tools for clinicians. During the year biomechanical simulation methods become developed enough for demonstrators to be built in their areas of application. GMV's input rests on the company's wealth of experience in developing successful clinical simulators such as the surgical simulator insight and the intraoperative radiotherapy planner ***Radiance™***, bringing all this expertise to the consortium of five universities, one hospital and eight industrial partners from Denmark, Spain, Luxembourg, England, France and Germany.



5 ***Antari***, GMV's inhouse telemedicine platform, goes from strength to strength around the world in 2019, especially in South America. In Colombia, for example, Antari is now allowing Group Campbell's Fundación Clínica Campbell to offer healthcare 24 x 7, thanks to the participation of the telehealth services provider Thot Salud S.A.S., belonging to Campbell Group. The foundation's three health centers that have already been fitted with ***Antari*** now allow family doctors to communicate with the corresponding specialists in each case to offer a precise diagnosis by remote consultation. Equally noteworthy here is GMV's collaboration with Fundación EHAS in a project to improve healthcare in the rural areas of the Peruvian Amazon, again on the strength of ***Antari***.

6 The European research and innovation project FACET (FrAilty Care and wEll funcTion) comes to an end. For FACET GMV has adapted its telemedicine platform ***Antari HomeCareTM*** for remote care of the elderly and pre-frail. This clinical trial (prospective, randomized and blind) has studied over one year the trend of males with a mean age of 82 and women of 65. The resulting report has concluded that the remotely monitored trial subjects, using GMV's platform, saw a slowdown in the onset and development of frailty, and also used up fewer healthcare resources.

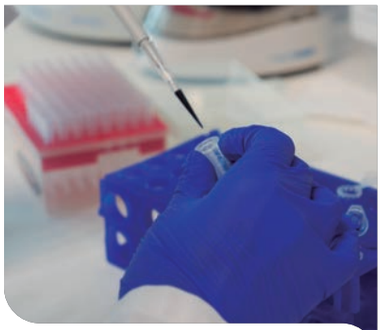
7 The European SwitHome project, with GMV participation and co-brokered by EIT Health, closes 2019 with a technology and clinical validation study carried out with the participation of patients in Hospital Parc Sanitari Sant Joan de Deu and the University Hospital of Groningen (the Netherlands). The project results are positive with a warm welcome for GMV technology from both patients and clinicians. The project lays down the bases for the use of wearable technology (smart insoles) to monitor and personalize post-stroke rehabilitation treatment of the lower limbs.



8 GMV joins the European Cyber Security Organisation (ECSO), a public-private association brokered by the European Commission, which sets out to pinpoint and raise awareness of cybersecurity training needs in healthcare. GMV, as an ECSO member, will collaborate by driving cooperation between public and private stakeholders in the first stages of the innovation and research process, with the aim of providing Europeans with more groundbreaking and trustworthy solutions (ICT software, services and products). These services will ensure the privacy of personal data, a right that really comes into its own when dealing with healthcare data.

9 2019 sees completion of MOPEAD (Models of Patient Engagement for Alzheimer's disease), a project in which GMV has participated as technology partner. The project, financed by Fundació ACE (Barcelona Alzheimer Treatment & Research Center), has consolidated an early AD diagnosis system on a "citizen science" model, in which anonymous citizens collaborate with the research. The web tool manages to evaluate a greater number of individuals (1487 from a total of 2847 persons) and throws up 547 positive results (36.8%). The online portal, therefore, with the marketing strategies developed by GMV, has given rise to an effective patient-recruitment system, outperforming other more traditional methods based on capturing patients in face-to-face situations or in clinics. MOPEAD also made the final of the 2019 Internet Awards on the strength of its groundbreaking character in the area of digital healthcare.

10 GMV wins a contract to phase a new function into the Galician Health Service's epidemiological and clinical data mining platform called HEXIN. The purpose of this new upgrade is to identify patients likely to suffer from osteomalacia and hypophosphatemia. HEXIN, a Big Data platform developed with GMV technology, allows the Galician Health Service to mine all available healthcare information of any patient with an electronic medical record, to facilitate clinical decision-making, managerial and support tasks in identifying epidemiological cases.



11 In late 2019, the HARMONY Alliance pulls off a key feat by collating data from 45,000 patients with hematological malignancies. This data is then homogenized, anonymized and integrated by GMV into the inhouse big data platform developed by the company under this project, one of the biggest of its kind in the world. Furthermore, the Spanish Healthcare IT Society (*Sociedad Española de Informática de la salud:* SEIS) hails the HARMONY project in its 24th National Healthcare and IT Awards. The HARMONY Alliance, driven by the European Federation of Pharmaceutical Industries and Associations (EPFIA) and the Innovative Medicine Initiative (IMI) with the aim of finding effective blood-cancer treatment, is Europe's biggest public-private research initiative in the fight against blood cancers. GMV is participating in HARMONY as the sole technology partner.

Assessment

GMV's cybersecurity experience proves to be the clinching factor in its winning the Galileo Ground Control Segment (GCS) contract and illustrates once more the synergies between GMV's space and cybersecurity technology. Under this European Space Agency (ESA) contract, GMV continues this year to lead and develop all cybersecurity aspects, ranging from protection to detection, response and recovery. As such, in 2019 GMV receives various awards for security in critical environments.

Checker ATM Security®, GMV's inhouse ATM cybersecurity attack system, strengthens its position as the go-to solution, which has now been taken up by over 250,000 ATMs of 70 clients from over 20 countries that are especially prone to cyberattacks and cyberfraud, such as India, where ***Checker ATM Security®*** makes particularly impressive inroads this year. In 2019 the ATM Industry Association (ATMIA) sets up a project to create a next gen API App with worldwide ATM interoperability, with the overarching aim of pulling off a synergy between the world's ATMs and cell phones. GMV is collaborating in this initiative, inputting its view of what cybersecurity should look like in this new model.

In keeping with its strategy of becoming a benchmark cybersecurity firm, GMV participates during 2019 in several security-risk-diagnosis and -analysis projects, drawing up security plans for various organizations and government authorities. During this year GMV's Computer Emergency Response Team (CERT), dedicated to analyzing the overall security state of networks and equipment, renders various response services to cybersecurity incidents and offers consultancy on security threats and solutions for diverse clients. GMV carries out R&D activities to hone its cyberdefense capabilities under the Horizon 2020 PROTECTIVE program, which is brought to an end this year.

GMV has been handling the security arrangements of the banking group BBVA for 17 years now. In 2019, jointly with the bank, GMV continues to develop and upgrade the corporate security management product FARO Corporativo.

GMV's cybersecurity solutions continue to make inroads in the legal sector. During 2019 some of the most important lawyers' offices turned to GMV for their security audits, perimeter protection, managed services for alert-management and -monitoring, Computer Emergency Response Teams (CERTs), red teaming/ penetration testing / digital surveillance, data protection and privacy management.

Within the software security solutions using the DevOps software development methodology, GMV signs in 2019 a collaboration agreement with Checkmarx, the world leader in this area, to help firms running internal DevOps teams to develop solutions of static application security testing (SAST), interactive application security testing (IAST) and software composition analysis (SCA).

ACTIVITIES 2019

Cybersecurity

GMV has been leading the development of ICT security services and technologies in Spain for over 25 years now.

GMV provides services and solutions for analyzing any organization's level of cybersecurity, managing the technological infrastructure and governing the lifecycle-long cybersecurity process:

- Protection of critical infrastructure
- Engineering, security services and solutions
- Cybersecurity in industrial environments
- Definition and implementation of information security management systems and business continuity plans
- National Security Scheme compliance plans
- CERT Managed services

Cybersecurity. Main milestones

1 GMV'S cybersecurity expertise, and especially in the application of cybersecurity to the space sector, were key factors in its winning the Galileo Ground Control Segment (GCS) contract back in 2018. Under this ESA contract GMV is leading and developing all cybersecurity aspects, ranging from protection to detection, response and recovery. This activity is especially noteworthy because an essential part of the system to be maintained and developed is management of secure access to information from the Galileo constellation, as well as management of security keys governing access to the high-performance public regulated service. As such, in 2019 GMV receives various awards for security in critical environments.

2 In 2019 ***Checker ATM Security®*** strengthens its position as the go-to ATM-protection solution. After a 12-year track record this inhouse GMV solution has now been taken up by over 250,000 ATMs of 70 clients from over 20 countries that are especially prone to cyberattacks and cyberfraud. In 2019 ***Checker ATM Security®*** makes particularly impressive inroads in India.

3 In 2019 the ATM Industry Association (ATMIA) sets up a project to create a next gen API App with worldwide ATM interoperability. This initiative will usher in a complete reinvention and rebirth of the ATM industry, with the overarching aim of pulling off a synergy between the world's 3.2 million ATMs and 5 billion+ cell phones. The project, known as "ATMIA Next Gen Champions", comprises a consortium of over 200 ATM deployers, vendors and suppliers. GMV is collaborating in this initiative, inputting its view of what cybersecurity should look like in this new model, where the mutual interoperability of ATMs and cell phones opens the door to new risks that we must know how to tackle from day one.

4 GMV has been handling the security arrangements of the banking group BBVA for 17 years now. In 2019, jointly with the bank, GMV continues to develop and upgrade the corporate security management product FARO Corporativo. The GMV-developed platform, with intellectual property of BBVA, has been designed with international organizations in mind, enabling them to manage through a single App the security of all offices and buildings in the various countries they trade in. FARO helps organizations to set up a corporate model of security processes, ensuring a more efficient use of human, technological and economic resources.

5 During this year GMV's Computer Emergency Response Team (CERT), dedicated to analyzing the overall security state of networks and equipment, renders various response services to cybersecurity incidents and offers consultancy on security threats and solutions for clients as varied as Red.es or Grupo Santillana.

6 2019 sees the completion of PROTECTIVE. This Horizon 2020-funded project aims to equip Computer Emergency Response Teams (CERTs) and Computer Security Incident Response Teams (CSIRTs) with the necessary wherewithal for dealing with cyberattacks, malware outbreaks and other security problems. They will also be able to draw up prevention and response procedures. GMV's activity under this project focuses on definition and development of alert-correlation

and -sharing modules, integration and testing of these modules and smart threat analysis for National Research & Education Networks (NRENs) and CERTS.

7 In 2019 GMV vets several specific environments to check their compliance and security risks, drawing up security plans for various notable international organizations and government authorities. Prominent among them are the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the Ministry of the Presidency, the Duero and Guadalquivir Water Boards, the Spanish Land Registry and the World Intellectual Property Organization (WIPO) with the idea of giving them the necessary visibility for decision making and good governance, as well as establishing the necessary mechanisms for abiding by pertinent legislation.

8 GMV establishes a partnership with Checkmarx, the global leader in software security solutions for DevOps. This partnership has the aim of supporting companies with internal DevOps teams through Checkmarx's Software Security Platform, which leverages static application security testing (SAST), interactive application security testing (IAST) and software composition analysis (SCA).

9 GMV is the technology partner of various lawyers' offices, specializing in inhouse services and solutions to drive the digital transformation of legal companies, always with cybersecurity to the fore. In 2019 important lawyers' offices turned to GMV for their security audits, perimeter protection, managed services for alert-management and -monitoring, Computer Emergency Response Teams (CERTs), red teaming/ penetration testing / digital surveillance, data protection and privacy management.

10 Under the "Directive of the European Parliament and of the Council concerning measures for a high common level of security of network and information systems across the Union" (shortened to "NIS Directive") GMV is working with key government entities (INCIBE, Red.es, *Junta de Castilla y León*, *Gobierno de la Rioja*, *Catastro*...) managing their cybersecurity, threats and risks and flagging up cyber-incidents through its early cybersecurity response team.

Assessment

GMV remains national leader in public intelligent transportation systems and a rock-solid performer worldwide. In 2019 GMV wins yet more projects for diverse public-transport organizations, featuring among them TUSSAM, grupo AVANZA in Marbella and Segovia, grupo AVANZA in Madrid's Regional Transport Consortium, EL GATO, Pamplona's *Transporte Urbano Comarcal* (TUC), *Autoritat del Transport Metropolità* (ATM), *Transportes Urbanos de Valladolid* (AUVASA), the Galician operator Monbus, Mallorca's Transport Consortium, ALSA in Rabat, *Transportes Urbanos de Castelo Branco* (TUCAB) in Portugal, Malta Public Transport (MPT), Montevideo Transport System, the urban transport of the city of Uchda in Morocco and, last but not least, the transport authorities of Bydgoszcz and Szczecin, the City Council of Toruń and Gdansk Transport Authority in Poland.

In the railway sector GMV continues to increase its business with such marquee clients as Spain's national operator RENFE, which awards GMV the contract for a first functional enlargement of its Onboard Communications System, fitted on its local and medium-haul fleets. TALGO also awards GMV a contract for development and supply of the PA/Intercom and Vehicle Human Machine Interface (VHMI) to be fitted on its trains within the reform project of RENFE's "Tren Hotel" (Hotel Train); Euskal Trenbide Sarea (ETS) awards GMV a contract for phasing several upgrades into its management system called Graphic Service Application (*Aplicación Gráfico de Servicio:* AGS); Philippine National Railways (PNR) takes up GMV's inhouse railway fleet management system ***SAE-R®*** for running the commuter trains covering the metropolitan area of Manila; ALSTOM awards GMV several orders for enlarging the fleet management system of Sydney's light rail system (Australia); and Alstom Israel entrusts GMV with the supply of a fleet management and rostering system for the Red Line of Tel Aviv's new tramline.

A track record of nearly 20 years in demand-response transport makes GMV the most experienced firm in Spain and Portugal, providing a reliable transport service for rural areas of low or scattered population. In 2019 Castilla y León again turns to GMV for running and maintaining the region's demand-response transport system while GMV also signs the fifth demand-response contract in Portugal to provide a service for the whole Portuguese region of Beira Baixa.

In 2019 GMV's North American company specializing in Software as a Service (SaaS) solutions and cloud software for the public ITS market, GMV SYNCROMATICS, wins its all-time biggest contract, involving the installation of over 1000 digital panels at transit stations throughout Houston, Texas.

In the fleet management and tracking area ENDESA contracts GMV for setting up the fleet management service ***Moviloc®*** in a 600-vehicle fleet and the Andalusian Environment and Water Agency (*Agencia Andaluza de Medio Ambiente y Agua*) contracts GMV for setting up ***Moviloc®*** in the initial fleet-renewal phase, comprising about 650 vehicles.

GMV continues to up its profile in the automotive market. In 2019 it wins a big contract for developing advanced, precise and safe GNSS-based positioning technology for the German carmaker BMW Group's new generation of autonomous vehicles. Elsewhere, clients like Cintra Toll Services renew their trust in GMV, awarding a new contract for running and maintaining services and the DriveOn mobile application. Achievements endorsed by prestigious recognition schemes include obtaining level 3 (CL-3) of Automotive SPICE and the best mobility prize awarded to the CITIES Timanfaya project.

During the year GMV participates in key European mobility projects that boost safety and environment-friendliness. C-STREETS, for example, kicks off while ESCAPE (European Safety Critical Applications Positioning Engine) makes further headway, ENABLE-S3 and SafeCOP are brought to a successful completion and C-ROADS and URBAN GreenUP continue to make steady progress.

ACTIVITIES 2019

Intelligent Transportation Systems

GMV is a leading firm in the design, development, implementation and rollout of Intelligent Transportation Systems (ITSs) based on IoT, mobile communications and GNSS, guaranteeing compliance with sector standards such as GTFS, SIRI, NeTEx and CAN bus. GMV offers all-in, turnkey, ready-to-go solutions, taking on complete development of the project and 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):

- Advanced passenger-transport fleet management systems
- Transport scheduling and planning systems
- Electronic fare collection systems enabling payment by contact smartcards, bankcards and mobile apps
- 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, websites with real-time information and trip planners
- Ecodriving 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
- Solutions for the connected car and autonomous vehicle: end-2-end software and services, Cybersecurity, advanced GNSS-based positioning technology
- Advanced mobility services: PAYD/UBI insurance, carsharing, carpooling, MaaS

Intelligent Transportation Systems. Main milestones

1 GMV is Spanish leader in implementing EMV technology in the public transport sector. In 2019 GMV continues to work on the project for supply of technology components for the new STI-R4 fare systems of the Transport Consortium of Mallorca, which will take in the collective public transport of the islands of Mallorca, Menorca, Ibiza and Formentera. GMV deploys the new integrated multimodal fare system (for bus, train and metro) in the Balearic Islands' public transport network, also providing technical assistance during the first three years of operation. This system, trailblazing in Spain, wins the "Special ITS 2019" prize awarded by ITS España.

2 In 2019 GMV holds onto its national leadership in the area of public intelligent transportation systems, winning new contracts under this heading. TUSSAM, for example, awards GMV the contract for supply, installation and maintenance of an onboard video-surveillance system on its bus fleet. Grupo AVANZA once again turns to GMV for supply of the fleet control systems of its recently awarded urban transport concessions of Segovia and Marbella. In 2019, too, GMV signs a maintenance contract with Grupo AVANZA in Madrid's Regional Transport Consortium, offering an all-in fleet-management and ticketing system; it also renews the fare-collection contract of EL GATO, phasing new functions into the onboard fare-collection system of the bus fleet of Pamplona's District Urban Transport system (*Transporte Urbano Comarcal*: TUC) and renews the fleet-management maintenance contract of the Autoritat del Transport Metropolità (ATM).

3 In 2019 GMV further strengthens its 20-year bond with Valladolid Urban Transport (*Transportes Urbanos de Valladolid:* AUVASA). In 2019 AUVASA awards GMV the contract for renewal of the onboard fleet management equipment of its bus fleet and bus-stop information panels. The Galician operator Monbus, for its part, awards GMV the contract for the fleet-management and ticketing systems of the buses under its new concessions granted by the Regional Authority of Galicia. Under this contract GMV will fit the operator's buses with an EMV-enabled, QR-code-reading onboard ticket sales desk plus fleet management functions.

4 In 2019 GMV becomes even more of an international leader in public intelligent transportation systems, winning a clutch of new contracts. ALSA awards GMV the contract for the fare-collection, fleet-management and passenger-information systems of Rabat's bus fleet. GMV also wins a new fleet-management system for the buses of Castelo Branco Urban Transport (*Transportes Urbanos de Castelo Branco:* TUCAB) in Portugal. GMV also phases new functions into the video-surveillance system of Malta Public Transport (MPT) and renews the ITS maintenance contract. Across the Atlantic GMV phases in new functions to upgrade Montevideo's electronic fare collection system, originally supplied back in 2008. The contracted 7-year maintenance period of Cyprus's public transport ITS kicks in while the fare-collection system of Uchda's urban buses in Morocco is renewed.

5 GMV has been trading in Poland since 2008, installing intelligent transportation systems in numerous Polish cities, like Warsaw, Szczecin, Gdansk, Gydinia, Bydgoszcz and Toruń. In early 2019 GMV signs new maintenance contracts with the Bydgoszcz and Szczecin transport authorities, phasing in upgrades besides enlarging the ITS maintenance services. GMV signs another new contract with Toruń City Council to develop a fleet-management and passenger-information system, enhancing the existing system and incorporating the public bus fleet into the intelligent transportation system. Last but not least, GMV is asked by the Gdansk Transport Authority to replace the terminals used since 2009 with new TFT touchscreens built into the onboard computers OBU-M20.

6 Turning to the railway sector, Philippine National Railways (PNR) takes up GMV's inhouse railway fleet management system ***SAE-R®*** for running the commuter trains covering the metropolitan area of Manila. ALSTOM awards GMV several orders for enlarging the fleet management system of Sydney's light rail system (Australia) contracted from GMV in late 2016. Under this new project GMV will be phasing in a series of new control-center functions plus improvements in the interface of the tram-stop passenger-information panels, likewise supplied by GMV. Alstom Israel is yet another overseas company that chooses GMV's fleet management and rostering expertise for the personnel of the Red Line of Tel Aviv's new tramline. GMV will be supplying its inhouse shift scheduling module ***GMV Planner*** for rostering purposes.

7 Spain's national operator RENFE awards GMV the contract for a first functional enlargement of its Onboard Communications System, fitted on its local and medium-haul fleets. The initial project, in essence similar to a fleet-management/Automated Vehicle Location System (AVLS) system, was awarded to GMV back in 2008 and has now been rolled out on RENFE's whole local and medium-haul fleet. TALGO awards GMV a contract for development and supply of the PA/Intercom and Vehicle Human Machine Interface (VHMI) to be fitted on its trains within the reform project of the "Tren Hotel" (Hotel Train) for RENFE, while the Basque railway infrastructure manager, Euskal Trenbide Sarea (ETS), awards GMV a contract for phasing several upgrades into its management system called Graphic Service Application (*Aplicación Gráfico de Servicio:* AGS).

8 GMV's almost 20-year track record in demand-response systems makes it the most experienced firm in systems of this type in Spain and Portugal. In 2019 Castilla y León again finds GMV to be the best option for running and maintaining the region's demand-response transport system. GMV also signs the fifth demand-response contract in Portugal to provide a service for the whole Portuguese region of Beira Baixa, extending public transport to 100% of the region.

9 Through its partner ALD, ENDESA contracts GMV for setting up the fleet management service ***Moviloc®*** in a 600-vehicle fleet, mostly hybrid vehicles. As well as providing tracking and information on electric autonomy, the fleet will also be fitted with driver identification and remote vehicle immobilizer. Elsewhere, the Andalusian Environment and Water Agency (*Agencia Andaluza de Medio Ambiente y Agua*) contracts GMV, through its partner ALPHABET, for setting up ***Moviloc®*** in the initial fleet-renewal phase, comprising about 650 vehicles, fitting them with driver identification, remote vehicle immobilizer and connection to the diagnostic port.

10 In 2019 GMV SYNCROMATICS wins a contract for deploying over 1000 digital panels at transit stations throughout Houston, Texas. These panels will improve the rider experience by providing real-time arrival information and service alerts across Houston METRO's 3370-km^2 service area. This is the biggest contract ever won by GMV's North American company specializing in Software as a Service (SaaS) solutions and cloud software for the public ITS market.

11 Within the automotive sector GMV enlarges its already bulging client portfolio by winning a big contract for developing advanced, precise and safe GNSS-based positioning technology for the German carmaker BMW Group's new generation of autonomous vehicles. GMV's solution calculates the vehicle's position and other magnitudes, using advanced GMV-developed algorithms plus a GNSS correction service to be run in secure infrastructure using data from a global network of monitoring stations. Elsewhere, clients like Cintra Toll Services renew their trust in GMV, awarding a new contract for running and maintaining services and the DriveOn mobile application, allowing drivers to use high-occupancy lanes.

12 Achievements endorsed by prestigious recognition schemes include level 3 attainment (CL-3) of Automotive SPICE, a specific assessment scheme for automotive software processes. This gives a series of benefits in the management of development processes and guarantees total alignment with the constraints placed on this sector's software providers. Moreover, a project GMV is participating in, CITIES Timanfaya, wins the prize for the best mobility project. CITIES Timanfaya sets out to design a technology demonstrator vehicle to pave the way for running state-of-the-art, electric, adapted, autonomous and multimedia buses on Lanzarote's tourist route around the Montañas del Fuego volcanic landscape in the National Park of Timanfaya. This wins Lanzarote Council first prize in the Smart Mobility and Smart Tourism categories of the "enerTIC Awards".

13 In 2019 the project C-STREETS kicks off, a continuation of Portugal's original C-ROADS, a cooperative intelligent transportation services (C-ITS) project. GMV began working on this project back in 2017, and it has now been extended up to the end of 2023. GMV continues to work too under the ESCAPE project (European Safety Critical Applications Positioning Engine), in the field of autonomous driving. GMV is playing a key role in ESCAPE, which was brought to a successful conclusion at the end of the year. Other projects finishing this year were ENABLE-S3 and SafeCOP while work is still underway on C-ROADS and URBAN GreenUP; all these are key European mobility projects, increasing safety and environment friendliness.

Assessment

In 2019 GMV further strengthens its position as provider of Big Data solutions, where it boasts a highly skilled team of data scientists. During the year the company carries out Big Data projects in very diverse sectors, including artificial-intelligence-based bank fraud prevention, detection of cyberthreats and anomalies in data centers, monitoring and analysis of internet publicity campaigns, management of clinical and epidemiological data, evidence-based clinical rehabilitation, optimization of industrial processes, precision agriculture aided by earth observation, knowledge management, preventive maintenance of IT infrastructure, classification of documents and cognitive solutions with IBM Watson.

In keeping with this position, and mindful of the dearth of skilled professionals in areas like big data, artificial intelligence and cybersecurity, which is becoming one of the main barriers to business growth, GMV has been collaborating with various universities for over a decade now, helping them to train up a generation of highly skilled and specialized graduates. In 2019 it collaborated in several initiatives such as the Big Data Analytics Master Course of the *Universidad Politècnica de Valéncia* (UPV) and the Data, Complex Networks and Cybersecurity Sciences Master" of the DCNC Sciences Institute of Universidad Rey Juan Carlos.

E-government is another area where GMV has been working now for several years. GMV collaborates with the "CiudadesAbiertas.es" project, providing the "*Plataforma de Gobierno Abierto, Colaborativo e Interoperable*" (Collaborative and Interoperable Open Government Platform), which will allow citizens to check out the activity of their councils and make suggestions and proposals. The project, driven by Red.es, is one of the beneficiaries of the "II Convocatoria de Ciudades Inteligentes" (2nd Smart Cities Call) of the Ministry of Economics and Enterprise. Participating city councils are A Coruña, Madrid, Santiago de Compostela and Zaragoza.

In 2019 GMV wins a tender to provide IT services for the analysis, design, development and implementation of the new all-in management system of international protection applications (SIGESPI in Spanish initials) of the Ministry of the Interior. SIGESPI will allow the ministry of the interior to cope with the sharp increase in international protection applications, cut down the processing time and drive digital working. Furthermore, IDEAS, the patent-managing software developed by GMV in collaboration with the *Universitat Autónoma de Barcelona* (UAB), is taken up by several of Spain's universities and organizations.

In 2019 GMV continues to collaborate with Doñana Biological Research Station (*Estación Biológica de Doñana:* EBD) of the Higher Scientific Research Council (CSIC in Spanish initials) in modernization of the ICT of the Technical-Scientific Infrastructure of the Singular Biological Reserve of Doñana (*Infraestructura Científico-Técnica Singular Reserva Biológica de Doñana:* ICTS-RBD), with the idea of supporting research in the protected areas of this nature reserve and making it more accessible.

One of GMV's strong suits is the development of groundbreaking business-improvement solutions. In 2019 ***VirtualPAC***, GMV's trailblazing solution for deployment, management and secure operation of control systems involved in an industrial plant control and operation network, also continues to catch on. GMV also joins Automation Anywhere's Partners Program in order to provide organizations with Robotic Process Automation (RPA) solutions.

At the end of the year the Innovating Companies Forum (*Foro de Empresas Innovadoras:* FEI) presents the Extraordinary Chair of Innovation Studies (C*átedra extraordinaria de Estudios de la Innovación:* CESIN), set up jointly by FEI and the *Universidad Complutense de Madrid*. This chair, supported by GMV, brings together efforts from the Science-Government-Company triumvirate and is a unique proposal in the panorama of innovation studies in Spain.

ACTIVITIES 2019

Telecommunications and Information Technologies

TELECOMMUNICATIONS

GMV works closely with the main operators and providers of telecommunication and media services, offering tailor-made solutions to meet their needs:

- Development and consultancy of value-added services
- Cloud solutions
- IoT solutions
- Online channel and mobile Apps
- Specialized Cybersecurity services for operators
- Advanced network services testing and deployment of global services
- Third-party integration and provisioning systems
- Big Data solutions: network anomaly detection, client segmentation
- Network performance management
- Capacity planning
- 24x7 operation and support services

INFORMATION TECHNOLOGY FOR THE PUBLIC AND PRIVATE SECTOR

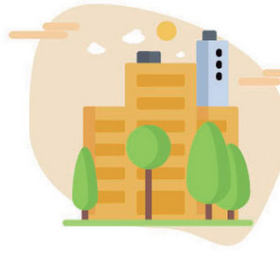
GMV designs, develops and implements state-of-the-art ICT solutions to improve the processes of leading organizations, acting as long-term technology partner. GMV's proven ability to come up with secure solutions has won it the trust of both government authorities and major companies.

This sector is continually developing at breakneck speed and our range has to be made increasingly complete and groundbreaking to keep up with the pace, 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 Apps
- IoT solutions
- Corporate email and agenda solutions and synchronization with mobile devices
- Open data platforms
- Cloud solutions
- Design, implementation and management of ICT infrastructure
- BI and Big Data solutions
- Messaging and mobility solutions
- User experience (UX) and usability consultancy
- 7x24 support and operation services
- Open Source developments

Telecommunications and Information Technologies. Main milestones

1 During this year IDEAS, patent-managing software developed by GMV in collaboration with the *Universitat Autónoma de Barcelona* (UAB), goes from strength to strength. New clients include universities and research centers like *Universidad Carlos III de Madrid* (UC3M), *Universitat Politècnica de Catalunya* (UPC), *Universitat Oberta de Catalunya* (UOC), *Universitat d'Alacant* (UA), *Universitat Politècnica de València* (UPV), *Institut Català d'Investigació Química* (ICIQ), *Institut Català de Nanociència i Nanotecnologia* (ICN2) and *Universitat Autònoma de Barcelona* (UAB) itself, all for the purpose of protecting the intellectual property of their researchers.



2 During 2019 GMV continues its collaboration with the "Ciudades Abiertas" (Open Cities) project, whose main aim is the full development of open-government policies in the participant cities, encouraging the publication of open data, developing participative projects and publishing inherently transparency-favoring service information. The "*Plataforma de Gobierno Abierto, Colaborativo e Interoperable*" (Collaborative and Interoperable Open Government Platform) revolves around four core ideas: open data, vocabulary, participation and transparency. The project, driven by Red.es, is one of the beneficiaries of the "II Convocatoria de Ciudades Inteligentes" (2nd Smart Cities Call) of the Ministry of Economics and Enterprise. Participating city councils are A Coruña, Madrid, Santiago de Compostela and Zaragoza.

3 In 2019 GMV takes part in Innovation Day, an international challenge organized by Telefónica's Data Unit (LUCA) to encourage a more reasonable use of artificial intelligence and big data. GMV's entry, aiming to reduce data's gender bias, stemming from an analysis of salaries in Spain, is hailed as one of the best.

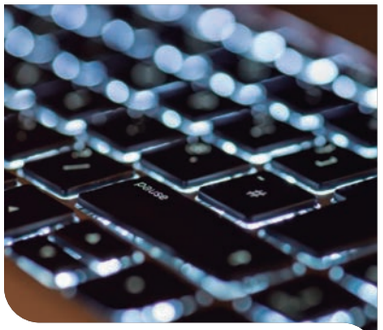
4 During this year ***VirtualPAC***, GMV's groundbreaking solution for deployment, management and secure operation of control systems involved in an industrial plant control and operation network, continues to catch on. Vendor independent and taking cybersecurity of productive processes into account in the takeup of Industry 4.0., this solution allows different control software modules to be deployed to improve processes or solve any defects, all without needing to shut down plant maintenance. Not only does it cut costs but it also offers smart solutions to reduce resource- and energy-demand.

5 In November the Innovating Companies Forum (F*oro de Empresas Innovadoras:* FEI) presents the Extraordinary Chair of Innovation Studies (*Cátedra extraordinaria de Estudios de la Innovación:* CESIN), set up jointly by FEI and the *Universidad Complutense de Madrid*. This chair, supported by GMV, brings together efforts from the Science-Government-Company triumvirate and is a unique proposal in the panorama of innovation studies in Spain. Its remit is to concentrate efforts in the study and assessment of public, in-company R&D policies and assess their real impact on technological, strategic and competitive behavior.

6 GMV joins Automation Anywhere's Partners Program in order to provide organizations with Robotic Process Automation (RPA) solutions. The use of RPA-based robots for managing any process not only streamlines the organization's workflow but also ensures maximum scalability and flexibility within the firm and personalized responsiveness to suit the specific needs of each particular client.

7 The shortage of skilled personnel in areas like big data, artificial intelligence and cybersecurity, is becoming one of the main barriers to business growth. For more than a decade now GMV has been collaborating with various universities to train up their students in these essential areas. As part of this ongoing endeavor, in 2019 it collaborates in several initiatives such as the Big Data Analytics Master Course of the *Universidad Politècnica de Valéncia* (UPV) and the Data, Complex Networks and Cybersecurity Sciences Master" of the DCNC Sciences Institute of *Universidad Rey Juan Carlos*.

8 In 2019, GMV continues to collaborate with Doñana Biological Research Station (*Estación Biológica de Doñana:* EBD) of the Higher Scientific Research Council (CSIC in Spanish initials) in modernization of the ICT of the Technical-Scientific Infrastructure of the Singular Biological Reserve of Doñana (*Infraestructura Científico-Técnica Singular Reserva Biológica de Doñana:* ICTS-RBD), with the idea of supporting research in the protected areas of this nature reserve and making it more accessible. In 2019 GMV collaborates in the development of a Science Gateway for analysis of data in the omics research area: genomics, transcriptomics, metabolomics, etc. The final objective is to offer specialized virtual laboratories that now include new capacities like the self-service toolkit and the generation of inhouse tools for genomic analysis, to facilitate training and transfer of knowledge in this specific area of biodiversity. It works as a pilot scheme to extend this working framework to other areas of research and biodiversity-related technologies like geospatial analysis.



9 In 2019 GMV wins a tender to provide IT services for the analysis, design, development and implementation of the new all-in management system of international protection applications (SIGESPI in Spanish initials) of the Ministry of the Interior. In keeping with the ministry's digital transformation plan, this system will be developed using Cloud Native architectures based on microservices and containers, and will be integrated with the e-government services of the General Secretariat of Digital Administration. SIGESPI will allow the ministry of the interior to cope with the sharp increase in international protection applications, cut down the processing time and drive digital working, cutting down paper use.

Social responsibility

Mindful of its responsibilities to the present and future society, GMV constantly strives to make a better use of its resources, improving its process efficiency by using state-of-the-art technology.

GMV's corporate social responsibility therefore includes a general set of long-term goals:

Act in a responsible and ethical way in all our activities and ensure that our employees, clients and suppliers do likewise with their stakeholders.

Reduce the environmental impact of our operations and carry out eco-friendly initiatives.

Contribute to the creation of a more sustainable society, providing groundbreaking solutions that improve the quality of life, helping people to integrate into society and join the working force.

Human capital

Right from the word go GMV has made its personnel policy one of the kingpins of its whole business project. We at GMV are convinced that a staff of top professionals is the best way to gain a competitive edge over the rest. GMV therefore aims to attract the best professionals and then ensure they stay with the company to pursue their careers and realize their full potential. GMV offers them a unique teamwork environment where their talent, imagination and mettle are continually challenged and stimulated.

In line with this overall policy GMV always applies a strategic human resources plan based on three mainstays: a painstaking personnel-selection policy, a stable environment in which to pursue their careers and continuous top-up training.

Attracting and nurturing top talent is a cumbersome and time-consuming business. The priority must therefore be to make good this investment by retaining our whole personnel. By dint of a long-sighted commitment to technology and innovation, diversification of the business into various sectors and breaking into new international markets, GMV has indeed managed to achieve this aim. This stands us in good stead for maintaining our economic growth into the future. GMV closed the year with a staff of 2,176, 83% of whom are university graduates.

GMV has always pursued a painstaking personnel-selection procedure; it has been equally determined to provide this pool of talent with a stable environment for developing their careers. This keynote policy has enabled it to maintain a high level of open-ended employment contracts, a rate of 95% in 2019. To meet our commitment to our employees, our personnel policies guarantee equal treatment of all our staff and encourages diversity, from the job-selection process and then throughout their whole careers in the company. In fact 24% of GMV's staff are women, who also represent 18% of senior management. Our staff is a mix from 41 different nationalities and the average age comes out at about 35.

One of the main planks of the human resources policy is continuous training. This makes good sense because the company's business lines call for specialist and bang-up-to-date knowledge of the most cutting-edge technologies. To develop the professional skills of its employees GMV works with an integrated training model to pinpoint its employees' knowledge and skills. In all, 3,806 training courses were held in 2019 on both an individual and group basis, adding up to a sum total of 36,720 training hours.
GMV liaises permanently with study centers and universities both at home and abroad, whether by way of temporary agreements, academic grants to help university students join the job market, or more permanent project-based collaboration agreements. This habitual liaison with universities has been reinforced by an increasing participation of GMV in various employment forums and encounters such as lectures, chats and workshops.

As part of its ongoing commitment to academia, GMV has been maintaining a collaboration agreement called the "Cátedra GMV" (GMV Chair) since 2004, in collaboration with the Higher Technical School of Aeronautical Engineers (*Escuela Técnica Superior de Ingenieros Aeronáuticos*: ETSIA). Under this agreement the company collaborates in the training of experts in aerospace systems while also carrying out R&D in this area. GMV also collaborates closely with the UPM's Higher School of IT Engineers (*Escuela de Ingenieros Informáticos:* ETSISI), with a group of university students participating in GMV from the university itself. GMV also runs an annual internship scheme, holding various initiatives throughout the whole of 2019. In this year 106 of the 191 interns eventually joined the company as employees.

True to the company's university roots, GMV collaborates in various academic events and organizes different activities with the academic world. The aim is always the same: stoke up a passion for the world of technology. During 2019 it gave chats in various primary and secondary schools and formed part of awareness-raising events such as Science and Innovation Week organized by *Fundación para el Conocimiento madri+d*. It also provided scope for the most enquiring minds in various national, European and international competitions like the national Grand Finale of the First Lego League (2018/2019), Caesaraugusta CanSat España, the national phase of Eurobot and the Olympus Rover Trial organized by UKSEDS.

GMV always supports budding technology talent wherever it blossoms. In 2019 it took part in various initiatives to encourage feminine talent, such as Fundación Asti's STEM Talent Girl, which argues for greater male-female equality in science-technology careers; Fundación Altran's BE TalentSTEAM campaign and the Management Excellence Club (*Club Excelencia en Gestión*). It also participated in various workshops of the International Day of Women and Girls in Science.

Excellence management

Right from the start way back in 1984 GMV has always regarded excellence as one of the most important factors driving sound and sustainable development. Excellence has imbued all its lines of activity and processes throughout these years, taking the specific form of a company-wide delight in doing things well, a continual search for innovation and an attitude of constant improvement. This ongoing pledge to excellence and continual improvement works not only at an internal level, ensuring all the company's projects are carried out efficiently, but also outwardly towards the customer, making sure the products, systems and services delivered match or even exceed expectations.

All GMV's various management systems have been designed with this overall aim in mind. Either on its own initiative or in response to the requirements laid down in the various markets it trades in, all GMV's QMSs are designed in light of the international standards applicable directly to the company's several business lines.

The various management systems of the company's subsidiaries, including quality, information security and environmental commitment, are all certified under national and international standards of varied ilk and scope. Furthermore, the sheer technological complexity of GMV's developments, as well as the disparate nature of each GMV company's particular market, means that each of these subsidiaries needs its own standards, improvement models and certifications to suit its particular areas of activity and specialization, as recorded below.

GMV is well aware that excellence is not achieved with a single certification or title but rather depends on the ongoing workmanship and involvement of the whole staff.

GMV Aerospace and Defence S.A.U.

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 Quality management*
- *PECAL/AQAP 2110, PECAL/AQAP 2210 & PECAL/AQAP 2310 Specific for purposes of defense*
- *UNE-EN 9100:2016 Quality systems in the aerospace and defense sector*
- *UNE-EN ISO14001:2015 Environmental systems*
- *ISO 50001:2011 Energy management systems*

GMV GmbH

- *CMMI Level 5*
- *NRTL-C/US*
- *ISO 9001:2015 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 ISO14001:2015 Environmental systems*
- *ISO/IEC 27001:2013 Information security management*
- *ISO 22301:2012 Business continuity management. Resilience*
- *UNE 166002:2014 R&D management*
- *RD 3/2010 National Security Scheme (Esquema Nacional de Seguridad: ENS), Spain*
- *CEN/TS 16555-1:2013 Innovation Management*
- *UNE-EN ISO 50001:2011 Energy management systems*

GMVIS Skysoft S.A.

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 (ICT for Business Scope) Quality management*
- *UNE-EN ISO 9001:2015 (Space, Defense and Intelligent Transportation Systems Scope) Quality management*
- *ISO 14001:2015 Environmental systems*
- *ISO/IEC 27001:2013 Information Security management*
- *UNE-EN 9100:2016 Quality systems in the aerospace and defense sector*

GMV Innovating Solutions, Inc.

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 Quality management*
- *ISO14001:2015 Environmental management systems*
- *ISO 50001:2011 Energy management systems*

GMV Innovating Solutions Sp.z o.o

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 Quality management*

GMV Innovating Solutions S.R.L

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 Quality management*

GMV Sistemas S.A.U.

- *CMMI Level 5*
- *UNE-EN ISO 9001:2015 Quality management*
- *UNE-EN ISO14001:2015 Environmental systems*
- *ISO 50001:2011 Energy management systems*
- *UN/ECE Regulation 10: Type approval process*

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Economic and financial results

FINANCIAL STATEMENTS 2019

BALANCE SHEET

ASSETS	2018	2019
Fixed assets	41.135.579,17	54.329.461,52
Total fixed assets	**41.135.579,17**	**54.329.461,52**
Inventories	22.729.252,87	24.958.016,35
Accounts receivable	14.225.339,49	24.054.120,34
Trade debtors	*40.827.903,27*	*49.103.159,14*
Trade services on account	*-29.696.435,95*	*-31.045.569,93*
Other debtors	*3.093.872,17*	*5.996.531,13*
Cash	23.229.643,78	15.171.290,78
Total current assets	**60.184.236,14**	**64.183.427,47**
Total assets	**101.319.815,31**	**118.512.888,99**
Working capital	31.337.251,59	25.875.780,18
Working capital/Equity	43,24%	32,26%

LIABILITIES	2018	2019
Stockholders' equity	54.535.304,49	59.695.872,91
Capital grants	452.585,81	444.654,12
Minority interests	5.596.018,40	5.854.290,64
Long-term funding	11.888.922,06	14.210.424,03
Interest free credits	*5.984.975,68*	*4.564.872,31*
Long term funding	*5.903.946,38*	*9.645.551,72*
Total Long-term Funding	**72.472.830,76**	**80.205.241,70**
Short term liabilities	24.037.224,33	33.179.181,19
Bank loans and overdrafts	*7.274.132,99*	*11.407.102,47*
Non-trade payables	*16.763.091,34*	*21.772.078,72*
Deferred payments	4.809.760,22	5.128.466,10
Total short term liabilities	**28.846.984,55**	**38.307.647,29**
Total liabilities	**101.319.815,31**	**118.512.888,99**
Working balance	31.337.251,59	25.875.780,18
Working balance/fixed asset	76,18%	47,63%

PROFIT AND LOSS ACCOUNT

EXPENSES	2018	2019
Purchase of goods	61.205.271,29	77.920.393,16
Ancillary Services	14.143.297,35	17.629.924,61
Taxes	1.025.517,44	532.992,47
Employee Costs	106.667.619,09	124.567.254,15
Financial Expenses	781.153,68	719.777,12
Extraordinary Expenses	25.626,60	19.791,40
Period Depreciation and Amortization	5.336.438,79	6.041.046,27
Appropriations, transfer to Provisions	422.621,64	1.955.680,71
Total Expenses	**189.607.545,88**	**229.386.859,89**
Corporate income tax	1.029.824,40	1.154.995,28

INCOME	2018	2019
Turnover	191.300.415,32	231.405.457,14
Own expenses capitalized	3.232.230,89	4.729.756,80
Operating grants	276.873,57	324.802,56
Financial Income	471.608,83	275.743,26
Extraordinary Income	456.954,40	114.413,15
Total income	**195.738.083,01**	**236.850.172,91**
Pre-tax profit	**6.130.537,13**	**7.463.313,02**
Post-tax profit	**5.100.712,73**	**6.308.317,74**

CASH FLOW STATEMENT

OPERATING ACTIVITIES	2018	2019
Profit after tax	5.100.712,73	6.308.317,74
Depreciation and amortization	5.336.438,79	6.041.046,27
Operating Cash Flow	**10.437.151,52**	**12.349.364,01**
Net finance expense	781.153,68	719.777,12
Corporate income tax	1.029.824,40	1.154.995,28
EBITDA	**12.248.129,60**	**14.224.136,41**
(Increase) / decrease in trade and other receivables	2.812.919,01	-12.057.544,33
Increase / (decrease) in trade and other payables	-1.097.535,86	5.008.987,38
(Decrease) / increase in provisions	3.218.982,42	318.705,88
Deferred income (capital grants)	-276.873,57	-324.802,56
Cash flow generated from operationss	**16.905.621,60**	**7.169.482,78**
Tax paid	-1.029.824,40	-1.154.995,28
Net cash flow from operating activities	**15.875.797,20**	**6.014.487,50**

INVESTMENT ACTIVITIES	2018	2019
Purchase of subsidiary undertaking (Goodwill)	-1.189.236,32	-1.189.236,32
Capital expenditure - plant and equipment	-3.158.457,66	-13.541.125,66
Capital expenditure - intangible assets	-3.908.976,57	-4.504.566,64
Net cash flow from investing activities	**-8.256.670,55**	**-19.234.928,62**

FINANCING ACTIVITIES	2018	2019
Net new debt (debt increase + debt repayments)	-4.222.703,02	6.454.471,45
Capital Grants and subsidies on capital	256.696,78	316.870,87
Interest paid	-781.153,68	-719.777,12
Dividends paid to equity shareholders	-654.997,20	-1.151.299,10
Paid-in capital / Adjustments to the equity value	1.127.033,61	1.613.669,94
Minority Interests	-594.318,59	258.272,24
Results attributable to the Minority Interests	-1.216.002,17	-1.610.120,16
Net cash flow from financing activities	**-6.085.444,27**	**5.162.088,12**
(Decrease) / increase in cash and cash equivalents	**1.533.682,38**	**-8.058.353,00**
Cash and cash equivalents at beginning of year	21.695.961,40	23.229.643,78
Cash and cash equivalents at end of year	**23.229.643,78**	**15.171.290,78**